Exploring policy perceptions and responsibility of devolved decision-making for water service delivery in Kenya’s 47 county governments

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ABSTRACT
Improving water services is a well-rehearsed political instrument to win public support against a backdrop of a wide range of hydro-political realities in Africa. This paper examines whether devolution to Kenya’s 47 counties advances the constitutional mandate for the human right to water. Specifically, it examines which factors influence decision-makers’ perception of their responsibility for water service delivery in their counties. Drawing on interviews from all county water ministries, a sociopolitical risk model leveraging public choice theory is developed and tested. Information on election margin, climate risk, urbanisation, poverty levels, water budget and citizen satisfaction is modelled to explain variations in the policymakers’ perceptions of their responsibilities. Results reveal that county water ministries recognise increased political responsibility for the poor outside current provision areas across water quantity, quality, accessibility and non-discrimination criteria. Affordability is the most contested criterion, with only a limited number of counties accepting responsibility. High socioclimatic risks and narrow election margins are likely to boost devolved duty-bearers’ perception of responsibility for improved water service delivery. These variable factors demonstrate the interdependence of spatial and political dimensions during Kenya’s devolution process and promote the conclusion that independent and strong regulation is critical to realising the human right to water for the great majority of Kenyans living in rural areas and facing unpredictable climate risks.

Key words: Devolution; Water services; Right to water; Risk; Responsibility; Kenya
1. INTRODUCTION

Perceptions by decision-makers in national and subnational governments are an important part of achieving sector goals. Without the support of frontline bureaucrats, political momentum may be limited (Hood, 2011). The goal scrutinised in this study is the right to safe water for all in adequate quantities (Government of Kenya, 2010; UN, 2015; UNGA, 2010). Improving water service delivery begins with the perception of responsibility by those in charge of implementing legal mandates. Change requires a strategic approach to align the constraints on achieving universal and safely managed drinking water services for all and incentives for public administrations mandated with delivering water services (North, 1990). Constraints and incentives are the focus of this study, which presents and applies a sociopolitical risk model leveraging public choice theory (Buchanan and Tullock, 1999; Ostrom and Ostrom, 1971).

The article is timely for three reasons. First, in the year of data collection, the goal of ensuring the availability and sustainable management of water and sanitation for all was endorsed by the United Nations General Assembly as part of the Sustainable Development Goals (SDGs) agenda 2015-2030 (UN, 2015). While not legally binding, this global agenda places the primary responsibility for sustainable development policies on governments. What is legally binding is national legislation; for example Kenya’s 2010 Constitution mandated a new subnational level of government (counties) to guarantee the right to water and to deliver services such as water and health (Government of Kenya, 2010). The challenge facing the decision-makers is great. Seventy-seven percent of Kenya’s population are not provided with drinking water services (WASREB, 2015), and global-level calculations indicate that only a third of the USD 114 billion of capital expenditure needed for SDG 6.1 and 6.2 is
Currently being spent (Hutton and Varughese, 2016). Availability of financial resources is likely to be one constraining factor on the degree of responsibility decision-makers are prepared to take. While previous studies have focused on valuation and measurement (Costanza et al., 2016; Garrick et al., 2017; Thomson and Koehler, 2016), this research examines a prerequisite to the attainment of the policy goals: perception and recognition of responsibility for delivering the various aspects of the right to water. This includes an investigation into the officeholders’ willingness to introduce institutional change, and potential resistance to it.

