

# Regulating Rural Water Supply Services



A comparative review of existing and emerging approaches  
with a focus on GIZ partner countries

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## ABBREVIATIONS

<b>ACEP</b>	<i>Associations des Consommateurs d'Eau Potable</i> , water consumers associations (Benin)
<b>AHAMR</b>	<i>Agence Burundaise de l'Hydraulique et de l'Assainissement en Milieu Rural</i> , National Rural Water and Sanitation Agency (Burundi)
<b>ANA</b>	Agência Nacional de Águas, National Water Agency (Brazil)
<b>ANAEPMR</b>	<i>Agence Nationale de l'Approvisionnement en Eau Potable en Milieu Rural</i> , National Rural Drinking Water Supply Agency (Benin)
<b>Arce</b>	<i>Agência Reguladora de Serviços Públicos Delegados do Estado do Ceará</i> , Regulatory Agency for Delegated Public Services of Ceará State (Brazil)
<b>AREEM</b>	<i>Agence de Régulation des secteurs de l'Eau potable, de l'Electricité et des Mines</i> , Agency for the Regulation of Water Supply, Electricity and Mines (Burundi)
<b>Cagece</b>	<i>Companhia de Água e Esgoto do Estado do Ceará</i> , Water and Wastewater Company of Ceará State (Brazil)
<b>CORAL</b>	<i>Comissao Reguladora de Água Local</i> , local water regulatory commission (Mozambique)
<b>CRA</b>	<i>Conselho de Regulação do Abastecimento de Água</i> , Water Supply Regulatory Council (Mozambique)
<b>CREE</b>	<i>Commission de Régulation de l'Electricité et de l'Eau</i> , Water and Electricity Regulatory Commission (Mali)
<b>CU</b>	Commercial Utility
<b>DG-Eau</b>	<i>Direction Générale de l'Eau</i> , General Water Directorate (Benin)
<b>DHIS2</b>	District Health Information System 2 (Zambia)
<b>DMF</b>	Delegated Management Framework
<b>DNH</b>	<i>Direction Nationale de l'Hydraulique</i> , National Water Directorate (Mali)
<b>DWI</b>	Drinking Water Inspectorate (England and Wales)
<b>GIZ</b>	<i>Gesellschaft für Internationale Zusammenarbeit</i> , German International Cooperation
<b>HRtWS</b>	Human Rights to Water and Sanitation
<b>IM</b>	Integrity management
<b>KfW</b>	<i>Kreditanstalt für Wiederaufbau</i> , German Development Bank
<b>LA</b>	Local Authority
<b>LIA</b>	Low-income area
<b>LNOB</b>	Leave no one behind
<b>MEM</b>	Ministère de l'Eau et des Mines, Ministry of Water and Mines (Benin)
<b>NWASCO</b>	National Water Supply and Sanitation Council (Zambia)
<b>PDDAEPMR</b>	<i>Plan Directeur de Développement du sous-secteur de l'Approvisionnement en Eau Potable en Milieu Rural</i> , National Master Plan for Rural Water Supply Development (Benin)

<b>PLANSAB</b>	<i>Plano Nacional de Saneamento Básico</i> , National Water and Sanitation Plan (Brazil)
<b>PRONASAR</b>	<i>Programa Nacional de Abastecimento de Água e Saneamento Rural</i> , National Rural Water Supply and Sanitation Programme (Mozambique)
<b>PSAA</b>	<i>Pequenos Sistemas de Abastecimento de Água</i> , small water supply systems
<b>RCE</b>	<i>Régies Communales de l'Eau</i> , Water Users Associations (Burundi)
<b>REGIDESO</b>	<i>Régie de Production et de Distribution d'Eau et d'Electricité</i> , national water and electricity utility (Burundi)
<b>RU</b>	Regulatory Unit
<b>SDGs</b>	Sustainable Development Goals
<b>SIASAR</b>	<i>Sistema de Información de Agua y Saneamiento Rural</i> , Rural Water Supply and Sanitation Information System (Latin America)
<b>SISAR</b>	<i>Sistema Integrado de Saneamento Rural</i> , Integrated Rural Water Supply and Sanitation System (Brazil)
<b>SOMAGEP</b>	<i>Société Malienne de Gestion de l'Eau Potable</i> , national urban water utility (Mali)
<b>SONEB</b>	<i>Société Nationale des Eaux du Bénin</i> , national water utility (Benin)
<b>SOWAS</b>	Services on water and sanitation
<b>SRSP</b>	<i>Service de Régulation et du Suivi du Patrimoine</i> , Regulation Service (Benin)
<b>STEFI</b>	<i>Suivi Technique et Financier</i> , technical and financial monitoring (Mali)
<b>UBA</b>	<i>Umweltbundesamt</i> , Federal Environment Agency (Germany)
<b>WASH-MIS</b>	Water, Sanitation and Hygiene Management Information System (Zambia)
<b>Wasreb</b>	Water Sector Regulatory Board (Kenya)
<b>WMC</b>	Water Management Committee
<b>WSP</b>	Water Service Provider
<b>WSTF</b>	Water Sector Trust Fund (Kenya)

## EXECUTIVE SUMMARY

This study responds to calls within GIZ to extend its considerable expertise in pro-poor regulation, which to date has largely centred on improving access to water services in urban low-income areas. Rights-based global commitments to addressing the persistent access gap between urban and rural areas have prompted a fresh look at the potential role of regulation. Guided by a review of the literature and expert insights, this study examines eight country case studies to explore the question of regulatory oversight for rural water supply services in the context of widely pledged universal service aspirations. Regulation is deliberately interpreted as a set of functions and competencies and a dynamic process involving providers and consumers as active participants.

Overall, the research corroborates the previously reported findings that working regulatory frameworks for rural water supply have yet to be fully developed; few existing sector regulators have an explicit responsibility to oversee and/or facilitate rural service extension and improvements. A sustainable and realistic approach to ‘leaving no one behind’ requires both imagination and pragmatism, akin to the service differentiation that has been successfully promoted in urban areas. ‘Performance monitoring plus’ is proposed as the most promising approximation to rural water services regulation, where positive advisory support is offered alongside the indispensable monitoring of services.

Embedding regulation in an enabling sector framework and securing political support will always be an incremental process. The case studies confirm that regulatory design can start with relatively simple mechanisms. These can gradually evolve into providers being held to account in more ‘conventional’ ways as the rural system – and the regulatory process – transition towards a greater level of professionalisation. Some creative solutions to the problem of finding flexible, low-cost strategies to extending regulatory oversight to the local level are worth taking note of: STEFI, the Malian independent auditors, CORALs, the Mozambican mechanism for local proxy regulation, and the Brazilian rural services management model SISAR, which is entirely self-regulated but manifestly sustainable.

The study concludes with recommendations for further discussion, including widening the scope of research. The challenge of regulating small-scale water supply and sanitation systems to ensure safe service provision is by no means confined to the developing world. As regulatory mandates are becoming increasingly framed by universal rights, valid questions arise regarding priorities and allocation of responsibilities in the water sector. The findings support the notion of using technology and management models rather than the conventional rural-urban divide as starting points for creating countrywide regulatory frameworks. Water service regulators increasingly look to shore up system resilience and long-term security of supply, both of which are challenged by wider environmental trends, notably climate change. There is also strong evidence that non-networked services or self-supply, often heavily reliant on groundwater, can be expected to remain a common feature of rural water supply landscapes. Both lend weight to calls for greater institutional integration of economic, quality and environmental aspects of water regulation.



# 1 MOTIVATION AND BACKGROUND OF THE STUDY

Over the past decade and a half, the *Gesellschaft für Internationale Zusammenarbeit* (GIZ) has developed considerable expertise in pro-poor regulation with a focus on urban and peri-urban areas. With the adoption of the human rights to water and sanitation (HRtWS) and the Sustainable Development Goals (SDGs), governments are signalling their commitment to universal access at a higher level of service. The ‘leave no-one behind’ (LNOB) principle, a central pledge of Agenda 2030, is prompting a fresh look at persistent inequities, notably between urban and rural services. The latter appear to be receiving lower priority in many respects and from many stakeholders. While there is an observable trend towards urbanisation, many of the world’s unserved and underserved millions live in rural areas (see box 1). Here, regulatory frameworks are less well defined, and regulating is less straightforward due to lower population densities and the usually highly fragmented provider landscapes.

Although some of the GIZ-supported regulators are beginning to recognise and address this challenge, there is comparatively little knowledge on typical problems and existing approaches. This study was commissioned to address this gap and, where possible, share insights and extract first lessons learnt. It follows a specific request of the GIZ SOWAS Working Group on Scaling Up Access to Drinking Water and Sanitation, who at their meeting in April 2018 raised the question of whether and how some successful aspects of regulatory oversight could be extended into rural areas to help realise their partner countries’ universal service aspirations.<sup>1</sup> The **overall objective for this study** was to investigate what an appropriate level of regulatory oversight for rural water supply services would entail and what entry points there could be for strengthening regulation in rural areas.

This report will first address some methodological and conceptual considerations that shaped the study approach (chapter 2). Chapter 3 then presents a review of the published literature, followed by country case studies in chapter 4. Key observations are discussed in chapter 5. The final chapter offers some thoughts on how these initial findings could be extended through further research and where discussions could usefully focus in the future.

## Box 1: The rural–urban divide in access to water services

Global monitoring reports strong progress in extending access to rural water supply, with approximately 80% of people now having access to a basic level of service, compared to 95% of those living in urban areas. The rural–urban divide becomes even more apparent when looking at ‘safely managed services’, the target introduced by SDG 6: here, rural areas trail urban services by a whole 30 percentage points (55% and 85% respectively; WHO and UNICEF, 2017). Of every ten people still unable to access at least

basic drinking water services, eight live in rural areas, where drinking water piped directly into the home, at 20%, is also far less common. Driven by rural–urban migration and a general rise in living and educational standards, expectations for rural water services are rising (Moriarty et al. 2013), and governments have the Human Right to Water and their new SDG commitments in their sights. Fragile financial viability remains a key factor preventing sustainable universal access in rural areas, where infrastructure failure is a frequent problem.

1) GIZ also commissioned a parallel study to help formulate policy recommendations to strengthen German Development Cooperation in the rural water supply sector, which takes a much broader view of the framework for rural water development and provides some useful context for regulation in these areas.



## 2.1 Research approach

The study has been conceived as a piece of comparative case study research, guided by a review of the ‘international state of the art’ according to the literature, to ‘contribute to the development of international thinking on regulatory approaches for rural water supply in developing countries’.<sup>2</sup> The research was intentionally framed to look at all types of existing and potential arrangements for water services regulation,<sup>3</sup> and was not restricted to cases where dedicated regulatory agencies are in place. Instead, it investigated the various approaches that exist or are being considered for the different aspects of regulating rural water services.

**Case studies** included GIZ country programmes with a focus on rural water supply (Benin, Burundi, Mali and Zambia) as well as additional countries with potentially interesting approaches to monitoring and regulating rural water services (Brazil, India, Kenya and Mozambique). The selection was constrained by the short timeframe of the project and availability of informants, making it likely that this initial study would require further in-depth research. The research relied on extensive document reviews of the published and grey literature as well as stakeholder interviews, though this did not involve in-country research. Additional inputs were provided by key resource persons within GIZ and KfW and other experts (appendix 1).

### Box 2: The heterogeneity of rural water supply contexts

It is now widely acknowledged that population densities spread along a continuum, ranging from metropolitan cities to isolated rural homesteads. Some rural populations may have no fixed settlements at all. This has consequences for economic wealth and users’ water needs, requiring a closer look at their characterisation.

For household consumers, it has been suggested to consider not only their number, population density and proximity to the nearest urban centre (and hence networked water infrastructure). Financial resources and levels of education (starting with

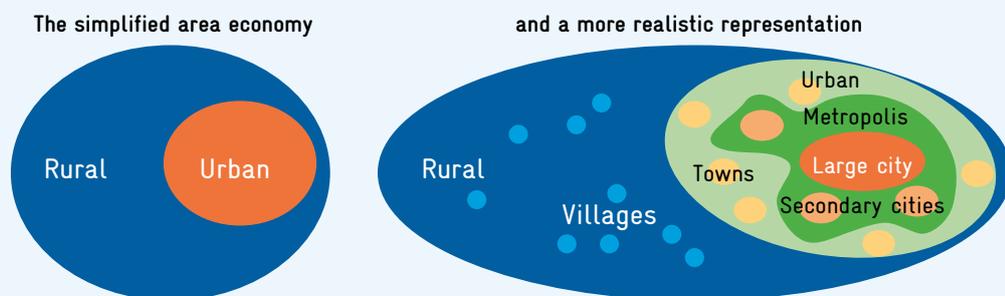
literacy) are relevant, as are social segmentation and/or segregation issues (caste/clan/tribes, beyond gender, religion etc.)

All of the above can have significant bearing on possible and acceptable water supply options, adding to any natural constraints on resources availability (i.e. the hydro-geological context).

Figure 1 shows the critical role of this heterogeneity of rural water supply contexts and the necessary differentiation of solutions for a sustainable and realistic approach to ‘leaving no one behind’ was pointed out by Richard Franceys.

Figure 1:  
from ‘From  
dichotomy to  
a continuum: a  
portfolio of places’

(World Bank 2009),  
reproduced in Danert  
and Flowers 2012



2) Consultant’s TOR.

3) Looking at water supply (rather than water and sanitation) in the first instance was a deliberate choice set out in the consultant’s TOR.

## 2.3 Defining 'rural' areas

First of all, while a distinction between 'urban' and 'rural' services is made in every country and it is used in global monitoring programmes, there is worth noting that a standard definition does not exist. Even countries within the same region will be using different characteristics and boundaries to distinguish rural and urban populations, traditionally based on observed lifestyle differences and assumed higher standards of living in urban centres. A common classification is by population size of localities, though some countries choose to account for 'socio-economic structure of the population' or population density (UNSD, 2014; 2017).

It has been noted that the current definitions of rural-urban boundaries are fairly arbitrary, and the resultant impact on monitoring service coverage can be significant (Bartram et al. 2014). Entire volumes have been dedicated to the rural-urban dichotomy and the 'peri-urban' fringe that straddles the two (e.g. Kurian and McCarney, 2010). This may be of interest to those coming to rural water services regulation from an urban perspective: demands, needs and expectations of rural consumers will be different again from the peri-urban areas existing regulatory regimes are beginning to grapple with. For simplicity, this study investigates 'rural' services as they are customarily defined in the case study countries.

Given the frequent association of rural settings with notions such as 'dispersed' and 'small', it is worth noting that there is also no internationally consistent definition for small water supply systems. 'Small supplies' in the US and the EU, for instance, may serve up to 3,300 or 5,000 people, respectively, with implications for regulatory frameworks (Hendry and Akoumianaki, 2016).

## 2.3 The concept of regulation in the context of rural water supply and the case studies

Viewed from the urban perspective – as water services regulation so often is – the realities of rural life provide a remarkably varied array of settings in which water 'services' are expected to deliver. This heterogeneity of rural water supply contexts (see box 2) significantly adds to the complexity (and expense) of possible solutions – for service provision as well as 'regulation'. The impact of different (and changing) population densities and the resultant spectrum of settlements are increasingly recognised. Consideration of other defining characteristics (including social, cultural, environmental, economic and institutional resources) is equally necessary to understand the challenge of leaving no-one behind.

It is widely accepted that water supply, which in the case of networked service can be most economically provided by a single supplier, requires regulatory oversight to avoid monopoly abuse. Though the precise interpretations of the concept of water services regulation may differ, there is little question that it derives from a need to protect customers from excessive service charges and poor service.<sup>4</sup> There are of course wider societal, public health and environmental issues at stake if water services are not delivered efficiently, equitably and sustainably.

This study looks at water services regulation, which comprises economic and quality (specifically water quality) regulation. Though there are obvious and significant interdependencies between water services and the resources required to provide them, environmental aspects usually fall within the remit of water resources regulation (see box 3).

The archetypal independent regulatory agency is the exception rather than the norm in many of the contexts investigated for this study. Where they do exist, these regulators are only just beginning to extend their activities into rural settings. For this reason, the study interprets 'regulation' as a set of functions and competencies that are – or should – be performed, irrespective of the exact institutional arrangements and mechanisms that exist in a given country.

4) Though of course, the instances where service levels and long-term sustainability are jeopardised by tariffs being kept too low and providers' failures go unchallenged, are an all too common scenario.

In the context of the ‘leave no-one behind’ principle and the move towards professionalising rural service provision, these key functions are

- 🔧 standard setting,
- 🔧 performance monitoring (and enforcement),
- 🔧 tariff setting (tied in with some scrutiny of investment planning), as well as
- 🔧 consumer engagement (including feedback, complaints and redress mechanisms).