Second, this is the first study to evaluate data capturing the perceptions of the decision-makers in all 47 counties mandated to deliver water services in the initial term of Kenya’s devolution reform (2013-17). These data are used to compile an index on water service responsibility for the human right to water. The type of decentralisation introduced in Kenya is devolution. While decentralisation in general is defined as “a process of state reform composed by a set of public policies that transfer responsibilities, resources, or authority from higher to lower levels of government” (Falleti, 2005, p. 328), the most extensive form of decentralisation is devolution (Agrawal and Ostrom, 1999), which implies increased empowerment of subnational organisations (with county governments established as a new tier of government in Kenya in 2013). All members of the County Executive Committees (CECs)\(^1\) – appointed by the elected governors – were required to interpret their constitutional mandate and develop sector strategies and institutions during their first term of office.
Third, Kenya had its second round of gubernatorial elections in August 2017 under the shadow of recurrent droughts, which have tended to be used as a political tool to win international as well as public support for emergency and long-term interventions such as relief supplies or infrastructure investments (Wainaina, 2017). Using water in this way relies on the biopolitical significance of water governance and the capacity of water to transform human life and perspectives, from health to economic development (Hellberg, 2014). As 2.7 million people were facing starvation, President Uhuru Kenyatta declared drought a national disaster on 10 February 2017 (BBC, 2017), which brought water service delivery centre stage at national and subnational levels. This research contributes to establishing a baseline for the implementation phase at the start of the second of Kenya’s electoral cycles under devolution. Just under half of the governors were re-elected (Independent Electoral and Boundaries Commission, 2017), which places great pressure on incumbents to deliver on their agendas and on newly-elected candidates to surpass the achievements of their predecessors. Examining the factors that have influenced the degree of responsibility by the first duty-bearers in a devolved government may reveal stumbling blocks and highlight pathways for delivering water services for the next set of duty-bearers.

Drawing on unique data from interviewing decision-makers in all 47 county water ministries in Kenya, the variation in the perception of water service responsibility is examined across the criteria of the human right to water; the factors influencing these perceptions, including the role of tight gubernatorial election margins; and urban–rural dimensions across the four risk zones derived from the sociopolitical risk model. The implications are discussed along three themes: first, the balancing of risks facing county populations and decision-makers with opportunities for improving water service provision while consolidating public support,
in light of public choice theory; second, the linkage between resource and responsibility; and third, harnessing the devolution process for progress towards the SDG of increasing reliable water services. The analysis shows that high sociopolitical risks are, to a large extent, acknowledged by the CEC members, but as political “entrepreneurs” (North, 1990) these devolved duty-bearers are also driven by gubernatorial election results and budget allocations. Recognising the various components of the water service mandate in light of socioclimatic and political risks is an important step in the process of translating them into implementation strategies, as variations in people’s attentional focus, perceptions and constructions of reality clearly impact on their actions (Carver and Scheier, 1981; Wood and Bandura, 1989). Providing insights into mandated decision-makers’ current perceptions and how the varying pressures they are exposed to affect them may therefore be an important contribution towards the global effort to streamline pathways to the effective implementation and monitoring of SDG 6.1 (Hutton and Varughese, 2016; WHO/UNICEF, 2017, 2015). To prevent increased regional disparities through varying recognition and implementation of the devolved mandate, national-level regulation is critical to ensure equity and consistency in the implementation of the water service mandate across varying geographies.

2. **BACKGROUND**

2.1. **Does devolution drive service delivery?**

Decentralisation reforms are commonly introduced with the aim of moderating power concentration in the capital, enhancing the development of rural regions in particular (Crawford and Hartmann, 2008), and improving accountability and responsiveness within the system by altering governance structures (Faguet, 2014). The agents of change, political
or economic “entrepreneurs”, are expected to respond to the incentives embodied in the institutional framework (North, 1990).

A significant amount of literature examines institutional transitions that aim at building pathways out of poverty in Africa and demonstrate varying impacts on service delivery (Conyers, 2007; Crawford and Hartmann, 2008; Lein and Tagseth, 2009; Nsibambi, 1998; Palotti, 2008; Robinson, 2007; Uhlendahl et al., 2011; Wekwete, 2007) and poverty reduction (Bossuyt and Gould, 2000; Crook and Sverrisson, 2001; Francis and James, 2003; Grindle, 2007; Vedeld, 2003; Von Braun and Grote, 2002). Both background conditions (such as the political power structure) and process conditions (such as information flows) determine the impact of decentralisation. As outlined above, one important, but not sufficient, condition for effective implementation of decentralisation reforms is the perception of the devolved decision-makers of what their mandate entails. This has been identified as a gap in the literature.

Kenya has devolved certain functions and powers to the counties as a corrective to its underlying political shortcomings such as state over-centralisation, which allowed certain ethnic groups to dominate politics, and eventually led to election violence (Cheeseman et al., 2016; D’Arcy and Cornell, 2016). The election violence of 2007/08 is often cited as one of the reasons for introducing devolution, in order to promote a sense of inclusion among the multitude of ethnic groups (Cheeseman, 2011; Horowitz, 2015). In the run-up to Kenya’s second general election under its devolved system, the centre of public attention was as much on the race over the hotly contested 47 governors’ seats as it was on the presidential campaign (Waddilove, 2017). In line with Falleti’s (2005) theory of sequential
decentralisation, the 2010 constitution gave the political process of devolution momentum from the outset, which placed political pressure on county stakeholders throughout their term and at the same time facilitated coordination among them. Some go as far as to describe devolution in Kenya as the “governance of governors” (Cheeseman et al., 2016) – a political elite at the county level capable of acting in concert as a counterweight to the national government by building their own constituency while demonstrating their ability to protect local interests by fulfilling the constitutionally assigned functions. A danger highlighted by Crook and Sverrisson (2001) is the misdistribution\(^2\) of funds for ambiguously defined functions between the levels of government, which stable institutional arrangements may offset. Devolution in Kenya has also fostered the localisation of ethnic politics and led to the creation of new majorities and minorities in counties not overwhelmingly dominated by one ethnic group (Carrier and Kochore, 2014; Nyabira and Ayele, 2016), which may have implications for the delivery of public goods and services to all citizens, as certain areas may be unevenly targeted for investment (Kimenyi, 2006). This may also be a consequence of corruption (Burbidge, 2015; Keefer and Khemani, 2005; Treisman, 2002) and the “decentralisation of patronage networks” in Kenya (Cornell and D’Arcy, 2014).

A broad body of literature argues that governments subject to electoral competition are more likely to provide basic services to their citizens (Brown and Mobarak, 2009; Lake and Baum, 2001), including health, sanitation and clean water supply (Besley and Kudamatsu, 2006). Providing easily accessible and reliable water services to citizens is a frequent election promise across Kenya’s county governments. Promises range from a certain distance – for example providing water within a 1000-metre radius of the household as specified by World
Health Organisation (WHO) guidelines, depending on geography and population, to a certain timeframe, usually within a legislative period (Cherono, 2017; Kimanthi, 2016; Muthoni, 2017; Nyamori, 2017; Zani, 2016).

2.2. Political economy of the right to water in Kenya

This section provides an outline of the legal framework and the political economy determining the implementation of the right to water in Kenya. As part of its path towards middle-income country status, outlined in its Vision 2030 (Government of Kenya, 2007), Kenya subscribed to the human right to water and sanitation (UNGA, 2010). The conditions for the attainment of this human right include providing sufficient quantity, defined between 50 and 100 litres of water per person per day; potable quality in line with WHO guidelines; affordability (water costs that should not exceed three percent of the household income); physical access within 1,000 metres, or within 30 minutes of the home; and non-discrimination, meeting gender, lifecycle and privacy requirements3 (UNOHCHR, 2005). The internationally defined criteria of the right to water, a constitutional right in Kenya since 2010, form the basis of the Water Responsibility Index developed in this paper (see section 4.2). This right is defined in article 43 1(d) of the constitution, which states that “every person has the right to clean and safe water in adequate quantities” (Government of Kenya, 2010). The duty-bearers mandated with its implementation are the 47 county governments through their county water ministries headed by CEC members for water. While water resource management essentially remains a national mandate, water service delivery has been fully devolved, as outlined in the Fourth Schedule, Part II, 11 (Government of Kenya, 2010). Kenya’s constitutional obligation is reflected in the Water Act 2016 (preceded by the Water Bill 2014), which more specifically defines the roles and obligations of national and
county governments, also with regard to water services regulation (Republic of Kenya, 2016). Currently it is being translated into subnational laws and water strategies, following a prototype County Water and Sanitation Services Bill (Mumma and Thomas, 2016).