It is important to avoid the misinterpretation of ‘regulation’ as ‘preparation of rules and regulations’. In that sense, regulatory frameworks for water supply, however weak, exist virtually everywhere in the world. There is a distinction between the general rules and regulations that apply to the sector (rules-based ‘sector regulation’ deriving from the legal framework) and service regulation, which operates within these rules.

**This study considers regulation as a dynamic process** that involves regulated service providers (in whatever form they exist) and consumers/service recipients as active participants. This process involves a delicate balancing act on the part of the ‘regulators’ to deliver the outputs desired by customers and society against the (financial) inputs they and their elected governments are willing to contribute (Franceys and Gerlach, 2015).

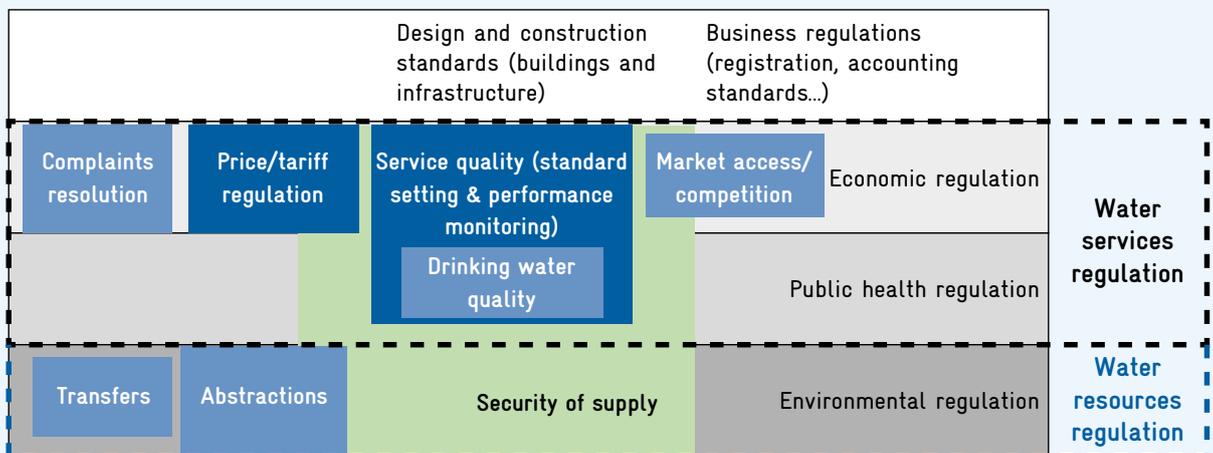
**Box 3: Elements of water (services) regulation**

As the illustration shows, economic regulation comprises elements of service quality, and it is not uncommon for regulators in charge of licensing and tariff setting to monitor water quality as well. Service quality comprises other aspects beyond the ‘product’ itself, including reliability (e.g. hours of service, water pressure), customer service (e.g. information provision, billing, complaints handling), efficiency.

All necessary regulatory functions exist within the wider legal framework (water, environment, companies and contractual law, to name but a few), which again provides a layer of regulation. Where these particular functions and responsibilities are anchored (single or several autonomous agencies, government departments), or whether they are wholly or partly governed by contracts, varies from country to country. Regulatory models tend to follow different ‘schools’ and traditions, descriptions of which can be found in the relevant literature.

Figure 2:  
Key elements of  
water sector  
regulation

(author’s  
illustration)





## 3 EXISTING LITERATURE ON RURAL WATER SERVICES REGULATION

### 3.1 Regulatory reform: the origin of the 'urban bias' of water services regulation

In urban areas, the trend towards universal basic service provision has been supported by improvements in regulatory frameworks. Water sector reforms in many countries have introduced a formal separation of policy-making, regulation and service delivery. Some chose to establish water services regulators to monitor and enforce better performance of professionalised utilities, which are predominantly found in urban areas. Utilities regulation, especially the regulation-by-agency model, of course originated in the context of market liberalisation.<sup>5</sup> While water services regulation continues to evolve to respond to societal changes around the world, the regulatory rationale was necessarily different in low- and middle-income settings from the very outset. Here, regulators were having to balance calls for greater cost-reflectivity of tariffs to support ailing infrastructure and the pressing need for sustainable access expansion with critical affordability concerns – seemingly conflicting objectives that were politically highly sensitive (Gerlach and Franceys, 2010).

The successful concept of 'socially responsible commercialisation', which acknowledges the social dimension of service provision (and, by extension, regulation) emerged in the cities of Sub-Saharan Africa (Wasreb, 2007; Werchota et al., forthcoming). Although core regulatory tools and functions rightly fall in the economic domain, regulators have stood at the forefront of customer-oriented service improvement, and have championed pro-poor approaches to reach out to unserved and underserved urban communities (Schäfer et al. 2009). With the inclusion of peri-urban areas into utilities' formal service areas, the reach of regulated service provision has extended into some areas that are arguably 'rural', at least from an official/administrative point of view.

### 3.2 Frameworks for rural water services regulation

Comparable regulatory frameworks for rural services are largely non-existent (Lockwood and Smits, 2011; Trémolet, 2013). Danert (2015) observes that 'on the whole, there is very little regulation of those who fund, construct, operate, or manage water supply services in rural areas.' A recent review of existing service delivery models for rural water around the world (World Bank, 2017) reports progress in terms of national (sector) monitoring in some countries, but notes that it is less common to find the outputs proactively used for regulatory purposes. Some emerging good practices were found in the sixteen case studies, ranging from formal registration of small operators, dedicated oversight agencies or units (whose efforts are hampered by political interference) and increased social accountability and consumer feedback mechanisms to contract-based regulation. The implementation of economic aspects of regulation (tariffs and investment planning) are reported to be significantly weaker than quality regulation (service standards).<sup>6</sup>

Regulation is increasingly recognised as necessary and potentially powerful. The recent report of the UN Special Rapporteur to the Human Rights Council (Heller, 2017) is a high-profile example of advocacy for better regulation. Presenting service regulation as a 'tool for transformation', Heller focuses on the role of regulatory frameworks to support the implementation of the HRtWS at the national level. His report specifically calls for priority service expansions into rural areas, alongside other poor, informal and underserved areas. He also raises the need for regulation to provide a 'multifaceted and differentiated interpretation of affordability, capturing the specific needs of those living in vulnerable situations.' It is interesting to note that 'poverty orientation' and 'pro-poor services', key phrases in the urban context, feature much less prominently (if at all) in key reports and papers with a rural focus, presumably because rural poverty is an accepted reality.

5) There is an argument that economies of scale not only apply to service provision, but these extend to regulation, again explaining the early urban bias in many countries.

6) In some countries, emphasising economic aspects of water supply is perceived as contradictory to deeply held cultural values regarding water as a social rather than an economic good (Gerlach, 2011). This study deliberately avoids the term 'economic regulation', instead referring to 'water services regulation' to make a clear distinction from water resources aspects of regulation

Incidentally, even where sound frameworks for water services regulation are presumed to exist, governments are still searching for options to improve management, regulation and governance of small-scale rural water supplies. Results of comparative research commissioned by the Scottish Government add interesting insights from EU member states and various other countries: Hendry and Akoumianaki (2016) note that the ‘typically rural’ problems are by no means confined to the developing world. Small supplies around the globe are associated with underperformance and non-compliance, especially with regard to water quality standards, as well as inconsistent and inadequate monitoring and reporting. An assessment commissioned by the WHO that covered 43 of the 53 countries in its pan-European region found that ‘a combination of independent surveillance for small-scale water supplies by responsible authorities and self-checking by operators was required in less than half of the responding countries and regions’ (Rickert et al. 2016b, p. 24).

### 3.3. The challenge of regulating rural water services

Rural water services are seeing a shift from mere hardware provision (infrastructure development as a priority) towards a greater level of professionalisation (stressing service aspects – see box 4 below), even within the dominant community management model. This ‘service delivery approach’ emphasises support to providers and oversight by ‘service authorities’, often at local government level, with appropriate accountability mechanisms to ensure that services meet accepted and enforceable performance standards. The literature offers few insights into the exact workings of economic and quality aspects of regulation of rural water supply, whilst advising against attempts to merely try and extend existing urban approaches to rural settings. Regulation on the part of these service authorities, which may also function as ‘support agents’, could be ‘light touch’, should involve systematic performance monitoring against a set of measurable service indicators beyond simple ‘functionality’, might focus on support and incentives rather than sanctions, but must address the question of securing adequate funding streams, not only from user contributions but also taxes and transfers (Lockwood and Smits, 2011; Moriarty et al. 2013).<sup>7</sup>

Decentralisation and fragmentation of rural water supplies is commonly cited as an obstacle to efficient management and regulation, even in wealthier countries (e.g. Salvetti, 2014). Economies of scale notwithstanding, the literature does not offer judgements on ‘right’ or ‘wrong’ approaches to anchoring regulation, but insists that a blurring of roles – and with it, accountability – should be avoided. Semi-autonomous performance monitoring units within sector ministries can be a good approximation to independent regulation; alternatively, contractually defined tariffs and service standards, backed by national-level guidance for greater effectiveness, can help overcome capacity constraints of local authority regulators (Trémolet, 2013). Pragmatism should rule when selecting regulatory tools and instruments to ensure these are cheap and straightforward.

Quoting international expert views, Hendry and Akoumianaki (2016) suggest that the problem of safe and sustainable operation of water supplies is framed by the availability of technical, human and financial resources. It is the comparable lack of the latter that sets small systems apart from larger (urban) supplies. In the cases reviewed, size-based definitions are commonly used to allocate regulatory responsibility (and exemptions)<sup>8</sup>, though some countries distinguish networked and non-networked services instead, regardless of size and number of users. While the recommendations in Hendry and Akoumianaki’s report are necessarily specific to Scotland, many are relevant in the context of this study on rural water services regulation and echo the thoughts expressed by their colleagues working in developing country contexts: risk assessment, starting with a detailed and up-to-date asset register, and empowerment through better ‘consumer-friendly’ information, guidance and support to rural water users and communities, perhaps with the use of ‘trusted non-governmental intermediaries’ are key themes.

7) Moriarty et al (2013) note that ‘It is an inescapable reality that, where the aim is to provide service levels that meet the minimum levels commensurate with the human right to water, there will be a need for ongoing subsidy (from government – public finance, donors or other users – cross subsidy)’ (p.338).

8) The EU Drinking Water Quality Directive, for instance, only applies to ‘distribution systems serving more than 50 people or supplying more than 10 cubic meters per day’ unless ‘the water is supplied as part of an economic activity’, which essentially amounts to a ‘cut-off’ for mandatory regulation and enforcement.

Hutchings et al. (2017), based on extensive case study research in India, offer an interpretation of regulation in the context of community-managed services.<sup>9</sup> Noting that sustainable successful community management relies on long-term external support, they argue in favour of monitoring key performance indicators that offer some comparison against national performance goals and standards. Given the reliance of many community providers on the availability of funding and suitably qualified staff, however, the authors argue that ‘regulating’ not only involves overseeing performance of providers, but also some oversight of the resources that are necessary to achieve the mandated standards. In the short term, they recommend reserving sanctions for failures (on the part of support entities) to make these resources available, emphasising the ‘positive handholding’ aspects of regulatory support. The authors envisage a gradual change in the nature of regulation as community users /consumers are transitioning towards customers of a payable service, with regulation more and more resembling the ‘standard’ processes seen in well-developed regulatory regimes.

#### Box 4: Professionalisation of water services

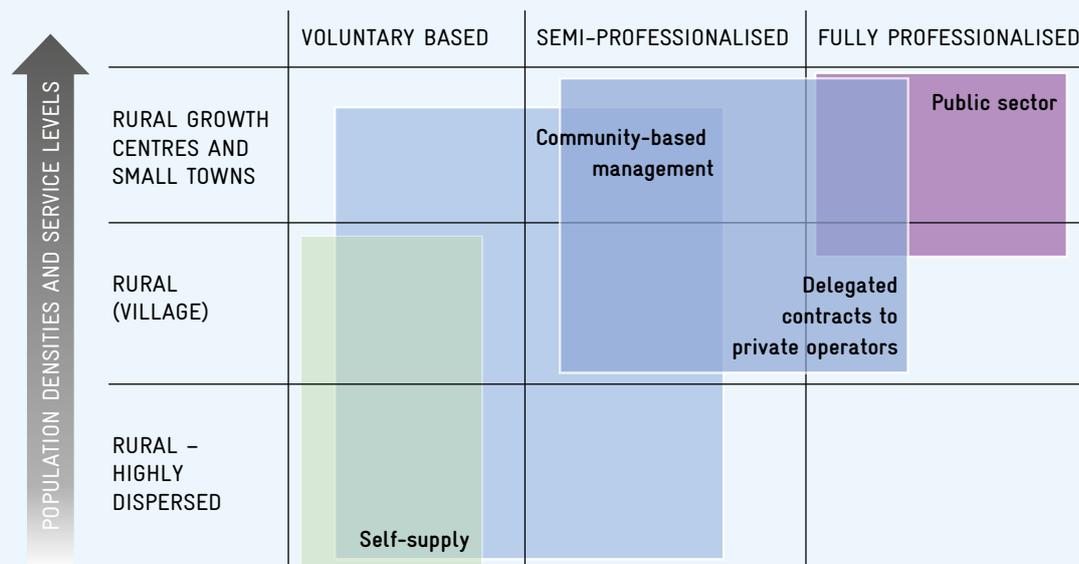


Figure 3: Types of ‘rural’ settlement and typical modes of service delivery

(Source: Lockwood and Smits, 2011)

The term ‘professionalisation’ is used to convey both greater professional competence and the notion of service provision as opposed to (community) self-help. In the case of (urban, public) utilities this entailed a greater emphasis on performance-based management. It is meant that service recipients became customers with better defined rights. In the rural (specifically community management) context,

it has been defined as ‘moving away from the voluntary provision of water services towards a philosophy of service provision, and working to agreed standards, with greater transparency, accountability and efficiency’ (Lockwood and Le Gouais, 2015). This reform pathway includes NWSC, Nyeri, ONEA and SDE (Table 1).

9) ‘Regulation, in this context, is the art of enabling and requiring, possibly sanctioning, both community service providers, and their enabling support environment, to deliver the goal of affordable clean drinking water for all. If the monitoring process tells us the existing situation, regulating is the external oversight that nudges, and then demands, action to overcome any short-comings. And ensures resources are available to address any short-comings.’ (Hutchings et al., 2017, p.187)

There is an emerging body of literature concerning the local dimension of regulation of public services, which touches upon rural water supply (Asquer et al. 2017). This discussion is instructive as by acknowledging the local (and in some cases highly localised) nature of services provision, it recognises a corresponding need for a local regulatory presence and highlights the realities that often weaken regulation at this level. Kessides (2014) suggests that while decentralisation was viewed as attractive during the early infrastructure reform movement (regulators being ‘closer’ to the regulated service), problems emerged with fragmented regulatory responsibilities, bias and capture at the local level, as well as (technical) capacity constraints. Becchis et al. (2015) add to this the potentially negative repercussions of local regulatory decisions in a context of tight social networks and ‘improper osmosis among professional roles’<sup>10</sup> and emphasise the damaging impact of political ambition on investment and pricing decisions. Referring to ‘a tangled web of complex, difficult and asymmetric relationships’ that complicate regulatory enforcement, the authors suggest that the motivations of local actors become particularly relevant and information is a critical piece of the ‘regulatory game’.

### 3.4. The centrality of information to the regulatory process

Data and information management is a recurrent theme in all the literature. GIZ’s own experience of supporting (urban) water services regulation unequivocally confirms that monitoring not only provides the foundation for policy-making and sector planning: ‘without it, no meaningful regulation can take place’ (Schäfer et al. 2012). GIZ projects have generated extensive knowledge on data collection, verification and the monitoring systems that allow regulators to handle information (e.g. Wall, 2008). It is clear that effective performance monitoring hinges on competent data analysis, which can then be used for public reporting and, ideally, introducing an element of competition into an otherwise largely monopolistic (urban) water sector.

Hutchings et al. (2017) explicitly caution against costly data collection exercises that outstrip any beneficial use of the information. Trémolet (2013) proposes relying heavily on consumer vigilance and some form of consumer involvement in service monitoring, perhaps exploring the use of ICT in remote and dispersed localities. Increased access to mobile phone and internet bear great potential for facilitating better monitoring and consumer engagement. However, the enabling role played by technology, as Pearce et al. (2015) point out, is contingent on a host of governance factors and there are inherent inequities to be considered.