The reality on the ground is that only around 42 percent of the total Kenyan population are within formal water service provision areas and a mere 22 percent are actually served (WASREB, 2015). This suggests that the right to water faces several challenges from its inclusion in law to implementation on the ground. The dominance of the community-based management approach over several decades is not least a result of the poor performance of many state systems, or forced state retrenchment related to structural adjustment (Agrawal and Gibson, 1999; Hall et al., 2014; Mosse, 2006). At the household level, water continues to feature as a primary concern. For example in Kwale County on the Kenyan south coast, the main reason for supporting devolution is the expectation of faster access to service delivery (REACH, 2015). To increase citizen satisfaction by improving sector effectiveness, Ahmad et al. (2005) argue, strong relationships of accountability between the actors in the service delivery chain are critical. This is highlighted in the United Nations Universal Periodic Review for Kenya, which incentivises the country to ensure that the rights to water and sanitation are legally enforceable, particularly regarding gender and urban–rural inequalities, for which implementation gaps had been identified (UN Human Rights Council, 2015). These gaps fall under the human right criterion of non-discrimination. How the perceptions of the devolved decision-makers – with regard to addressing such inequalities and improving water service delivery – are influenced by a range of social, climatic and political risks is outlined below.

3. **SOCIOPOLITICAL RISK MODEL**
How do different decision-makers respond to the risks at play in the political economies of delivering water services in terms of the level of responsibility they assume for their mandate? To address this question, the paper presents a sociopolitical risk model leveraging public choice theory, which is based on the three presuppositions of methodological individualism, rational choice and politics-as-exchange (Buchanan, 2003, 1954). More recent studies on behavioural public choice (Viscusi and Gayer, 2015) acknowledge that like all individuals, policymakers are subject to psychological biases as well as political pressures and incentives. Accordingly, when politicians and bureaucrats consider courses of action involving the chance of credit and the risk of blame, their expectations and attitudes to risk take centre stage (Hood, 2011). The decision-makers’ determination to improve service delivery by addressing certain socioclimatic risks for the benefit of their electorate, while reducing their administration’s risk of failing in forthcoming elections, can be seen as an expression of politics-as-exchange. Methodological individualism takes into account the decision-makers’ perceived responsibility to implement their mandate by choosing the best possible strategy for themselves and the population they are serving. The notion of rational bargaining has to be stretched, however, in line with behavioural public choice theory, which holds that behaviour is also influenced by cognitive limitations and psychological biases, which represent political failures reflecting problems with individual preferences rather than systemic problems with incentives and institutions (Viscusi and Gayer, 2015). The sociopolitical risk model, it is argued, helps to examine the push-and-pull factors (risks and incentives) that the devolved duty-bearers experience in their endeavour to serve the electorate.
In a situation of high socioclimatic, or social or climatic, risks, for example through aridity, high poverty rates or urbanisation levels, which increase water demand, what effect do political risks, such as tight election margins, have on the duty-bearers’ level of responsibility for their mandate – and vice versa? Following the logic of mutuality of gain, certain socioclimatic risks need addressing to avoid public bad: if those are high, there may be a high utility for duty-bearers in addressing them (Brown and Lall, 2006; Granados and Sánchez, 2014; Ostrom, 1975). If they face an incentive through competition over re-election, they may also anticipate a high utility for meeting their mandated obligations (Eizenga, 2015; Gutierrez, 2007). The sociopolitical risk model presented here provides a tool to examine how political and socioclimatic risks interact and affect perceptions. For example, it may be able to explain why, under similar socioclimatic conditions, two decision-makers have different perceptions of responsibility. They may be experiencing varying degrees of political pressure. High socioclimatic and political risks may imply that decision-makers are strongly incentivised for risk mitigation through embracing far-reaching responsibility for their mandate; high political risks but low socioclimatic risks may incentivise them for close monitoring; low political risk but high socioclimatic risks may lead to an acknowledgement of their responsibility, which may have important implications as having reliable water supply has been associated with improved levels of health and livelihoods (Hunter et al., 2010); whereas low overall risks may imply that it is less harmful to ignore responsibility. Therefore, the sociopolitical risk model provides a conceptual frame for the empirical analysis of socioclimatic factors and electoral competition, which are hypothesised to influence the decision-makers’ perception of their responsibility across four risk zones (Figure 1). This model could be applied to different types of service provision, including water, health and education.
FIGURE 1. Sociopolitical risk model