Efforts to improve national monitoring of rural water services, especially in the context of the SDGs, are appearing in the literature, one prominent example being the Latin American Rural Water Supply and Sanitation Information System (Sistema de Información de Agua y Saneamiento Rural, SIASAR). These, however, rarely include specific performance indicators and are not directly linked to regulatory frameworks. It is eminently clear that rural providers, especially at the community level, would require even more capacity building assistance in order to comply with regulatory reporting requirements than their professional urban counterparts (e.g. Leclert, 2016).

For the purposes of this study, it will be important to bear in mind that there are institutional design implications arising from information and capacity, as well as practical consequences for the content of regulation. Adapting regulatory tools to the rural context will necessarily entail some adjustments not only to the type and level of data that can reasonably be collected, but also its interpretation. Especially for non-networked, stand-alone systems, there exists a ‘benchmark problem’ that will be difficult to capture, let alone address through regulation. Carter and Ross, discussing monitoring of handpump-supplied water, ask pertinent question about reasonable and realistic indicators and targets: ‘What proportion of handpumps, tapstands, cars, bicycles, human bodies are “down” at any one time, in the best-run societies, and in the conditions prevailing in low- and middle-income countries?’ (2016, p.99).

10) The authors suggest to think of an extended version of the well-known ‘revolving door’ phenomenon, given that politics, administration, regulation, business, services, consultancy, lobbyism etc. are even more interwoven at the local level.

The same goes for the rules and regulations that underpin the process of regulating: though discussing regulation in a much more general context, Kessides suggests that ‘perhaps we should intensify our search for substantive rules [...] with much less severe requirements, perhaps more simple mechanisms that might be not the best but that are more realistic in terms of chances to be effectively applied. We should search, again, for rules which have much less severe information requirement [sic], in order to be, in a sense, more consistent with the serious capacity constraints that have been focussed at the local level’ (2014, p.35).

### 3.5. Key points from the literature

Before moving on to the case studies selected for this study, here is brief summary of the key points emerging from the literature:

- ✚ Existing frameworks for water services regulation have been developed for professionalised, i.e. urban, service providers. Comparable frameworks for rural water supply services are still being sought, with only some general advice and a few anecdotal examples of good practice available for guidance.
- ✚ Good information remains at the heart of effective regulation, and performance monitoring will be a crucial first step to demand/facilitate performance improvements. In view of the high dependence on external finance, tariff regulation cannot be considered in isolation of investment funding.
- ✚ Pragmatic, realistic approaches are needed for institutional design and the regulatory process. Existing ‘standard’ tools cannot simply be transferred to small and/or non-networked systems.
- ✚ Given that much of the critical monitoring will play out at a very local level, capacity, cost and relationships (e.g. linked to the support environment for providers) comes into focus.
- ✚ Expectations for regulation are high, though in many ‘Western’ countries regulation of ‘small supplies’ is much less common and/or stringent than for utilities.
- ✚ The multi-faceted nature of rural poverty features less prominently in the (admittedly scant) literature on regulation. This stands in sharp contrast to urban service provision and regulation, where adapting to low-income customers’ different (financial) means and circumstances has been a key theme.



The following pages provide a brief summary of each of the case studies, sketching out the framework and current approach to regulating rural water services. To illustrate the broad range of contexts encountered in the case studies, table 1 presents an introductory overview by way of a limited selection of indicators that have some bearing on regulation. There are, of course, many more important factors that are even less easily quantified.

**Table 1:**  
Basic country  
indicators.

Sources: WHO and UNICEF. 2017, World Bank Poverty & Equity Data Portal, World Bank DataBank.

	Zambia	Kenya	Mozambique	Burundi	Brazil	Mali	Benin	India
population (m)	17.1	49.7	29.7	10.9	209.3	18.5	10.9	1,339.2
rural population	57%	73%	65%	87%	14%	58%	53%	66%
pop. density (people/km <sup>2</sup> )	22.99	87.32	37.73	423.06	25.04	15.20	99.11	450.42
GNI per capita (current US\$)	1,300	1,440	420	290	8,580	770	800	1,820
rural (urban) income poverty*	81% (25%)	48% (17%)	73% (41%)	76% (30%)	9% (2%)	60% (16%)	60% (36%)	25% (13%)
rural (urban) access to basic water supply	44% (86%)	50% (83%)	32% (79%)	52% (88%)	87% (99%)	63% (91%)	60% (77%)	85% (93%)
rural (urban) piped service	4% (66%)	22% (61%)	13% (72%)	25% (87%)	79% (99%)	16% (79%)	30% (57%)	31% (69%)
regulation model	AR** (urban focus)	AR (urban focus)	AR (urban focus)	AR (urban only)	some ARs (urban focus)	Regulatory unit under devt.***	under review	

\* Using international poverty line (US\$1.90 a day at 2011 PPP), latest available country figures

\*\* autonomous regulator

\*\*\* for rural services; autonomous regulator with exclusive focus on urban services exists

The case study overview starts with countries where autonomous regulators with countrywide responsibility for water services regulation exist (Zambia, Kenya and Mozambique). Here, the aim of the case study was to explore how regulators try to adapt their approach to rural settings, and to highlight key challenges in this (ongoing) process. This is followed by cases where existing regulators are exclusively focused on urban utilities (Burundi, Brazil and Mali) and finally those that do not (yet) have dedicated, independent regulatory institutions (Benin and India). Where possible, these summaries focus on why better regulation may be necessary and what is being explored as a potential way forward.<sup>11</sup>

11) Unfortunately, the case study summaries not only differ because of the vastly different country contexts.

In some cases, it was only possible to collect part of the information sought. Most case studies have been reviewed by key in-country contacts, such that they do reflect their current concerns.

## 4.1. Zambia

Zambia has one of the oldest and most developed regulatory regimes for water services in Africa. The independent National Water Supply and Sanitation Council (NWASCO) was formally established in 1997 and became operational in 2000, initially to oversee the operations of publicly-owned urban commercial utilities (CUs). NWASCO has been proactive in promoting pro-poor service development, successfully establishing a ‘Devolution Trust Fund’ to assist CUs with service improvements and extensions in peri-urban (unplanned or informal settlements) and low-cost areas.

NWASCO’s strategic vision of promoting ‘safe, affordable and sustainable water supply and sanitation services for all’ is aligned with the Government of Zambia’s universal service target for clean and safe water, which is set out in its Vision 2030. NWASCO has recently published a framework document setting out its preferred approach to extending regulation into rural areas,<sup>12</sup> based on its assessment of the current situation and extensive consultation with sector stakeholders. Gradual implementation in collaboration with other sector institutions is favoured to facilitate manageable change, given current capacity constraints. NWASCO freely acknowledges the need to strengthen its own capacity as it pushes the frontiers of its remit.

Service provision in rural areas has been devolved to district local authorities (LAs). Though LAs are the main implementing agents, communities are often directly involved in operation and maintenance of facilities through Community Based Organisations (CBOs) for piped schemes or water point committees (for boreholes, protected shallow wells and springs equipped with handpumps). The management of piped schemes in some rural ‘growth centres’ has been taken over by CUs. Delineation of ‘rural’ areas is somewhat fluid, as the government may declare such growth centres to be new districts, separating them from the district they formerly belonged to, to promote development.

Local Authorities’ activity budgets are mostly set based on donor and government support, resulting in limited capacity to plan and operate water supply and sanitation activities from locally generated financial resources. Inadequate data management and reporting is compounded by the current lack of regulation of rural services, resulting in ineffective monitoring and affecting sustainability of services.

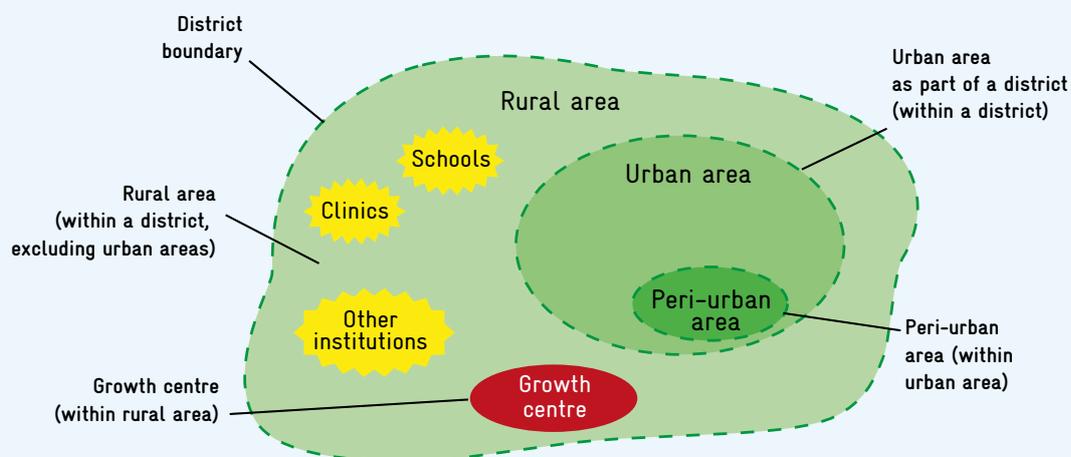


Figure 4:  
Classification of areas  
within a district  
in Zambia

Source: NWASCO. 2018. Rural Water Supply and Sanitation. Framework for Provision and Regulation in Zambia.

12) NWASCO. 2018. *Rural Water Supply and Sanitation. Framework for Provision and Regulation in Zambia.*  
This framework specifically includes sanitation, which has been disregarded for the purposes of this study.

Bringing providers under the regulatory umbrella and ensuring monitoring and accurate reporting are priority next steps. NWASCO's plan centres on eventually assigning responsibility for all networked services to CUs, with the option of outsourcing to other providers via management contracts. Contractors would require a NWASCO permit, though CUs would remain fully accountable for compliance with licence conditions throughout their service area (i.e. the entire district). In the interim, where CUs are not yet in a position to take on rural schemes, the operation of small piped networks would continue under LAs (also requiring a NWASCO permit, as well as an MOU with the CU and community) and this can be through formalised community-based organisations. It is envisaged that operators may draw on CU technical support. Revised licences and minimum service levels are currently under consideration, such that performance will be monitored. The development of specific regulatory instruments is planned for water points, for which LAs will retain responsibility. Any independent providers, private operators, or public or private institutions operating WS facilities on their premises will also require a permit.

Data management and monitoring has been highlighted as a key challenge as NWASCO is moving towards rural regulation, particularly in view of capacity at the LA level and the large distances and resultant time costs for data collection and verification. NWASCO has requested a simple framework for reporting, and the plan is for the upgraded NWASCO Information System (NIS) to tap into existing structures, notably the ministry's rural monitoring system 'WASH-MIS' (under development). WASH-MIS relies on the donor-supported 'District Health Information System 2' (DHIS2) platform, which has yet to be scaled up to cover all districts. In some instances, the data uploaded by 'community champions' onto the DHIS2 platform is not checked by the Environment Health Technologists (EHTs), who are assigned the responsibility to validate the data. This has been cited as a weakness, as this effectively bypasses validation arrangements at district level. The system is also vulnerable to donors withdrawing their financial support (as community champions will no longer receive payment). GIZ is currently reviewing provincial coordination and monitoring experiences in Eastern province to feed into a revised monitoring and evaluation system, and monitoring guidelines are being prepared. A draft framework for data management has been prepared to enable discussion with key stakeholders and agree a framework for data management with all stakeholders.

## 4.2. Kenya

Kenya created an autonomous, professionally staffed Water Sector Regulatory Board (Wasreb) as part of a first wave of sector reform in 2002, which also established a Water Sector Trust Fund (WSTF) to assist with improving access to adequate water services in underserved areas. Water services restructuring centred around 'socially responsible commercialisation'. Wasreb proactively included a specific pro-poor focus in all its activities, however concentrating on regulating urban utilities. Access to 'clean and safe water in adequate quantities' has been a constitutionally protected right since 2010, with further protections for minorities and marginalised groups.<sup>13</sup> While the 2002 Water Act made no reference to rural water and sanitation, the 2016 version introduced special provisions for rural areas that are not commercially viable.<sup>14</sup>

As per the 2010 Constitution, service provision responsibilities have been devolved to county governments. This move has strengthened the link between utilities and the regulator, who now issues licences directly to water service providers (WSPs) instead of asset-holding intermediaries. It remains an offence to provide services without licence from the regulator. In taking steps to extend service obligations prescribed in the utilities' licences to include 'low-income areas' (LIAs), Wasreb withdrew the conventional link to administrative borders. Though LIAs primarily comprise densely populated urban and peri-urban areas, their official definition includes large centres in rural settings 'with urban characteristics and low-income housing'.<sup>15</sup>

13) Constitution of Kenya, 2010. Art. 43. 1(d) and 56(e)

14) Interestingly, the law leaves the definition of 'rural water services' to the regulator's discretion.

15) As defined in the 'MajiData' information system: <http://majidata.go.ke/definition-of-low-income-areas-in-kenya/>.

In contrast to the definitions used by the National Statistics Office, Wasreb essentially defines 'urban' and 'rural' along the technological 'fault line' separating the two, which is primarily related to population density.

Services in rural areas, whatever their precise definition,<sup>16</sup> centre around the ‘community project cycle’ approach and are provided by community organisations (Water Management Committees, WMCs), often with NGO or donor support. A recent survey also found a high proportion of self-help schemes, few of which are formally registered. The rural provider landscape could be described as a ‘known unknown’: though most counties report areas currently not served by licensed WSPs, they have no inventory of locations and status, let alone the level of services provided, and are generally under-resourced to support and monitor small water supply systems.<sup>17</sup> Concerns have been raised over the capacity of generally volunteer-run WMCs to operate an efficient and professional service.<sup>18</sup> Tariffs reflect neither real costs nor government guidelines, and are affected by low willingness to pay as consumers also use free alternatives, where available.<sup>19</sup>

Another significant shortcoming is that most small water schemes are currently unregistered and, without a licence, are operating on the verge of illegality. Wasreb had adopted a pragmatic position in the past, accepting that attempting to regulate vast numbers of small-scale suppliers in remote rural locations would far exceed its resources and internal capacity. Consequently, its annual sector performance reports, which is widely used as an authoritative source of sector information, only comprise its assessment of regulated utilities. The second wave of sector reform has prompted another look at bringing small rural providers under the regulatory framework and strengthening links with professional utilities. The 2016 Water Act explicitly provides for different management models, while requiring a contractual relationship between operators and local government.

Wasreb is consulting with stakeholders to explore how regulatory strategies and guidelines may be adapted to suit the rural context and define its own role alongside that of county governments. As many of the newly-created positions at the county level have been filled with political appointees, there are valid concerns over the availability of suitable knowledge and experience, further emphasising the need for regulatory oversight, standardisation and enforcement. As for the various supporting agencies that currently support rural water schemes, serious gaps in their understanding of legal and regulatory requirements have been identified, which undermine effective rights-based service provision, which will need to be addressed through training.<sup>20</sup> Elsewhere, it has been noted that much resistance to the move towards cost-reflective (utility) tariffs originates from county governments, suggesting another focus area for Wasreb’s necessary awareness raising work.<sup>21</sup>

In partnership with Caritas Switzerland and the Water Integrity Network (WIN), Wasreb has been working on strengthening accountability and professionalisation of community services, with the ultimate aim of realising the right to water for all. Based on the ‘integrity management (IM) toolbox’,<sup>22</sup> Wasreb is developing possible management options for small water supply systems, with template contracts, reporting lines and simple performance indicators for each model to follow after a fully inclusive consultative process with stakeholders at all levels. This is also in response to requests from county governments who are seeking clear guidance and support with their implementation duties. A key consideration is to create a sound legal basis for the operation of small-scale water supplies,<sup>23</sup> and to curtail the pro-

16) Werchota et al. note that that many areas officially defined as ‘rural’ are now exceeding population densities in many residential areas in towns, e.g. ‘rural’ sub-location Kizigitini, with 5,095 people per km<sup>2</sup>, compared to some ‘urban’ Nairobi sub-locations with populations ranging between 1,444 and 3,210. (Werchota, R., Schaefer, D. and Gerlach, E., 2019, *Impact and limitations of water services regulation*.

Paper No. 3, in: GIZ 2019, *Reforming Kenya’s Water Sector*. Sharing the experience of GIZ’s Kenyan Water Sector Reform Programme.)

17) Nzioki, R.M. 2018. *Analysis of Survey Results: WASREB countywide survey on practices to regulate small water supply systems*. Nairobi: Wasreb, Caritas, WIN.