Here, the model is applied to the issue of service delivery under devolution in Kenya, where the CEC members in the “decision-making centres” (Carlisle and Gruby, 2017) of the county governments play an important role, as their interpretation of the mandate determines the outcome. The framework rules set in the “constitutional politics” arena and laid down in the constitution govern their decision-making, which is part of “ordinary politics” and has to be exercised within the constitutionally defined boundaries (Buchanan and Tullock, 1999). National and county legislation is therefore guided by constitutional framework rules, yet enacted through ordinary politics in legislative assemblies. Accordingly, as part of ordinary politics the CEC members depend on the legislative behaviour of the members of the county assemblies (who, like the governors, have to run highly competitive election campaigns) (Lang’at and Ochieng, 2017). In addition to varying risks, they find themselves subject to intra- and inter-county trade-offs, and to interactions between county and national levels. This is recognised by Kenya’s constitution, which binds “all persons and all state organs at
both levels of government”, described as “distinct and interdependent”, to “conduct their mutual relations on the basis of consultation and cooperation” (Government of Kenya, 2010).

The first test of this study thus examines whether the decision-makers’ perceived responsibility for the water service mandate is consistent with the legal norms that define it. The second test comprises an examination of why differences may prevail and if there is a declining engagement with the water service mandate with lower risks along the “mitigated”, “monitored”, “acknowledged” and “ignored” zones (see application to the empirical data in section 5.3). As the members of the County Executive Committees are appointed by the governors, they depend on their re-election. Hence, elected politicians as well as appointed CEC members may attach value to the provision of public services, not least to convince the voters of their achievements. This internal motivation augments political pressure through the constitutional obligation as well as acts and policies of national government. The question of whether or not socioclimatic risks affect water policy choices refers to Grey and Sadoff’s (2007) observation that many societies with a legacy of “difficult” hydrology have remained poor. Certainly, higher investments in service delivery are required to respond to challenges in water-scarce areas (Government of Kenya, 2015; Hutton and Varughese, 2016; NEMA, 2015), which links to the final question of the role of water budget allocations and their influence on the devolved decision-makers’ perceptions of responsibility for delivering drinking water services to all Kenyans.

4. **METHODOLOGY**

4.1. **Data collection**
This paper applies a mixed methods approach. Semi-structured interviews with policymakers at national and county levels helped shape the survey examining the stakeholders’ perceptions of the water service mandate. In April and May 2015, 27 semi-structured interviews were conducted to guide the research on water sector transformation and the making of the Water Act, 2016 (Republic of Kenya, 2016). In addition to selected representatives from county governments, national representatives were interviewed in the Ministry for Water and Irrigation, the Water Services Regulatory Board (WASREB), the Water Resources Management Authority (WRMA), the Water Services Trust Fund, now Water Sector Trust Fund (WSTF) and the Water Appeal Board.

The data underpinning this study were collected through a survey with members of all 47 county water ministries in two stages: a) through a survey conducted at the first summit of the members of the CECs for Water in Baringo on 30–31 October 2015, organised by the Water Services Trust Fund, where 26 of the 47 counties were represented; b) the remaining 21 surveys were undertaken either in person or over the telephone in November and December 2015. Of the surveys, 72 percent were conducted with the CEC members for water themselves. Some directed their Chief Officers (15 percent) or Directors of Water Services (11 percent) to respond. Representing the frontline bureaucrats in the county water ministries, these individuals were deemed best suited by the CEC members for water to respond to the question of perceived responsibility for the water service mandate, which is measured in terms of subjective statements. While these responses do not constitute formal resolutions, they indicate how county mandates were interpreted towards the end of the three-year transition period. A similar analysis should be conducted once county legislation is finalised and implemented. The survey instrument was explained to all participants and
clarification questions were encouraged. Participant observation was further conducted at the Baringo meeting, where a prototype County Water Services Bill was developed to guide the CEC members’ discussion on constitutional obligations and the implementation of their mandate.\(^5\)

Other data sources include the gubernatorial election results of 4 March 2013 and 8 August 2017\(^6\) for the position of Governor (Independent Electoral and Boundaries Commission, 2017, 2013), the 2015 Afrobarometer survey (Afrobarometer, 2015), the Global Aridity Index (CGIAR-CSI, 2009), 2011/12 WASREB data on water coverage as a baseline before county governments started operating (WASREB, 2013), the 2005/06 Kenya Integrated Household Budget Survey (KNBS, 2006) on poverty rate,\(^7\) and the 2009 Kenya Population and Housing Census (KNBS, 2010) (see Table 1). Two major limitations have been identified with the selection of the independent variables. First, the 2015 Afrobarometer survey has a relatively low sample size per county. Second, the 2013 election margin, measured as the percent margin between election results of the winning candidate and runner-up in the 2013 gubernatorial elections for the position of governor, is acknowledged to be an imperfect tool to measure political pressure, as political alliances can change and have done so, and new competitors, for example senators, have entered the race. Nor does the variable capture the wider competition within counties as reflected in primaries. However, the 2013 gubernatorial election margins serve as an orientation for the first county governments in Kenya to gauge their public support. Moreover, the decision-makers’ perception of responsibility was stated in 2015, which is very likely influenced by the experience of the 2013 elections in a similar way as by opinion polls providing an indication of voting preferences for the 2017 elections that were still two years away at the time of the
interviews. Given the unreliability of opinion poll data even close to an anticipated election, the experience of actual election results was deemed more suitable in this context. Yet, it is important to acknowledge that election data are also disputed. While the most suitable variable at hand, their reliability is not guaranteed; and, although the introduction of new processes, such as biometric verification, raised public confidence prior to the 2013 elections, implementation lagged behind (Cheeseman et al., 2014). Election margins from the August 2017 gubernatorial elections that reflect the changes in terms of alliances were also tested in the regression analysis and were significant, although with a smaller effect. This adds validity to the choice of gubernatorial election margins as an independent variable for capturing political pressure.