18) Leclert et al. cite low literacy levels, lack of technical qualifications and poor management capacity and processes, which increase the risk of mismanagement and corruption, potentially exacerbating discrimination. (Leclert, L., Mwikali, R. and Feuerstein, L. 2016. *Addressing governance and management challenges in small water supply systems – the integrity management approach in Kenya*. *Aquatic Procedia* 6(2016). 39 – 50.)

19) Many customers only use services during dry season, resulting in seasonal fluctuations in income/revenue

20) *ibid.*

21) Werchota, R., Schaefer, D. and Gerlach, E., 2019, *Impact and limitations of water services regulation*.

Paper No. 3, in: GIZ 2019, *Reforming Kenya’s Water Sector*. Sharing the experience of GIZ’s Kenyan Water Sector Reform Programme.

22) The IM toolbox for small water supply systems has been adapted from the cewas/WIN/ GIZ IM toolbox for (utility) WSPs, in close collaboration with Wasreb, the ministry and the Kenya Water and Sanitation Civil Societies Network (KEWASNET).

It is built around a long-term iterative change management process that encompasses all stakeholders.

23) The lack of legal recognition also prevents WMCs from legally acquiring assets or accessing credit and/or government support services.

liferation of unregulated small-scale providers working in isolation. Management options differ according to whether the small scheme operates within or outside of an existing WSP service area and its commercial viability. Where schemes are not handed over to the responsible WSP, continued community involvement (e.g. under a delegation contract or as an independent WSP) would require formal registration as a water users association. Using the IM toolbox approach, Wasreb is seeking to link stricter regulatory requirements/control with the appropriate (and necessary) support mechanisms to secure a realistic and accepted way forward.

The option of sub-dividing service areas to allow for new WSPs raises some concern over the interpretation of 'not commercially viable' areas and providers. Though according to WIN/Caritas advisers the management models are clearly aimed at underserved *rural* areas, there are voices within Wasreb that suggest 'marginalised areas' could comprise *any* area not receiving regulated, professional water services. Clear definitions would avoid the debate on registration of (urban) informal providers resurfacing. Overall, however, Wasreb appears to respond to the 'rural challenge' with familiar pragmatism, seeing its role as expert advisor and promoter of accountability and good governance rather than wanting to become involved in direct monitoring of small-scale water supplies.

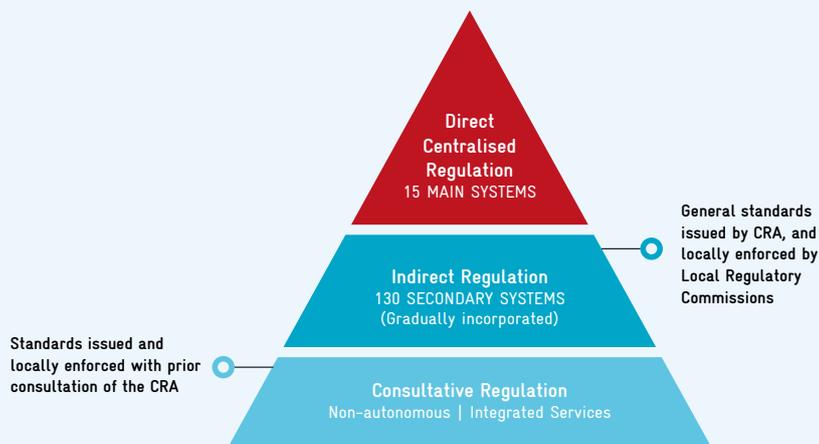
### 4.3. Mozambique

Autonomous regulation was introduced into the Mozambican water sector in 1998, when the Water Supply Regulatory Council (*Conselho de Regulação do Abastecimento de Água*, CRA) was created in the context of a delegated management framework (DMF). CRA became operational in 2000. Though its role initially centred on large urban water supply services provided by a consortium of private companies, the regulator's mandate was later broadened to comprise secondary towns. The 2009 revision of the DMF introduced a formal classification of water services systems into 'urban' and 'rural'. Today, primary or main systems comprise 21 cities, where services are mostly operated by the public asset-holding company FIPAG under the original DMF framework (with the exception of Maputo-Matola, which is leased to Aguas de Maputo, AdeM). Another public asset holder, AIAS, was created in 2009 for secondary towns, with the aim of delegating operations to independent providers. Since then, CRA has been formally responsible for regulating primary and secondary public water supply and sanitation systems, though its reach does not (yet) extend beyond small towns.

As a result of adapting regulatory approaches to suit the technical and specific management conditions of the various systems, CRA developed a suite of regulatory options that sought to balance its expanding remit with the need to retain strong links with the regulated entities: 'direct regulation' (issued and enforced by CRA) applies to primary systems, 'indirect regulation' (local enforcement of CRA-issued standards) to 130 secondary systems<sup>24</sup> and 'consultative regulation' in the case of non-autonomous water services managed by local government (fig. 5). The process is ongoing and has yet to be extended to rural areas, whereby current thinking tends towards customising the indirect regulation model to ensure an adequate local regulatory presence at minimum cost.<sup>25</sup>

24) In both these (urban) cases, a 'Regulatory Agreement' between CRA and the responsible asset holder provides the basis for all regulation, and CRA approves operator contracts. The 'Regulatory Framework', also signed between the two parties, then specifies the basic definitions and guidelines for regulation (e.g. concerning quality of service, performance, tariffs and charges, reporting obligations). Note that neither apply in rural areas, where CRA acts in purely advisory capacity.

25) A 2016 peer review noted that '[a]s for water supply, the expansion of CRA's mandate brings its own financial, personnel and resource-related challenges, as well as potential difficulties at governance levels and within operating models. The number of secondary systems that may be subject to regulation is large and geographically widely spread. Policies and practical organizational processes will be required to implement regulation. Additionally, the majority of secondary systems that are currently integrated in the regulatory context, are systems in a precarious economic and financial condition. The funding of regulatory activity will thus bring with it additional challenges.' (Wilson, A. and Dias, M. 2016. Peer Review of Water Supply and Sanitation Services Regulatory System in Mozambique. Final Report 12 October 2016. ESAWAS. p.9) .



**Figure 5:**  
Regulatory regimes  
used in Mozambique.

Source: CRA. 2015.  
Retrospective report to  
the Government 2009-2014.  
Maputo: CRA

In line with the universal service objectives stated in the 2016 National Water Policy<sup>26</sup>, CRA pursues a vision of sustainable, equitable, and universally accessible service. The regulator has shown initiative in encouraging water companies to extend services into underserved areas, requesting action plans for low-income consumers, undertaking beneficiary assessment studies and enabling utilities to cooperate with small-scale providers. Benchmarking and performance awards (for urban utilities) were introduced in 2013.

In rural areas, water services provision – and regulation – remain embedded in local government. Autonomous management of small rural networks (with the involvement of private operators) has been encouraged since 2006<sup>27</sup>. In 2014, an estimated 800 small water supply systems (*Pequenos Sistemas de Abastecimento de Água*, PSAA) existed across the country.<sup>28</sup> Community management by local water committees remains common (approx. 90%), and water points (wells and boreholes serving up to around 300 people) far outnumber small-scale piped schemes. The ‘Manual for the Implementation of Management Models in Small Water Supply Systems’ distinguishes three types of PSAA by number of connections ( $\leq 50$ ,  $\leq 150$  and up to 500). The National Rural Water Supply and Sanitation Programme (*Programa Nacional de Abastecimento de Água e Saneamento Rural*, PRONASAR), launched in 2010, targeted improved long-term sustainability of rural services through better institutional and management structures. PRONASAR also extensively draws on private sector support.

According to CRA’s comprehensive ‘Manual of Regulatory Governance and Substance’, PSAA schemes, i.e. networks with less than 500 connections, are not formally regulated and the development of regulatory standards is a local authority (LA) responsibility. CRA will only intervene on request, in an advisory capacity. Its recommendations are non-binding and enforcement of standards, where they exist, falls to the LA. With regards to tariffs, fundamental principles are set out in the national Water Tariff Policy<sup>29</sup>, which aims for full cost recovery in the medium term, but explicitly promotes socially *and* economically responsible tariff setting.<sup>30</sup> The latter remains a regulatory responsibility, which (in urban areas) is carried out within the ‘regulatory framework’ agreed between asset holder and CRA.

26) Government of Mozambique. Resolution No. 42/2016.

27) Ministerial Degree No. 5/2006: Manual de Implementacao das Modalidades de Gestao dos Pequenos Sistemas de Abastecimento de Água (Manual for the Implementation of Management Models in Small Water Supply Systems)

28) Note that this figure does not include small-scale systems in peri-urban areas, which can serve as many of 2,500 connections

29) Resolution No. 60/98 of the Council of Ministers

30) It has been noted that some contractors tasked with improving fund management of village water committees through PRONASAR’s ‘Participation and Community Education’ component ‘focused exclusively on the fixation of a monthly tariff, ignoring other options or social tariffs even if they were already in use at village level.’ Ducrot, R. 2014. When water committee good practices are not relevant: sustainability of small water infrastructures in semi-arid Mozambique. Submission for the 15<sup>th</sup> WaterNet/WARFSA/GWP-SA.

While genuinely ‘rural’ areas remain outside of its direct sphere of influence, CRA has developed original strategies to respond to decentralisation. The regulator has three regional units (South, Central, North) to ensure a physical presence away from its Maputo headquarters. In the case of large urban systems, CRA is supported by part-time local agents or delegates (ALCs) who have routine monitoring responsibilities and focus on customer complaints handling. In the case of secondary systems (smaller towns<sup>31</sup>), local regulatory commissions (*Comissões Reguladoras de Água Locais*, CORALs) are created to monitor and enforce regulatory rules and standards issued by CRA. Unlike ALCs, the three-member CORALs are not appointed by CRA, but the local authority (subject to CRA approval). Their roles are set out in a ‘collaboration agreement’ with CRA and the LA. CORALs receive and analyse operator information and report monthly to the CRA regional office, also submitting their opinion to operators and LAs. First introduced in 2014, the concept is not without practical challenges (such as training, remuneration, oversight by CRA).<sup>32</sup>

While this process is at an early stage and consistent procedures may need some more time to settle in, the approach fits well with CRA’s generally non-confrontational style of regulation. A 2016 peer review noted that ‘[u]nder the current regulatory environment in Mozambique, CRA appears to have limited recourse to penalties and sanctions. Even those that it has appear to be rarely applied. It also does not make use of formal directives. It rather achieves its objectives through negotiation, influence and persuasion. Its high standing in the sector contributes to the fact that this approach has proved to be effective.’<sup>33</sup>

#### 4.4. Burundi

Over the past two decades, the Burundian water sector has undergone a series of legal and institutional changes, which have progressively strengthened the framework for service provision and have introduced firm commitments to pro-poor services.<sup>34</sup> There is no formal target to achieve universal service coverage in line with the SDG No.6. While a legal basis for establishing a regulatory entity for water supply (and energy) was first provided in the 2000 Water Law, the 2009 National Policy still declared regulation a ministry function.<sup>35</sup> An autonomous regulatory agency with responsibility for drinking water, electricity and mines (*Agence de Régulation des secteurs de l’Eau potable, de l’Electricité et des Mines*, AREEM) was created in 2015. AREEM has reportedly been focusing on electricity and, to a much lesser extent, on urban water services and has yet to publish any reports. The ongoing political crisis is significantly hampering external support to the water sector institutions, and unlike with water regulators elsewhere in East Africa, GIZ has had no programme involvement with AREEM.

In accordance with the government’s decentralisation policy, water services are a municipal responsibility. The 22 cities are served by the public water and electricity company REGIDESO, though the exact limits of ‘urban areas’ are not well defined. Operation of rural services has been contractually delegated to Water Users Associations (*Régies Communales de l’Eau*, RCE), which have been set up in 91 communes of the 119 municipalities as non-profit making community organisations with a locally elected Board of Directors. RCEs in general operate simple gravity piped schemes (without electrical pumping), which offer a mix of standpipes and a small number of private connections. The latter are explicitly favoured by the delegation contract, which calls on local authorities (LAs) to promote household connec-

31) A review of six small towns found populations to range between 5,600 and 50,000 (or 12,000 and 56,000 – depending on data source), with networks serving between just under 300 and 2,500 private connections and one to 46 standpipes. Rama, M., Valfrey, B. and Razulo, A. 2018. *Review of the implementation of WASH projects in Small Towns within the Delegated Management Framework*. Final Report. Hydroconseil.

32) *ibid.*

33) Wilson, A. and Dias, M. 2016. Peer Review of Water Supply and Sanitation Services Regulatory System in Mozambique. Final Report 12 October 2016. ESAWAS. p.22

34) Government of Burundi. 2014. Pro-Poor Strategy Water and Sanitation Strategy (*Stratégie Pro-Pauvre Eau et Assainissement*). For rural areas, the strategy focuses on investment and, to a lesser extent, on tariffs.

35) Ministry of Water, environment, regional development and urban planning. 2009. National Water Policy. (*Politique nationale de l’eau*). According to this policy, both ‘réglementation’ and ‘régulation’ fell under the ministry, the latter in consultation with a National Sector Coordination Committee.

tions. However, protected springs are still very common and provide a basic level of access for many rural water consumers. Though LAs could choose to appoint private operators, there are none at present.

A national rural water and sanitation agency (*Agence Burundaise de l'Hydraulique et de l'Assainissement en Milieu Rural*, AHAMR) operates the country's major water infrastructure equipped with pumping stations, including primary distribution networks, and supplies treated water to RCEs.<sup>36</sup> AHAMR also has an advisory role, assisting LAs in overseeing their contractors through its representatives at the provincial level and offering technical support to RCEs. However, limited resources as well as 'suboptimal' processes is hampering the effectiveness of this support. Within RCEs, shortfalls in technical and management capacity frequently result in poor operations and maintenance. The vast majority of RCEs comprise no more than three or four technicians; it is rare to have a specific member of staff in charge of metering, billing and revenue collection. Although tariffs are extremely low (around 1€/household/year for stand-pipe users), collection rates are currently estimated at just 20–40%; no consistent data is available at national level.

Regulation, in essence, is by contract. The standard delegation contract for rural service provision sets out basic responsibilities, including for tariff review and monitoring, but contains neither service standards nor performance indicators.<sup>37</sup> RCEs are required to submit twice-yearly reports, which LAs (with expert assistance from AHAMR) are to use for 'periodic' performance reviews. LAs may also choose to order external audits. The contract stipulates a starting rate for tariffs, which are to be reviewed annually, based on a budget prepared by the RCE. In practice, no cost-based budgets are prepared and tariff negotiations do not take place. All municipalities still use the same tariff, and political pressure to keep tariffs low is strong. There is no performance monitoring, and even water quality is only monitored in some GIZ-supported areas.

Some, mainly financial, data is collected by AHAMR through its provincial branches, ostensibly for benchmarking purposes. This system focuses primarily on revenues, as AHAMR is entitled to a 4% share of RCE tariffs. Often, data collection is by a simple telephone call to the RCE President, with no consistent further verification, though it was noted that AHAMR appear to be managing their revenue collection not very well.

In 2012, GIZ last supported a 'national inventory of rural water services' to establish a better picture of services.<sup>38</sup> Given the cost of the exercise and the impracticality of using information for investment decisions that is becoming increasingly outdated, GIZ has been advising a move from an inventory approach towards continuous sector monitoring. Basic indicators have been agreed to enable the monitoring of strategic sector targets (essentially coverage), though this is to be overseen at ministry level. Data collection would largely fall to AHAMR and has not yet been followed up due to capacity constraints. While these indicators have little bearing on 'regulation' as defined for the purposes for this study, they do offer helpful definitions, such as acceptable distances and numbers of users for different types of access.<sup>39</sup> Currently, GIZ is supporting AHAMR to improve the monitoring and evaluation of water service performance procedure in rural areas through the implementation of regular audits of RCEs<sup>40</sup> in some GIZ-supported areas.

#### 4.5. Brazil

In Brazil, the progressive extension of universal access to basic drinking water and sanitation services is a fundamental principle of the 2007 Law on Basic Sanitation.<sup>41</sup> Targets are set out in the 30-year national water and sanitation plan

36) Though in practice, the quality of the water supply cannot be relied upon.

37) A model delegation contract was developed from the one used in Burkina Faso, with only minor modifications.

38) GIZ. 2013. INEA Atlas 2012. Taux de Couverture en Eau Potable Milieu Rural Burundi.

39) MEEATU, MEM, MSPLS. 2014. Guides des indicateurs. Suivi du sous-secteur eau potable, hygiène, et assainissement de base.

40) AHAMR. 2017. Audit de la mise en œuvre de la convention de délégation de la gestion du service public de l'eau en milieu rural dans les 11 communes des Provinces de Bururi et Rumonge.

41) Lei 11.445/07. Note that the Portuguese '*saneamento básico*' comprises drinking water and sanitation, and extends to stormwater, road cleaning and solid waste management services. For the purposes of this report, '*saneamento básico*' will be translated as 'water and sanitation'.

(Plano Nacional de Saneamento Básico, PLANSAB). Planning and a substantial part of investment funding originate from the federal level. Until very recently, there was no national regulator for water services. With a provisional measure taking effect from end of December 2018, the National Water Agency (Agência Nacional de Águas, ANA) has been assigned a regulatory role. While details have yet to be confirmed, ANA is likely to have involvement in federal funding, and few changes are expected to status quo of regulatory practice.

Regulation as well as service provision have been decentralised to the country's 5,570 municipalities, who may delegate to separate public (or private, in the case of operations and management) entities. Autonomous regulatory agencies have been created in several States to oversee service provision, though not necessarily covering all municipalities in that State. In many cases, these are multi-sector regulators, also responsible for other public services such as energy or transport. Some municipalities have opted to establish their own regulatory agency or joined with others to create an intermunicipal regulator. To date, formal regulation is limited to professional companies and consequently urban services.

At the operational level, the institutional landscape is similarly complex. Regionalised (State) water companies (public or private concessions) tend to offer services only in urban areas, leaving rural areas to make alternative arrangements, usually under some form of community management. There is a great disparity between States, as some are highly urbanised, whereas others have large proportions of rural municipalities, or extensive rural areas within municipalities.<sup>42</sup> This has given rise to large inequalities in access, with the Northeast experiencing particularly large deficits in absolute and relative terms,<sup>43</sup> which are reflected in PLANSAB: the 2030 State target for rural areas of 70% networked service (or waterpoint with in-house plumbing) stands in marked contrast to the 100% expected for urban areas.<sup>44</sup> There is little available data on the performance of rural community-operated services, though existing evidence suggests that management capacity is low.<sup>45</sup>

An interesting example of addressing the challenge of rural service provision emerged from the Northeastern State of Ceará, where 33 of the State's 184 municipalities received no water services from the state water company. Companhia de Água e Esgoto do Ceará (Cagece) is regulated by the state regulatory agency Agência Reguladora de Serviços Públicos Delegados do Estado do Ceará, Arce (though in practice, little regulation takes place). Originating from a KfW water programme, a voluntary aggregation model was devised to bring together different community associations within a municipality to improve rural self-management with technical support from Cagece. First implemented with 18 local associations in one municipality in 1996, the Integrated Rural Water Supply and Sanitation System (Sistema Integrado de Saneamento Rural, SISAR) now operates in 146 municipalities across Ceará, serving around 600,000 people through 160,000 connections,<sup>46</sup> with regional SISARs organised according to river basins. Infrastructure and networks are usually developed by Cagece, which provides ongoing support to through its rural department, Gerência de Saneamento Rural (Gesar). SISAR operates in communities of 25 to 800 households,<sup>47</sup> which take joint decisions through a general assembly and administrative and fiscal councils.

Increasingly successful, SISAR is being replicated in other Brazilian states. While initially the local federations are dependent on subsidies to cover their operational costs, these are gradually phased out and some SISARs are now able to generate a sizeable operating surplus. There are some national service standards (e.g. water quality), and while there

42) Definitions for 'urban' and 'rural' vary: according to federal policy, populations greater than 50,000 formally fall under the Ministry of Cities, definitions cited at the State and district level include thresholds of  $\geq 5,000$  persons or  $\geq 1,400$  households for obligatory (piped) services, though small, densely populated communities may also qualify.

43) Ministry of Cities. 2017. *Brazil Overview: Water, sanitation and hygiene*. Achieving the SDGs targets for water, sanitation and hygiene: country brief. Available at [http://sanitationandwaterforall.org/wp-content/uploads/download-manager-files/2017%20Brazil%20Overview\\_final.pdf](http://sanitationandwaterforall.org/wp-content/uploads/download-manager-files/2017%20Brazil%20Overview_final.pdf)

44) Heller, Leo. <https://research.ncl.ac.uk/media/sites/researchwebsites/gobacit/L%C3%A9o%20Heller.pdf>

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

46) Cagece figures. <https://www.cagece.com.br/produtos-e-servicos/saneamento-rural/>

47) Though implementation difficulties have been reported for systems with  $\leq 50$  families (GWP 2015. *Brazil: An innovative management model for rural water supply and sanitation in Ceará State (#411)*. <http://www.gwp.org/en/ToolBox/CASE-STUDIES/Americas--Caribbean/Brazil-An-innovative-management-model-for-rural-water-supply-and-sanitation-in-Ceara-State-411/>)

are no specific tariff setting guidelines, the law clearly targets cost recovery, whilst making provision for subsidies and tariff adaptation to address affordability issues. Tariffs again are a municipal responsibility, giving rise to a potential conflict of interest where operations have not been delegated. A clear tariff framework exists under the SISAR model, where tariffs are subject to approval of the SISAR assembly. These vary greatly depending on location, but generally include a block tariff with a low-cost social block (e.g. R\$ 5.20 (€1.20) for the first 10m<sup>3</sup> in Ceará, and R\$ 1.60 (€ 0.37) for the first 2m<sup>3</sup> in Piauí). Elsewhere, tariffs reportedly generate insufficient revenue, leading to service degradation and declining willingness to subscribe to services (connection not being compulsory) and further undermining service sustainability.<sup>48</sup>

While the in-built performance monitoring has been cited as a key factor of the efficiency of the SISAR model,<sup>49</sup> the model is largely self-regulated. SISARs use management information systems to administer their financial data, resulting in collection efficiencies in excess of 95%,<sup>50</sup> and Cagece as the supporting institution monitors selected performance indicators, such as water quality, cost recovery, continuity of service as well as billing and collections. In addition, the SIASAR monitoring system (SIASAR being the Latin American Rural Water Supply and Sanitation Information System) has been adopted at the state level, a move which has been described as holding great potential for its inclusion of parameters on service delivery and operator performance and the possibility to create an updateable asset register.<sup>51</sup>

In the context of SISAR, possible arrangements and processes for regulating rural services are currently being explored. Pilot studies are to commence in two municipalities in Ceará state with the aim of developing a benchmarking system for SISAR systems with indicators and benchmarks that fit the specific operating conditions, notably extreme water scarcity. Ideally, Arce would also eventually be in a position to oversee tariff setting. However, even in urban areas, regulation is still encountering significant challenges. The physical distances and the logistics of monitoring dispersed rural services, and the cost implications for regulation, have been raised as key challenges.

#### 4.6. Mali

The Mali water sector reform is in the process of introducing modern sector principles such as separation of key functions, regulation, cost recovery and poverty orientation; universal service provision is an official target for 2030. Urban water services, provided by the private, but state-owned national operator SOMAGEP,<sup>52</sup> are subject to regulation by an autonomous authority (*Commission de Régulation de l'Électricité et de l'Eau*, CREE). Regulation of 'semi-urban' and rural services falls under the National Water Directorate (*Direction Nationale de l'Hydraulique*, DNH), which is part of the sector ministry. DNH also acts as policy-maker and remains the de facto implementing agency for asset development. GIZ has been actively promoting and supporting the establishment of a transitional regulatory unit (RU) within DNH as a first step towards independent regulation of rural water services. Personnel were trained and procedures prepared, and the RU received its long-awaited formal mandate in February 2019.

Since 2003, the responsibility for water services provision has been decentralised to the municipal level, though operational management must be contracted out to private operators or user associations to act as service providers. There are some 1,200 small piped schemes in the country's 703 municipalities, most of them community-managed (90%), though simpler infrastructure (simplified networks and water points/hand pumps) are commonly found in smaller communes (<5,000 and <2,000, respectively). According to the sector policy, networks serving populations

48) OECD. 2017. Governance of drinking water and sanitation infrastructure in Brazil. *Side contribution in the framework of the 2<sup>nd</sup> OECD/ANA Policy Dialogue on "Setting and Governing Economic Instruments for Water Resources Management in Brazil"*.

49) Rocha, W.d.S. and Salvetti, M. 2017. Water Global Practice Case Study – SISAR Ceará, Brazil. World Bank.

50) Meleg, A. 2012. *SISAR Brazil: an association of community-based service providers*. Presentation for the First Thematic meeting of the RWSN Working Group on Management and Support of Rural Water Supplies, on 2-3 October 2012, in The Hague, the Netherlands.

51) World Bank, 2017. *Sustainability Assessment of Rural Water Service Delivery Models: Findings of a Multi-Country Review*. Washington, DC: World Bank. It is unclear though whether and how this will be integrated into the regulation pilot.

52) Société Malienne de Gestion de l'Eau Potable. SOMAGEP provides services in about 40 centres of the country (April 2019).

greater than 10,000 should be classed as ‘urban’ and integrated into urban services (and thus fall under CREE regulation). The transition of more than 70 systems into SOMAGEP’s service area, some of which classed as ‘large rural’, was decided in 2018 but has yet to be completed.<sup>53</sup>

Capacity problems at the provider level are reflected in stagnating access and weak operations and maintenance in rural settings. Low population densities and local capacity constraints have given rise to concerns about viability of services, which is further undermined by widespread non-payment of water bills and high rates of non-revenue water. Timely and legitimate renewal of delegation contracts, which are supposed to be awarded after a formal tendering process, has been a serious problem. Sustainability of infrastructure appears to be declining with size of the system, with non-functionality being highest for handpumps. Monitoring is envisaged even for the smallest-scale supply, but even keeping an updated asset register is presenting problems at the moment.<sup>54</sup> GIZ advisory services will continue to concentrate on small piped schemes.

Standard setting is a DNH responsibility, and tariffs are capped at 500 CFA/m<sup>3</sup> (€0.76) to ‘ensure social acceptability’, even though this far exceeds the urban social tariff of 113 CFA/m<sup>3</sup> (€0.17).<sup>55</sup> Tariffs are contractually agreed (tenders contain a tariff proposal), but there is a marked tendency to apply the maximum allowable tariff even when actual costs are much lower. GIZ has been working on developing an Excel tool for price calculations to provide guidance for municipalities and other actors involved, which shows that costs for solar-powered systems, for instance, can be as low as 200 CFA (€0.30). There is anecdotal evidence for collusion between mayors and operators, who agree to split the difference or renew contracts underhand without review and tendering. There is a strong case to be made for regulation to ensure consumer protection and improve service quality.

In the 1990s, a monitoring system for rural networks grew out of KfW-funded schemes: though not formally working under the banner of ‘regulation’, STEFI (*Suivi Technique et Financier*) provides a mix of regulatory and support functions to operators and municipalities. This advisory system, originally based on private ‘auditors’ within the country’s ten regions, gradually faded away and came to an end in 2010, by which time it had only been working in two regions. Reasons for this can primarily be traced to a lack of awareness and disinterest, even rejection, on the part of municipalities, where greater transparency is not always welcome. More often than not recommendations were disregarded, and (community) operators failed to see the benefits of STEFI, and questioned their obligation to pay for this service. Finally, there was no proper legal basis on which the STEFI auditors could rely on – the pilot approach, which inspired other countries in the sub-region (e.g. Chad, Benin, Senegal), was never officially integrated into the sector framework.

With GIZ support, the almost faltering STEFI approach has been reinvigorated and optimised. DNH has clustered Mali’s ten regions into six zones and licensed private auditing companies<sup>56</sup> through a formal tender process. The country-wide roll-out of the STEFI system became legally effective<sup>57</sup> in October 2018. Currently the STEFI auditors are contracted by the municipalities to undertake technical and financial monitoring, inspecting, compiling and analysing data to produce a report with recommendations for improvement of the management of the scheme and sharing findings at public meetings. A small surcharge (per m<sup>3</sup>) is added to water bills to cover STEFI costs. The STEFI approach is successfully supporting professionalisation and improved management, notably reflected in a reduction in operating costs, and affords greater transparency as well as a wealth of data that can be used for sector planning purposes.

53) This well-intentioned, yet primarily politically driven plan has been hampered by a lack of planning, selection criteria, impact and tariff studies. There is a strong case for a more gradual approach, allowing stakeholders (and especially the operator) more time to adjust to the new situation.

54) Stoupy, O., Nordmann, D. and Werchota, R. 2016. *Report on Scaling up Opportunities for Access to Drinking Water and Sanitation in Rural Areas in Mali*. Internal GIZ report. Also see Jones, S. 2013. How can INGOs help promote sustainable rural water services? An analysis of WaterAid’s approach to supporting local governments in Mali. *Water Alternatives* 6(3): 350–366.

55) The tariff is structured according to consumption (progressive). The price is 113 CFA/m<sup>3</sup>, if the consumption is lower than 10 m<sup>3</sup>.

56) Each STEFI auditor is responsible for one of the six STEFI zones. The license has a duration of 3 years and comes with a clear set of obligations (terms of reference). Every year the performance of the STEFI auditors is evaluated by a commission based on transparent indicators.

57) The inter-ministerial act on STEFI was signed by the Ministry of Water, the ministry in charge of sanitation and the Ministry of Decentralisation.

Efforts now concentrate on optimising and integrating the auditors' functions into a model for rural water services regulation (though limited to piped networks<sup>58</sup>). Under this model, STEFI auditors will be collecting the technical and financial data that provide the basis for regulatory decision-making. A regulation module based on STEFI data has been completed, allowing performance of the management of the piped water schemes to be measured against ten key performance indicators.<sup>59</sup> Advisors are now looking into better visualisation of data to harness the power of public performance reporting. Publication of a first performance report is planned for spring 2019; this is envisaged to pinpoint problems and make recommendations – to operators and municipalities, but also to policy-makers, where there is a need to intervene, e.g. with new standards. Ideally, this whole process would be overseen by the new RU, though the problem of enforcement of regulatory decisions (or rather: recommendations) remains.

Analysing relevant data and especially sanctioning remain the greatest challenges: effective means of taking action against operators' failures, especially where these pose a risk to users, are still being sought. In the absence of an independent regulator with powers to sanction, transparency and public reporting are being explored as means of strengthening direct accountability and enhancing 'citizen control'. Given the lack of enthusiasm within DNH for regulation (and valid reasons for separating this function from the many other functions and interests within DNH), extending the remit of CREE had been mooted as an option for some time. With the recent (March 2019) update of the Water Policy, the commission is becoming formally responsible for rural water supply. GIZ is supporting this reform process to ensure a functional, clear and efficient institutional framework. Serious questions about its exposure to political influence and reputation as a 'notorious sceptic' do remain. Against the backdrop of SDG aspirations to 'leave no one behind', discussions are continuing on how to apply independent regulation for the benefit of water consumers in Mali's rural areas.

#### 4.7. Benin

The Government of Benin has set ambitious universal service targets in its five-year Action Programme: achieving basic access to drinking water supply for the entire population by 2021 is a stated political priority.<sup>60</sup> According to the national master plan for rural water supply (*Plan Directeur de Développement du sous-secteur de l'Approvisionnement en Eau Potable en Milieu Rural*, PDDAEPMR), service levels are envisaged to rise, with half of the rural population directly connected to networked services, and hand pumps expected to be phased out in the long term.<sup>61</sup> Sector reform processes to strengthen the institutional framework are ongoing. The General Water Directorate (*Direction Générale de l'Eau*, DG-Eau), part of the sector ministry (Ministère de l'Eau et des Mines, MEM), holds overall responsibility for the rural sector, and implementation of the Action Plan is guided by the 2017-2030 National Strategy for Rural Water Supply.

A clearer separation of policy-making and regulatory functions is being sought: DG-Eau is formally responsible for both, for urban and rural areas. GIZ is involved in ongoing discussions regarding future organisational arrangements, which have yet to be agreed. Though an independent, possibly even multi-sector, regulator would hold certain advantages, retaining a regulatory unit within DG-Eau currently seems the more likely option. For the moment, a Regulation Service (*Service de Régulation et du Suivi du Patrimoine*, SRSP) is attached to the Directorate of Standards, Technology Oversight and Risk Prevention. SRSP is expected to oversee standards and data management, as well as offering advice and support with regard to decentralised service provision and regulatory matters. Capacity and resources are still being developed, as are the necessary tools and procedures.

58) German Development Cooperation in Mali has historically favoured piped services to safeguard drinking water quality (through chlorination – though not all operators strictly adhere to these requirements). Due to rapid urbanisation, expansion of piped systems is expected.

59) The 10 KPIs measure three major categories (quality of service, efficiency and sustainability) and were established based on international best practices

60) Government of Benin. 2016. Programme d'Actions du Gouvernement (2016-2021).