4.2. Data analysis

Descriptive and regression analyses are applied to examine the uptake of the water service mandate in Kenya. The analysis aims to provide insights into how policymakers tailor the interpretation of their responsibilities considering the incentives and constraints they face. To analyse the difference between urban and rural settings in view of the human rights criteria the risk ratio is examined. A Water Responsibility Index is created, drawing on the acknowledgement of responsibility across the five criteria derived from the human right to water enshrined in Kenya’s constitution: a) sufficient quantity, b) potable quality, c) affordability, d) physical access and e) non-discrimination. This responsibility index is also created for only urban and only rural water services across the same criteria. The participants in the CEC survey were asked to answer “yes” or “no” to the following question across the five criteria for both urban and rural areas: “Today, is the County Government responsible for drinking water service delivery across the criteria below?” The criteria are
evenly weighted for urban and rural areas. This Water Responsibility Index serves as the dependent variable in the regression analysis. The data sources for the independent variables are outlined in Table 1. Ethnic representation in the county was not included in the statistical analysis as it is related with election margin (Abdille, 2017; D’Arcy and Cornell, 2016; Malik, 2016; Nyabira and Ayele, 2016). This is supported by a national baseline survey by the Society for International Development (SID, 2012), which finds that over a third of the respondents would adhere to ethnic considerations when electing their governor.
### TABLE 1. Definitions of variables included in the analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Responsibility Index</td>
<td>Level of responsibility accepted by county water ministries in terms of sufficient quantity, potable quality, affordability, physical access and non-discrimination for urban and rural areas</td>
<td>CEC survey</td>
</tr>
<tr>
<td><strong>Explanatory variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Election margin</td>
<td>Percent margin between election results of winning candidate and runner-up in 2013 gubernatorial elections for governors’ seats</td>
<td>IEBC 2013</td>
</tr>
<tr>
<td>Aridity&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0 = sub-humid to humid 1 = semi-arid to arid</td>
<td>CGIAR-CSI 2009</td>
</tr>
<tr>
<td>Baseline water coverage</td>
<td>Percentage of people served with drinking water by a utility (percentage of the total population within the service area of the utility in 2013)</td>
<td>WASREB 2013</td>
</tr>
<tr>
<td>Poverty rate</td>
<td>Percentage of county population living in poverty, 2005/06</td>
<td>KNBS 2006</td>
</tr>
<tr>
<td>Urbanisation level</td>
<td>Percentage of county population living in urban areas, 2009</td>
<td>KNBS 2010</td>
</tr>
<tr>
<td>Water service satisfaction</td>
<td>Binary level of citizen satisfaction with current government handling water and sanitation services 0=unsatisfied 1=satisfied</td>
<td>Afrobarometer 2015</td>
</tr>
<tr>
<td>County water budget</td>
<td>County water budget, as percent of total county budget in FY 2015/16</td>
<td>CEC survey</td>
</tr>
</tbody>
</table>

<sup>a</sup> Aridity was transformed into a binary variable, as averaging rainfall across the political county boundaries would not reflect the often-high variation between arid and humid regions. This variable reflects the climate zone for the larger part of each county.

Kenya is a country “rich” in variability, as illustrated by the political and socioclimatic factors examined in this study (Table 2). The mean election margin was 27 percent in 2013, compared to 26 percent in 2017, but the range extends almost across the whole spectrum.
from close to zero up to over 90 percent for both elections. Similarly, urbanisation levels, poverty rates and baseline water coverage stretch across wide ranges. Even county water budgets range between close to zero to 28 percent of the overall county budgets, which inevitably drives response mechanisms to water service delivery.

TABLE 2. Characteristics of counties included in regression models

<table>
<thead>
<tr>
<th>Measure</th>
<th>Percentage</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Election margin 2013 (%) (n=47)</td>
<td>27.4</td>
<td>24.4</td>
<td>1</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>County water budget (% of total) (n=45)a</td>
<td>7.2</td>
<td>5.8</td>
<td>0</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Urbanisation level (%) (n=47)</td>
<td>25.9</td>
<td>20.3</td>
<td>7</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Poverty rate (%) (n=47)</td>
<td>50.9</td>
<td>18.1</td>
<td>12</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>Baseline water coverage 2013 (%) (n=46)b</td>
<td>49.3</td>
<td>19.5</td>
<td>11</td>
<td>81</td>
<td></td>
</tr>
</tbody>
</table>

a One value was not available, and one outlier was removed: county ministry for water incorporated mandates for roads and infrastructure – hence the budget was not comparable to that of other counties.
b One value was not available from the WASREB dataset.

b. Summary statistics of binary variables

<table>
<thead>
<tr>
<th></th>
<th>Humid</th>
<th>Arid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aridity</td>
<td>47% (n=22)</td>
<td>53% (n=25)</td>
</tr>
<tr>
<td>Satisfied</td>
<td>66% (n=31)</td>
<td>34% (n=16)</td>
</tr>
<tr>
<td>Water service satisfaction</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multiple linear regression models test the factors influencing county water service responsibilities in general (as summarised in the Water Responsibility Index), as well as urban and rural water service responsibility respectively. With a 100 percent response rate,
all counties were captured in the CEC survey; however, the small number of observations for a regression analysis is acknowledged. Miles and Shevlin (2001) argue that with six predictors, a sample size of around 50 is likely sufficient for detecting large effects. The regression models are also mainly applied to test factors influencing the decision-makers’ perceived responsibility for the water service mandate, rather than to predict the exact impact.