61) The stated assumptions for coverage calculations are 250 people per standpipe and 24 per household connection (PDDAEPMR, quoted in World Bank 2018 Program Appraisal Document. Report No: 125188-BJ. Available from <http://documents.worldbank.org/curated/en/574991525097378434/pdf/BENIN-PAD-04262018.pdf>). This review also reports strong demand for piped solutions and private connections, which seems to be confirmed by local stakeholders.

Drinking water supply has been decentralised to the municipalities, who may act as direct service providers but have been encouraged to delegate their responsibilities in line with the Government's aspirations for increased private sector participation. Any urban and surrounding peri-urban areas are served by the national water utility, SONEB (*Société Nationale des Eaux du Bénin*). All remaining areas in 74 of the 77 municipalities are classed as 'rural' (26,426 localities in total, with populations of less than 20,000)<sup>62</sup>. Here, handpumps still dominate, though there are now over 700 piped schemes in operation, and this figure is expected to double within the next two years. Simple networks commonly serve 10-15 standpipes and very few private connections. By 2017, community management was on the wane; around 55% of piped schemes were operated under short-term affermage (lease) contracts with private operators. Only the largest (i.e. those operating multiple networks) had achieved more professional management and some measure of viability.

Through the new national Rural Water Agency (*Agence Nationale de l'Approvisionnement en Eau Potable en Milieu Rural*, ANAEMPR, responsible for implementation of infrastructure investments), the sector is now exploring alternative management models which centre on regional clustering of small-scale rural water services. Pilot projects for eight-year concessions started in 2014, with operators expected to become more involved in system rehabilitation and expansion. Funding was made available for the concessionaires to offer subsidised household connections. Results are still inconclusive, with investment lower than hoped, though service quality has reportedly improved.<sup>63</sup> Negotiations regarding further consolidation of rural water services are ongoing; current thinking is along the lines of engaging six (private) professional operators under performance-based contracts, though further integration (possibly with a single rural provider) are not being ruled out.

National standards exist for minimum service levels (access) and water quality, but these are barely enforced as operational regulatory arrangements are missing.<sup>64</sup> Monitoring of drinking water quality, which is the responsibility of the Ministry of Health's Public Health Directorate is very poor. Past efforts to improve performance monitoring include the web-based management tool and monitoring platform, m-Water. Take-up stalled by 2017, when it had been rolled out to 150 rural water systems, due to lack of use by local actors (e.g. for analysis and reporting purposes). GIZ is supporting the digitisation of information for the entire water sector, with an updateable system planned to be put in place in 2019. This will provide the basis for professional regulation.

Regulatory mechanisms for tariff setting are equally weak. Cost recovery is recognised as a sector principle, but clear methodologies to reflect the desire to support operators' financial sustainability through adequate tariffs (and the controversial subsidy mechanisms being applied in some schemes) are not yet available. At present, tariffs are negotiated between municipalities and operators. Budgeting support from DG-Eau or regional branches is rarely available. Tariffs vary, and at around at 500 CFA/m<sup>3</sup> (€0.76) are considerably higher than the urban social tariff (at 198 CFA/m<sup>3</sup> (€0.30) for the first 5 m<sup>3</sup>). At 800 CFA/m<sup>3</sup> (€1.22), standpipe water is even more expensive.

With the shift towards privately managed service provision, civil society participation has been encouraged through water consumers associations (*Associations des Consommateurs d'Eau Potable*, ACEPs). None of the existing affermage contracts are performance-based, and ACEPs were hoped to provide a measure of accountability: service failures could be reported to ACEPs who would put pressure on the municipality/mayor to take action. Under the current arrangements, local authorities continue to act as a first level of regulation. This mirrors the situation in urban areas, where SONEB is 'regulated' directly by the government as the main shareholder of the company.

62) The notion of population thresholds for rethinking what constitutes an urban environment is gradually gaining ground. There are proposals to consider localities/systems with populations greater than 10,000 as urban rather than rural.

63) *ibid.*

64) *ibid.*

## 4.8. India

India has been described as ‘a country at the forefront of efforts to expand access to rural water services’.<sup>65</sup> The Government of India’s policy goal of providing every resident in rural areas with adequate drinking water is being implemented through its National Rural Drinking Water Programme (NRDWP). The Ministry of Drinking Water and Sanitation’s (MDWS) most recent strategic plan (2011–22) targets 90% coverage with piped services in rural areas, with at least 80% of households to be provided with a connection in the home. Last updated in 2017, the NRDWP reflects this clear emphasis on piped water supply.

While funding allocations mostly originate from the federal level, making the MDWS a key sector player, rural water supply management in India is a State matter. Responsibility for operations and management has been decentralised to the lowest level of elected government, the Gram Panchayat (GP, village council). The responsible ministry stresses the collaborative nature of this approach, noting that state government retains an important supporting role.<sup>66</sup>

In the wake of the 2012 National Water Policy, a revised Water Framework Bill (2016) reiterated calls for ‘All States [to] establish a statutory multi-disciplinary Independent Water Regulatory Authority’ to oversee water resources as well as water service-related legal provisions.<sup>67</sup> Though regulation has been part of the debate within the sector for some time, observers have noted that ‘the impetus for the proliferation of water regulatory authority laws has been largely provided by policy push and grant conditionality instead of an articulated public demand for such legal and institutional reforms.’<sup>68</sup> It would appear that there is limited interest at the State level to operationalise regulatory authorities.<sup>69</sup> Of the few that were established, several have morphed into service authorities/ parastatal operators, leaving the sector as a whole largely unregulated.

According to official data, there are more than 250,000 GPs covering upwards of 600,000 villages.<sup>70</sup> Following a ‘demand-responsive community participation-based approach’ water supply is managed through Village Water and Sanitation Committees (VWSCs), with support from the GP and various state-level agencies (e.g. Rural Water Supply Department, Public Health Engineering Department (PHED), Water Boards responsible for bulk supply to multi-village schemes). VWSCs may be integrated into the GP, or activities delegated to other CBOs, NGOs or even the private sector. Assets remain firmly in public ownership, and ‘privatisation’ per se is not sanctioned. A significant proportion of village schemes suffers at least seasonal ‘slippage’, i.e. reduced functionality, usually due to poor maintenance. Hutchings and Franceys (2017), reporting on 174 successful case studies across India, find that for community management to be sustained at scale, community institutions need a ‘plus’ that includes long-term external support, with the majority of high performing cases involving financial support, technical advice and managerial advice.<sup>71</sup>

65) Smits, S., Franceys, R., Mekala, S. and Hutchings, P. 2015. *Understanding the resource implications of the ‘plus’ in community management of rural water supply systems in India: concepts and research methodology*. Community Water Plus working paper. IRC: The Hague.

66) Ministry of Panchayati Raj. 2014. *Elementary Book on Drinking Water in Gram Panchayats*.

67) Draft Water Framework Bill 2016, Art. 22(2). The 2012 National Water Policy had ushered in a shift from emphasising supply (productions) to demand-oriented water management. There had been some earlier attempts, by the World Bank (in 1998), to establish regulators, though with the exception of a handful of strong states (notably Maharashtra), progress was unsatisfactory.

68) Koonan, S. and Bhullar, L. 2012. *Water Regulatory Authorities in India. The way forward?* Environmental Law Research Society Policy Paper 4/2012. New Delhi: ELRS.

69) Some recent newspaper headlines corroborate this point: ‘States drag feet on forming Water Regulatory Authorities to price water’, the Times of India reported on 30 July 2018 (<https://timesofindia.indiatimes.com/india/states-drag-feet-on-forming-water-regulatory-authorities-to-price-water/articleshow/65198255.cms>), though a change of course was announced in the Indian Express on 22 January 2019: ‘Punjab to set up water regulation and development authority’ (<https://indianexpress.com/article/india/punjab-to-set-up-water-regulation-and-development-authority-5474159/>).

70) GP data source: report generated by India Local Government Directory, January 2019; <https://lgedirectory.gov.in>. The number of villages is much less certain: the MDWS’s database currently lists some 608,000 villages, the 2011 census closer to 650,000. Population numbers can vary widely. In the 2011 census, roughly one third of villages had fewer than 500 inhabitants, some 0.78% over 10,000.

71) Hutchings P. and Franceys R. 2017. *Community Water Plus: results from an investigation into community-managed rural water supply in India*. Paper presented to the 40th WEDC International Conference, Loughborough: WEDC.

The Indian rural water sector is heavily subsidised, although federal mission (funding) programmes have ceased to cover the full costs of projects and beneficiary communities are expected to pay a (small) share of new investments. Even the more successful schemes tend to be backed with operating subsidies of around 50%.<sup>72</sup> Tariff setting principles are set out in (draft) legislation, with the Framework Bill proposing that ‘Water ... shall not be denied to anyone on the ground of inability to pay’ (22(1 a)) and a progressive tariff structure be adopted.<sup>73</sup> In line with the tradition of participatory decision-making, tariffs are decided at the local level, with the village collective encouraged to approve concessions for marginalised households.<sup>74</sup> With no regulators in place, the only way to influence tariffs is through funding conditions.

The widespread occurrence of slippage has been linked to the absence of continuous and purposeful monitoring. At the village level, monitoring tends to be reactive, with little if any systematic record keeping. At the State and federal level, extensive databases are used to track service coverage in relation to investment spending. In addition, annual submissions are required to the MDWS’s comprehensive online Integrated Management Information System (IMIS), which monitors progress of the NRDWP in terms of coverage, system functionality and water quality, down to the level of individual habitations. With a strong tradition of efficient bureaucracy in India, data are collected assiduously. Observers have questioned the reliability of the data entered into these systems, noting the mismatch between different data sets and the lack of accountability for their validity. Others criticise the limited opportunities for constructive analysis offered by the IMIS platform.<sup>75</sup> Even where the data does show clear shortfalls, without the necessary regulatory processes, and indeed the strong institutions to implement them, no corrective action is taken.

Hutchings et al. (2017), whilst acknowledging the challenge of monitoring across such a large country, comment on the neglect of quality aspects of service delivery.<sup>76</sup> Noting the ‘strong history of complaints recording’, they suggest that complaints are often the only performance indicators in this respect, though not necessarily available and followed up where they would be most effective, i.e. at the VWSC level. With the use of information technology becoming ever more pervasive in the rural water sector, more and more accurate data may be becoming available, though interpretation at the community level remains a challenge. Good data is not only needed for communities to take good management decisions and compare their own performance against neighbouring schemes. Hutchings et al. also argue that the significant share of national and State funding flowing into rural water schemes would justify an appropriate selection of key performance indicators being used to reflect against national targets. While there have been some attempts to develop a rural water performance monitoring handbook, mirroring that for the urban sub-sector, it is unclear how far these efforts have progressed. The problem of monitoring quality and continuity of service is being addressed by requiring State level Consumer Complaints call centres to be established, from which complaints are fed back to the responsible local PHED officers (who also attend VWSC board meetings and consider accounts) – an ‘interesting solution’, as commentators have observed, which provides a first level of regulation and oversight, but could be enhanced to provide greater scrutiny of service levels, financial and operational performance.<sup>77</sup>

72) *ibid.*

73) For domestic water supply, a graded pricing system may be adopted, with full cost recovery pricing for the high-income groups, affordable pricing for middle-income, and a certain quantum of free supply to the poor to be determined by the appropriate Government, or alternatively, a minimal quantum of water may be supplied free to all. (Art. 22(1d). Incidentally, the Bill envisages overseeing equitable access and fair pricing as tasks for the water regulators. (Art. 22(3)).

74) Specifically, Scheduled Castes (SCs), Scheduled Tribes (STs) and Below the Poverty Line (BPL) households. (Ministry of Panchayati Raj. 2014. Elementary Book on Drinking Water in Gram Panchayats.).

75) Westcoat et al. (2016), quoted in Hutchings, P., Franceys, R., Smits, S. and Mekala, S. Community management of rural water supply: case studies of success from India. London: Earthscan.

76) *Ibid.*

77) It has been suggested that this compliance system (implemented as part of the major urban mission programme JnNURM, 2007-12) emerged as the most successful Performance Indicator in most of the cities. Nevertheless it was ‘largely unsuccessful’, again due to little or no action being taken to resolve complaints.

The greatest challenge may be the wide variation in structures and approaches across and between the States, which leave many gaps and overlaps, and the weak enforcement powers of the implementing institutions. Regulatory functions will need to become explicit and embedded at the appropriate tiers of the country's formidable and hierarchical bureaucracy. The Indian case offers an interesting perspective for two reasons. For one, it is argued that within the federal system regulatory convergence at the national level is neither likely nor strictly required. There also lies an opportunity in pursuing a course of bundling regulatory functions concerning all aspects of water supply and sanitation services and water resources management to achieve more holistic water governance.<sup>78</sup> This comprehensive approach will require strong institutional structures – at the State level – with clear national guidance and support, including the requisite regulatory powers.

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78) It is worth noting the high prevalence of water-related issues amongst the Nationally Determined Contributions to the Paris Agreement (which are monitored by the highest national planning body). There are sure signs of the Indian Government taking a strong interest in integrated water resources management. Given the strong interlinkages in the current sector organisation, this could potentially effect positive developments in the services sector – though more gradual, State-by-State changes could be the more likely development.



## 5.1. Observations from the case studies

This section summarises some of the recurrent themes observed in the country case studies, which are then discussed in the sections that follow.

**The case studies confirm the findings of the literature review.** Workable regulatory frameworks for rural water supply have yet to be fully developed, with implementation only beginning to enter the pilot phase in 2019. Most countries have committed to realising universal service and improving services in rural areas, though few have placed an explicit responsibility on sector regulators to oversee and/or facilitate this. The level of sophistication of the current regulatory approach in the other countries ranges from self-regulation (successful, in the case of the rural services management model SISAR found in parts of Brazil) to contract regulation (in Francophone Africa) with varying degrees of external auditing. In some instances, this regulation by contract (only) is particularly vulnerable to corruption, though poor governance is a regulatory risk shared by all countries. If regulation of urban commercialised utilities and contracted service providers is hampered by political interference, lack of awareness and capacity constraints, these problems will only intensify at the very local level, or in isolated communities.

**Tariff regulation alone is not the answer to financial woes.** Beyond commitments to LNOB, financial sustainability is a key driver for sector reform and features high on the wish list for regulatory outcomes. Readers will note that the case studies are fairly quiet on the extent to which the crucial importance of ensuring adequate revenue streams is acknowledged and addressed by the regulatory framework. The reason for this is simple. Even in comparatively well-regulated urban areas meaningful tariff regulation is reaching its limits: investment decisions are rarely subjected to regulatory scrutiny and often taken without reference to regulatory decisions or advice.<sup>79</sup> In a situation where tariff regulation (in the sense of objective, periodic tariff adjustment) is weak or non-existent, there is then no established process for considering investment funding in the context of tariff reviews. However, most countries exhibit a high level of donor dependency, which will affect regulation.

**Urban pro-poor experience does not easily travel.** Regulators such as Wasreb in Kenya and NWASCO in Zambia have long championed a rights-based approach to service provision, actively promoting a change in attitudes within their respective countries' water sectors to align behind a pro-poor sector policy and strategy. Their approach has been successful in addressing the plight of residents of (urban and peri-urban) low-income areas by placing service obligations on professional utilities. Price and service differentiation has been adopted to scale up a basic but safe and affordable level of service. Whilst there is a wealth of experience with regard to consumer- and poverty-oriented services and regulation to tap into, this is not easily transposed to rural settings. Here, low system viability and unregistered (let alone monitored and regulated) operations are cited as key problems. This is of course neither a new insight nor one specific to the case study countries. The 'three lows' – revenue, investment and service quality – affect small supplies all around the world. The communities and individuals who are frequently in charge of their management, whether by necessity or choice, require better support as well as regulatory oversight.

**A winning combination – monitoring and support.** The independent auditing performed by STEFI in Mali (which is in the process of being introduced in Burkina Faso) is an attempt to provide just that. Efforts to improve performance monitoring are under way in all case study countries, but the STEFI mechanism specifically aims to support improved management practice at the local level. It will be interesting to see how the integration of an optimised STEFI approach into a new model for rural water services regulation is managed and whether it is replicable in a different context.

<sup>79</sup> In Kenya, for instance, it was noted that 'investment finance has never been systematically linked with tariffs, and the requisite instruments are missing'. This is criticised in view of donors' preference for making direct, project-based funding allocations as well as the long-term implications for tariffs as grant funding is gradually being replaced by loans, which became the financial responsibility of the operators (Werchota et al. forthcoming).

**There is a price tag to better regulation.** The cost of monitoring and logistics (long distances, dispersed locations and large numbers of providers) have been frequently mentioned as an obstacle to effective monitoring and regulation. Capacity and resources are of course a key concern, as noted in a recent review of the Kenyan experience: ‘the costs of an effective regulatory regime with diligent inspections and high levels of consumer participation, for example, will quickly exceed any budget Wasreb is ever likely to generate’ (Werchota et al. forthcoming).

**Establishing a local regulatory presence calls for pragmatism and imagination.** Though it has yet to be fully integrated into a formal regulatory process, STEFI has been found to be a cost-efficient and flexible answer to this problem. In Mozambique, CRA came to a similar conclusion. Faced with a large number of unprofitable systems being added to its portfolio in 2009, the regulator had to find low-cost strategies to regulate and ensure a form of local regulatory presence. Although not yet extended beyond small towns, CRA’s creative approach has been commended by its African peers: ‘CRA has developed some innovative strategies to regionalize and delegate. This leads to improved subsidiarity and allows CRA to get closer to customers. For a country the size of Mozambique, this approach is almost essential. The CORAL/ALC model is an interesting one that could have potential for use in other countries’ (Wilson and Dias, 2016, p.16). The jury is still out on the extent to which regulation can or should be outsourced to third parties. Rama (2017) suggests that whilst it tends to weaken regulation, ‘sometimes this task sharing is the only way to exercise some regulation.’

**Little news on accountability.** Standard setting appears to remain the preserve of national governments as far as rural water supply concerned. At best, some performance targets are contractually prescribed, though the in-built performance monitoring in the (unregulated) Brazilian SISAR model is widely hailed as a success. As for consumer engagement, the remaining key regulatory function this study set out to investigate, little information has been uncovered. It has not been possible to ascertain whether or how existing grass roots consumer engagement mechanisms (e.g. in Zambia and Kenya) are planned to be rolled out countrywide. To what extent water consumers associations in Benin actually enhance local accountability is unclear. Greater direct accountability is however widely recognised as an important regulatory tool. Public performance reporting on rural services is gradually making an appearance. Publication of the first public performance report for Mali’s small piped systems, for example, is anticipated in spring 2019. The need for better data on rural services is recognised as a prerequisite for regulatory development and better investment decisions.

**Negotiated compliance v. enforcement.** Ultimately, enforcement appears to be a major stumbling block for effective regulation. In cases such as Mali, where STEFI auditors (and the envisaged regulatory unit) can merely issue recommendations, this may appear highly frustrating. However, it is a common problem. The Kenyan Wasreb, for instance, which has achieved a high professional standing amongst sector stakeholders, relies on political support and negotiation to achieve its objectives. Interestingly also, the effectiveness of the Mozambican regulator has been linked to its diplomatic style of regulating (Wilson and Dias, 2016).

**Points to take forward:** in summary, the case study research has touched upon some very interesting approaches that have been developed in response to local problems and challenges. Three acronyms are worth remembering: STEFI, the Malian independent auditors, CORALs, the Mozambican mechanism for local proxy regulation, and SISAR, Brazil’s answer to the rural viability problem. These examples highlight the fact that promising approaches that may be useful for regulation may well develop before a ‘proper’ regulatory framework is in place. SISAR, for instance, has received international recognition as a sustainable management model for rural water services (Meleg, 2012, Rocha, 2013, Rocha and Salvetti, 2017). Yet rural services overseen and supported by the state water company Cagece at present are not included by the regulatory authority Arce in the Brazilian state Ceará. Conversely, after a decade and a half of reform and independent regulation, the Kenyan sector has yet to find an appropriate minimum size and clustering strategy for its utilities to ensure viability.

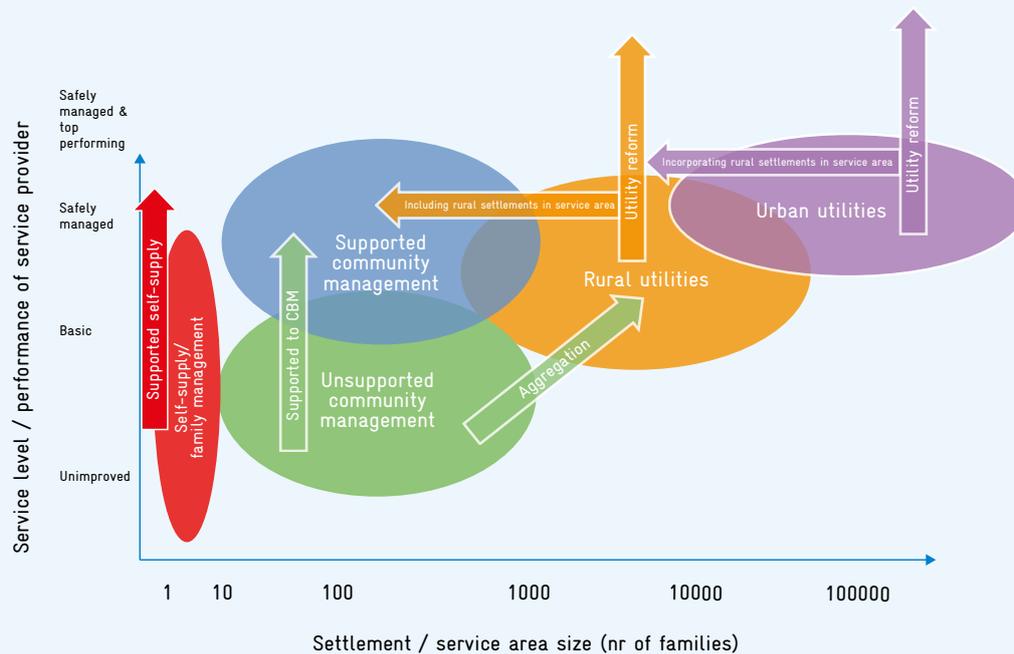
## 5.2. Revisiting the rural-urban dichotomy and other water sector divisions

The classical division of the water sectors into ‘urban’ and ‘rural’, which is observed in all the case study countries (but not in most developed countries) appears increasingly unhelpful, even arbitrary, and has affected the development of regulation. Lockwood and Smits (2011, p.17/18) noted that ‘the boundaries between small town and larger rural settlements are often blurred, or, as in Ghana and Uganda, small towns and rural growth centres are considered a particular sub-set of rural settlements.’ This is echoed in the case studies, for example in Mali, where a 2016 evaluation mission speculated that ‘[t]he hesitation of transferring [water supply] systems from the rural to the urban institutional framework might also indicate that there is a need to clarify the boundary between urban and rural water and to introduce standards / procedures for the transfer of growing [water supply] systems to be carried out in acceptable time-frame’ (Stoupy et al. 2016). Other countries (e.g. Zambia and Kenya) also aim to transfer piped networks to professional utility management as soon as certain conditions are met (i.e. schemes become viable).

At the current pace of urbanisation, some interviewees argue that ‘what is rural today will be urban tomorrow’. Others suggested that population density introduces a ‘technological fault line’ between urban and rural areas, as it determines suitability of networked services under commercial management in a particular service area. Allowing the regulator scope to formulate its own definitions has prompted large increases in access to regulated services in Kenya. It may well be the case that rural lifestyles, behaviour and expectations are increasingly aligning with that of urban residents and that rapid development is taking place. However, there always will be those that remain remote, dispersed, disconnected, and therefore at risk of being left behind. This makes it debatable whether regulation should be contingent on rural areas meeting certain urban characteristics, however defined, and how it should respond to the LNOB challenge.

Some interviewees and reviewers have called for an increasingly holistic approach to water governance. Two reasons were cited as being of particular relevance in the rural context: reliance on groundwater, where quality has an immediate effect on the supply/service. In addition, regulators increasingly look to shore up system resilience and long-term security of supply, both of which are challenged by wider environmental trends, notably climate change. Given that there are many and important interactions between environmental (resources) regulation and water services regulation, this raises valid questions as to whether the two should be more closely institutionally integrated.

It is of course no coincidence that ‘conventional’ water services regulation developed from urban centres, in the context of monopolistic, networked service provision. As regulatory mandates are becoming increasingly framed by the universal rights, this raises a valid question of whether the traditional approach to dividing water sectors is still valid. Technology and management models may well represent a better starting point for creating countrywide regulatory frameworks. This is reflected in current thinking on service delivery/management models, as illustrated in the diagram below (IRC, forthcoming).



**Figure 6:** Service delivery models and their typical level of performance.

Source: IRC. Proceedings of the 'All systems go!' WASH systems symposium, The Hague, The Netherlands, 12-14 March 2019. The Hague: IRC.

### 5.3. Regulatory frameworks for rural water services

#### *Universal networked – and regulated – service as the ultimate aim?*

It would appear that regulation (in the widest sense) in the case study countries is framing the challenge of 'rural' water services precisely in those terms: oversight mechanisms are not developed for urban or rural providers per se, but rather for different water supply systems with reference to size, technology as well as organisational and ownership structures. Formal registration serves as a starting point for any type of system that exists in addition to regulated utilities, though there appears to be an expectation that networked services should be rolled out countrywide and their management gradually handed over to professional operators.

In this scenario, the problem of 'rural regulation' may eventually resolve itself, as the water sectors would come to resemble those where the distinction between urban and rural is not found in the first place. Schemes handed over to regulated utilities would automatically be subject to the existing monitoring and regulatory regime. Under the terms of the utility's service obligations, any delegated or sub-contracted operators would still have to meet the same performance standards set by the regulator. This projected course of events would give weight to the argument against separate urban and rural water services regulators, where this discussion is currently taking place.

There are legitimate reasons for delaying this integration of 'rural' piped schemes into existing utility operations. NWASCO, for instance, is mindful of the impact on the utilities at the receiving end of such transfers. 'Taking up of piped schemes shall be based on criteria and the capacity of a particular CU, to avoid negatively affecting the performance of the CU and at the same time ensure sustainable WSS service provision.' (NWASCO, 2018, p. 38).<sup>80</sup> Elsewhere, concerns have been raised about the viability of systems that remain under local authority control (as noted in the case of Mali, for instance).

<sup>80</sup> Here it is worth noting that NWASCO recommends that 'a threshold number of connections that can enable viable [commercial utility] operations needs to be established. Currently, NWASCO considers 50 households or 500 people supplied as a minimum' (NWASCO, 2018, p.54).

Another relevant point has been mentioned by interviewees in the context of the case study countries and beyond: residents of rural areas not only have different expectations and requirements for water (perhaps for gardening or live-stock). Unlike their urban counterparts, they may have easier access to alternative water sources, at least for non-drinking purposes. Free options will be used where available. The negative effect on service sustainability if connection to networks is not compulsory has been raised in the Brazilian case (see also OECD, 2017).

*What about other small-scale supplies?*

Even without arguing over the proportion of people still relying on non-networked services or self-supply (wells, springs and boreholes), it is clear that these remain common and will continue to do so for the foreseeable future. There was no scope to look further into water points under the terms of this study, although it would be of some interest to learn more about their size, the quantity supplied and the number of persons served. In some of the case studies, there are attempts to capture these services through monitoring systems (SDG/national/regulatory), and formal registration and permitting systems are going to be put in place. It is less clear whether and where there may be a cut-off for regulatory intervention.

When the question of whether there is (or could be) a limit to water services regulation was put to the interviewees, it was unanimously agreed that complex infrastructure systems must be regulated and controlled: ‘where 5000+ people depend on it, you can’t leave it alone’. For water points such as hand and foot pumps it was suggested that technical standards should be prescribed to enable/ease repair and replacement especially where foreign NGOs are involved. There were fewer ready answers to the question of ongoing monitoring. Digitalisation is increasingly playing a role in many countries. IT solutions could help with checking on functionality (e.g. using abstraction as a proxy), but water quality would be more difficult to monitor. With regard to the latter, it was pointed out that transport and storage may have a significant impact on the quality of water used and consumed in the home.

*Institutional design aspects of regulation*

**Regulation(s).** First of all, it is important to reiterate the distinction between the rules and regulations that frame service provision and the process of regulating that operates within this framework of rules. This understanding is lacking in some of the case studies, where both are considered the remit of ministerial departments. French journalist Emmanuelle Delsol (2016) has likened the difference between the two to that between playlist and DJ,<sup>81</sup> which seems a suitable illustration. Of course, language and culture will continue to affect interpretation and disagreements about the nature and objectives of regulation, and therefore the functions and tools considered necessary and acceptable.

**Contract regulation.** Nonetheless, the fact that ‘there are laws and regulations, but they are not enforced’ is a common complaint. There are some who argue strongly in favour of legally binding contracts, with a ‘final authority for control and support at superior level’. The financial cooperation also expressed a preference for addressing questions of regulation in contracts. Contracts or binding ‘service level agreements’ certainly are a means of prescribing minimum standards (especially where existing national legal standards are low). Regulation could possibly also act as an instrument to safeguard investments. However, as the business case for many rural systems is not strong, the threat of contract penalties or termination is not a strong deterrent – simply because ‘you can tender, but nobody will come’ to replace an existing underperforming operator. Even in urban areas, there is scant evidence for regulators having resorted to sanctions such as fines in the event of non-performance.

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81) ‘La différence entre réglementation et régulation est la même qu’entre playlist et DJ’.

**Independence and autonomy.** While some countries opted for regulation by independent agency as part of their sector reforms, others still hesitate to introduce even intra-ministerial regulatory units. How important is autonomy really? From the point of view of performance monitoring and reporting, very. Having spent more than a decade supporting the water sector reform in Kenya, GIZ advisors are adamant that ‘water ministries are categorically not the appropriate institutions for developing, maintaining and utilising comprehensive information systems ... political entanglement compromises a ministry’s ability to report neutrally, especially on negative trends in the sector.’ They will also concede that in a politically difficult environment such as the water sector, a regulator often has to compromise and complete autonomy, however desirable, is illusory. Perhaps this could be taken as an encouragement to concentrate on the process and content of better regulation rather than perfecting the institutional design.

#### *A way forward for rural water services regulation*

In the context of rural water supply, regulation might be best understood as a combination of the following:

- 🔧 an oversight and enforcement mechanism (noting the caveats discussed above),<sup>82</sup>
- 🔧 performance monitoring, not only as the basis for regulatory decision-making, but to offer targeted advice and support to operators, and
- 🔧 monitoring with the aim of informing and empowering consumers.

Many conversations around the case studies (other than those calling for strict application of contractual law, of course) showed an inclination towards ‘sunshine regulation’ (an emphasis on greater transparency, e.g. through public performance reporting) and positive regulatory support. The proposition of ‘monitoring + support’ is generally thought to be helpful and attractive to operators (who benefit from a partnership approach that offers technical assistance). Monitoring, though costly, generates direct returns in terms of improving financial sustainability, and as such can be a forward-looking investment. There are, as ever, cautionary tales of conflicts of interests and the risks of manipulating data, stressing the need for transparency and data validation.

Incidentally, policy advice for small-scale supplies in the pan-European region also suggests that ‘legislation and regulations should be flexible enough to accommodate approaches to enforcement that will allow local authorities to build trust by taking an advisory role or applying incentive mechanisms’ (Rickert et al. 2016a, p.17). The authors also advise that ‘regulatory power to improve the situation for small-scale systems may not always lie within the obvious policy sectors (such as water or health). Other sectors that have an impact and regulatory power in addressing small-scale systems (such as agriculture and rural development) should be involved wherever possible.’ As external factors such as climate change are adding pressures and potential conflicts of interest, the water sector overall is looking towards improving resilience and water security. Sector interdependencies become increasingly relevant, and with them the need for greater cooperation with other sector regulators (notably resource, environmental and potentially energy, given that electricity can be a high opex element of water supply). This chimes with the approach pursued (though not yet fully implemented) in some case study countries, where regulation of services is less strictly separated from water resources management, or the two are actively sought to be integrated (i.e. India).

Regulation works best when embedded in an enabling sector framework and when it has strong political support. This will always be an incremental process. Interviewees highlighted the importance of ‘pleading, explaining, patience and persuasion’. Others suggested that successful introduction of regulation is contingent on a number of ‘basics’, such as clarity of roles, responsibilities and mandates, including asset ownership. The role of ‘rule of law’ (including stable and consistent law enforcement) and democratic processes in the country must not be underestimated. Some stressed that the best way to find any practicable solution is to try it out: ‘you need to demonstrate what can work and how it would

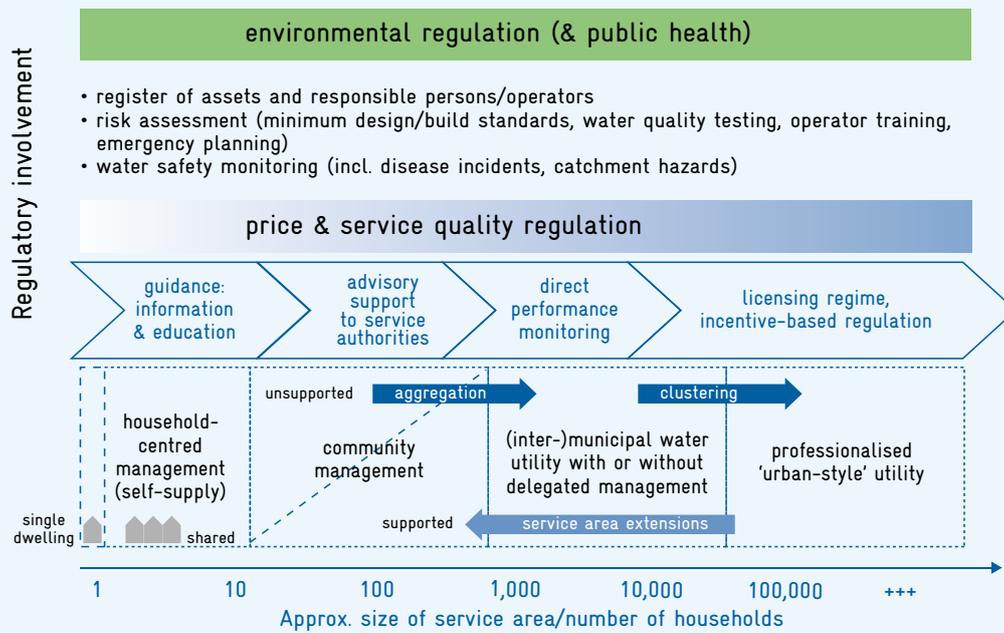
82) Encompassing key functions of economic and public health regulation, as set out in figure 2, and arguably extending into environmental regulation.

work, in pilots’ and then feed the lessons back into policy-making. The World Bank expresses the same thinking by citing literature on isomorphic mimicry. The papers quoted dismiss the idea of ‘international best practice’ that can be confidently transferred to different countries in favour of incremental reform processes during which context-specific institutions are created. To avoid reform in name only, they suggest ‘a more nuanced approach to formulating strategies ... , one that is rooted in local realities and ownership’ (Mumssen et al. 2018, p.54).<sup>83</sup> Viewed in this light, the results of this study may hold some value. Unfortunately, it can only offer pointers, rather than a set of practical solutions to the pressing problems faced by those trying to implement water services regulation in rural areas.

The diagram below is an attempt to illustrate the gradation of regulatory functions and the level of involvement of regulatory authorities in rural water supply. It also draws attention to some important shared functions between water services and water resources regulation, which are particularly relevant to small, household-based supply.

**Figure 7:**  
Water service regulation relative to dominant service delivery models and size and density of the ‘service area’.

Note that tariff (price) regulation, for instance, though otherwise a key regulatory function, is hardly relevant in the case of self-supply. The diagram intends to suggest a pragmatic approach to (direct or more indirect) regulatory support and/or intervention, acknowledging cost and capacity constraints weighed against likely benefits. (Author’s illustration)



### 5.4. The universal service conundrum

Time for a final word on the human right to water and sanitation, the ‘leave no one behind’ principle and countries’ universal service aspirations that have prompted this study. Strictly speaking, the HRtWS and LNOB may seem to dictate that access to safe and affordable services must be guaranteed for everybody, under all circumstances. In reality, interpretations within countries’ legal and regulatory frameworks vary widely, even in the European context. The minimum requirements of the German drinking water ordinance, for instance, applies to any drinking water supply without exception or qualification. According to the German Environment Agency (Umweltbundesamt, UBA, 2018), this

83) From the same report: ‘A significant conclusion of the Mozambique case study was provided by the reviewer of the first draft: “A great deal of progress has been made and it has been sustained, with some setbacks, over 18 years. In the end, the fact that it was messy, that mistakes were made and lessons learned has made the process more sustainable [...]” (Mumssen et al. 2018, p.112).

approach ‘ensures non-discriminating, undivided health protection with respect to drinking water for all citizens.’ In England and Wales, however, monitoring of small private water supplies below 10m<sup>3</sup>/day is required ‘at least every five years and more frequently if indicated by the risk assessment’; supplies to single domestic dwellings are only monitored on request (DWI, 2018a).<sup>84</sup> Note that regulation of private water supplies falls to local authorities (with advisory support of the quality regulator DWI), with no involvement on the part of Ofwat, the economic regulator of the water sector.

Although the study allowed for little time to ponder the finer points of poverty and discrimination, it was still surprising to find so few references to the realities of daily rural life and the customers of the new ‘service delivery approach’. It may well be the case that to practitioners these are simply obvious facts, or that ‘community management’ only appears to imply a non-existent uniformity and cohesive way of life.<sup>85</sup> From the point of view of regulation, however, especially in the context of LNOB and universal service, differences within these communities that undoubtedly exist are important. GIZ has spent many years focusing on scaling up basic services in low-income (urban) areas, based on the premise that not everybody can and will afford the same level of services. Pro-poor implementation and regulation has relied on extensive baseline surveys to design less conventional service approaches to match different consumer profiles. The mix of low-cost solutions now on offer acknowledges and addresses the circumstances of low-income utility customers (GIZ, 2015), and it is clear that for the poorest and most vulnerable, a private connection may well remain a distant dream.

It is worth bearing in mind that the emphasis on piped services in the case studies – though many do offer a mix of (fewer) private connections and standpipes – can be profoundly unhelpful. It is as unlikely that rural areas fit the model of one monopoly provider offering a standard product or package of services at a standard price for everyone. Yet even urban utilities, encouraged by a widely shared preference for household connections amongst politicians and even some development partners, can remain sceptical of price and service differentiation (Werchota et al., forthcoming). Once again regulators will have to rise to the challenge of promoting and facilitating pro-poor development, as some have successfully done in urban areas. It is still true that the extent to which the benefits of universal service can be realised for vulnerable members of society depends on regulators – in whatever guise – recognising and addressing the realities faced by the poor.<sup>86</sup>

84) At least 700,000 German residents rely on small-scale drinking water supplies, including private wells and springs (Bartel et al. 2013). According to the DWI (2018b), ‘About 1% of the population of England and Wales use a private water supply. Most of these supplies are situated in remote, rural parts of the country and can originate from a range of sources including; boreholes, natural springs, and watercourses.’ The WHO assessment quoted in the literature review (WHO, 2016b) had found even higher numbers of users of Individual and non-piped supplies and supplies serving up to 50 people in Romania (7 million), Kazakhstan and Sweden (approximately 2 million each). It may also be instructive to look into the French approach to monitoring rural services. In France, according to the same WHO figures, a total of 8,294 supply systems were serving ≥500-5,000 people and 10,069 served ≥50-500 people in 2012.

85) When the literature mentions ‘diversity’ in the rural environment which affects regulation, it usually refers to the wide range of providers and service levels – though not explicitly within a community.

86) First suggested in Gerlach and Franceys (2010) in relation to a call for a clear definition of a ‘relevant and flexible universal service obligation’ and a corresponding regulatory mandate.



The most promising approximation to rural water services regulation appears to be an approach that could be described as ‘performance monitoring plus’ – performance monitoring with added advisory support offered by a trusted, professional partner (i.e. the ‘regulator’). Performance monitoring is a key entry point for regulation to facilitate, support and require sustainable universal services. Regulatory design can start with relatively simple mechanisms, which will gradually evolve into providers being held to account in more ‘conventional’ ways as the rural system transitions towards a greater level of professionalisation.

The information collated for this study was, in some cases more than others, seriously hampered by a lack of data and availability of informants. Additional research would be needed to close some significant gaps and provide further depth. The following summarises some of the most pressing questions raised.

- ✚ Some examples of attempts to introduce systematic performance monitoring (e.g. STEFI) and/or scaling up of sustainable rural (networked) services exist (SISAR). Further research into how well these mechanisms function when linked to more formal regulatory processes or when applied in different country contexts would be worthwhile and timely.
- ✚ Practitioners would welcome further insight into the exact workings of planned and existing performance monitoring arrangements (e.g. indicators used, data validation mechanisms, information systems) in other countries. Research would be required to make this information available. This could be usefully complemented with an investigation into the costs of regulatory monitoring, also of urban and peri-urban areas.
- ✚ Cost and capacity are challenges. Creative answers are needed to ensure an appropriate local regulatory presence and monitoring capacity without jeopardising the sustainability of the existing regulatory process. Some models are being tested (e.g. CORALs, though in the context of small towns), and others have potential to be adapted (e.g. consumer watch/action groups). Their suitability for delegating/sharing some regulatory tasks should be evaluated (also vis-à-vis the costs and other possible trade-offs involved), as should sharing of powers and responsibilities between a (national) regulatory body and local authorities.
- ✚ Sharing information (e.g. via public reporting) and improving direct accountability is seen as a way forward. For this to be effective, involvement needs to start at the education end of the public participation ladder, to help consumers cope with the information and challenge providers. The effects of the rush to embrace digital technologies on equity (noting that some people are unable to access some forms of ICT) should be considered.
- ✚ Research into consumer expectations and behaviour with the aim to develop appropriate differentiation of price and service levels could provide a valuable additional layer of understanding. This could be along the lines of the comprehensive baseline studies undertaken in urban areas.
- ✚ It is undisputed that sustainable delivery of safe, reliable and affordable services for all hinges on the providers’ ability to access guaranteed funding streams. The question is then whether national commitments and expectations, e.g. universal service policy targets, are backed with funds and how the necessary payments will be allocated across society.
- ✚ Contracting municipalities / local governments require more support where tariffs and financing are concerned. Many have a limited understanding of fair and reasonable pricing. Tariff modelling and financing plans that do exist or are being developed could be shared.
- ✚ Given the drive for greater professionalisation and economies of scale (both in terms of service provision and regulation), suitable clustering strategies still need to be found, especially where there are concurrent decentralisation trends.

✚ At a more strategic level, it is important to continue to the discussion on how to ensure sustainable service provision through ensuring financeability. The financing gap between low tariff and requirements for direct service (and less direct needs to meet wider sustainable development targets, e.g. environmental benefits) is ever widening. More transparency and integration is needed between tariff setting and the flow of direct and indirect subsidies. Investment and asset development, however funded, should not happen outside of the regulatory process and also require monitoring against strategic sector priorities.<sup>87</sup>

Even though the suggestion to look ‘closer to home’ may seem far-fetched to some, there is available research into small-scale and/or rural water supplies (e.g. in Central and Eastern European countries with similar coverage as, say, Brazil) that could be of interest. Germany, for instance, jointly with Serbia, is leading activities on small-scale water supply and sanitation systems under the WHO Protocol on Water and Health (UBA, 2018).

Members of the Sounding Board support the idea of exploring some cases of well-functioning rural regulation in Europe, such as Portugal and France – the latter incidentally having recently announced major investments in rural services infrastructure and looking to consolidate rural utilities (Franceys, 2019). Other country experiences that have been recommended as worth exploring further are Colombia (for its long tradition of tariff regulation and experience with monitoring small and rural providers) and Honduras (where delegation of regulatory tasks to the sub-national level, similar to the CORAL model, has been trialled).

The internal discussion could also continue to focus on how regulation is understood and what it can reasonably be expected to achieve. Part of the challenge is to confront the narrow and misguided conceptual understanding of consumer protection. Too often, this is interpreted as protection from high and allegedly unaffordable service charges. However, it is a key regulatory function to ensure that providers are in a position to meet societal demands for services – though certainly whilst holding them to account for underperformance.

Further discussions could also question the somewhat simplistic sector division into ‘urban’ and ‘rural’. Taking this point of sector division further still, it could be worth investigating the interlinkages between water services and resources aspects of regulation – and the potential for more integrated monitoring and management. As the notion of long-term security of supply rises on the regulatory agenda, it becomes impossible to ignore the natural resources on which water services so obviously rely and there may well be a case for reviewing the conventional institutional response.

<sup>87</sup>) For governments, this means that a coherent financing strategy should be in place; for donors and development partners, that investments meet transparent, performance-oriented, pro-poor criteria.

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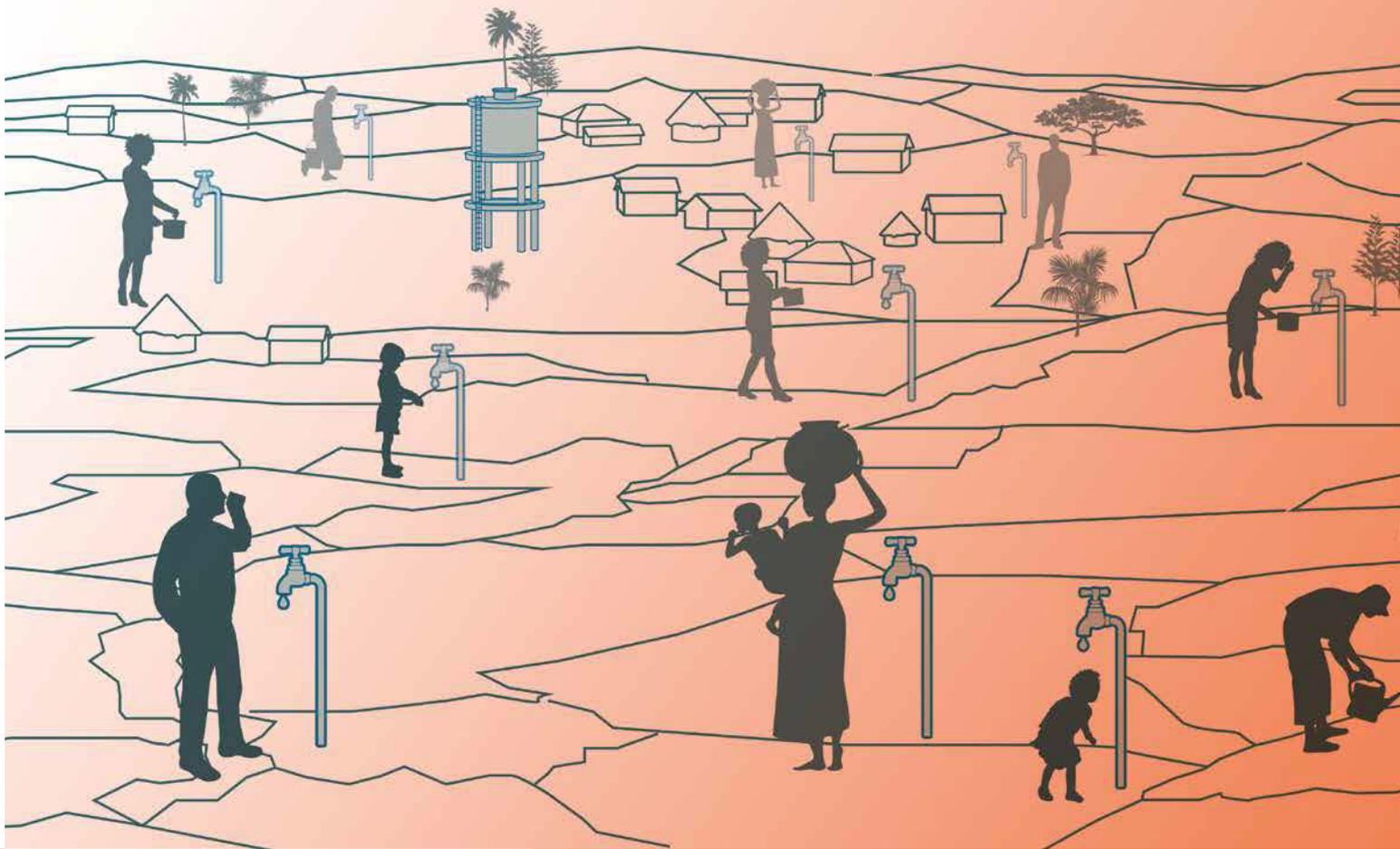
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## APPENDIX 1: INTERVIEW PARTNERS

<b>Name</b>	<b>Position/expertise</b>	<b>Date</b>
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<b>Johannes Wagner</b>	GIZ Mali	12.10.2018
<b>Meinhard Rögner Ingmar Obermann</b>	GIZ KC Wasser	
<b>Ingmar Obermann</b>	GIZ KC Wasser	18. and 24.10.2018
<b>Francesco Mancini</b>	GIZ Burundi	24.10.2018
<b>Ison Simbeye Martha Preus</b>	GFA Zambia	26.10.2018
<b>Helga Fink</b>	GIZ Benin	08.11.2018
<b>Lucie Leclert</b>	Caritas Kenya	12.11.2018
<b>Dirk Schäfer</b>	GIZ Kenya	12.11.2018
<b>Victor Valente</b>	KfW Brazil	22.11.2018
<b>Dirk Walther</b>	GIZ India	22.01.2018





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