5. RESULTS

5.1. Variations in the perception of the water service mandate across Kenya’s counties

When taking stock of the current state of drinking water provision in their counties, 49 percent of the water ministries consider drinking water provision satisfactory for urban, and 28 percent for rural areas; between 13 and 15 percent state that they have insufficient capacity to fulfil the water users’ expectations for urban and rural areas respectively. How these perceptions reflect their level of responsibility for delivering water services to all county citizens is analysed below. The following factors are examined: a) the variation in the perception of water service responsibility across the human right to water criteria, b) sociopolitical factors influencing these perceptions, and c) urban–rural dimensions across the four risk zones derived from the sociopolitical risk model.

Article 174(f) of the constitution refers to the spatial dimension requiring the devolution of government to include “the provision of proximate, easily accessible services throughout Kenya”, and Article 232 (1)(c) determines “the values and principles of public service include responsive, prompt, effective, impartial provision of services” (Government of Kenya, 2010). However, when county decision-makers were asked whether they acknowledged
responsibility of the five categories of sufficient quantity, potable quality, affordability, physical access and non-discrimination for water service provision, the response was mixed (Table 3). According to common practice, the question is disaggregated for urban and rural areas. Responsibilities are acknowledged between the 50–80 percent range – no criterion is universally adopted across Kenya. Affordability appears to be the most contested criterion for urban and rural areas. Of all the criteria, water being of potable quality stands out: the respondents are 30 percent more likely to view this as their responsibility in an urban context than in a rural one. The following section examines which factors influence the acknowledgement of these responsibilities by the duty-bearers.
TABLE 3. Summary statistics for acceptance of water service responsibilities by county

**a. Water service responsibilities**

<table>
<thead>
<tr>
<th>Water service responsibilities</th>
<th>Urban</th>
<th>Rural</th>
<th>Urban vs. Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Sufficient quantity</td>
<td>70% (32)</td>
<td>30% (14)</td>
<td>59% (26)</td>
</tr>
<tr>
<td>Potable quality</td>
<td>77% (34)</td>
<td>23% (10)</td>
<td>60% (25)</td>
</tr>
<tr>
<td>Affordability</td>
<td>57% (26)</td>
<td>43% (20)</td>
<td>54% (23)</td>
</tr>
<tr>
<td>Physical access</td>
<td>78% (35)</td>
<td>22% (10)</td>
<td>72% (31)</td>
</tr>
<tr>
<td>Non-discrimination</td>
<td>79% (35)</td>
<td>22% (10)</td>
<td>77% (34)</td>
</tr>
</tbody>
</table>

<sup>a</sup> This represents the likelihood of a respondent thinking that a characteristic of water service delivery is their responsibility in an urban context relative to a rural one.

* indicates statistically significant association at 5% level (p<0.05)

**b. Fair tariffs<sup>b</sup> and provision levels**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Urban (46)&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Rural (47)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Fair tariff (USD/m3)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>1.15</td>
<td>1.05</td>
</tr>
<tr>
<td>Fair drinking water provision (l/c/day)</td>
<td>43</td>
<td>12</td>
</tr>
</tbody>
</table>

<sup>b</sup> Data were not available for one county.

<sup>c</sup> Conversion Rate: 1 KES = 0.01 USD (6 March 2016)

**5.2. Which factors influence the perception of the water service mandate?**

Drawing on the sociopolitical risk model, a number of socioclimatic and political risk factors are empirically tested (Tables 4 and 5). For purposes of interpretability, multivariate linear regression models were used rather than generalised linear models, since the difference in the root mean square error was small. The disadvantage of linear models is that the predicted values are not constrained between zero and one, and three values are beyond the valid range.<sup>9</sup> Due to missing data, 41 of 47 cases are observed for all models. There...
appears to be no collinearity in the data, as there are no substantial correlations (r>0.5) in the predictors. Fifty-nine percent of the variance in water service responsibilities is explained through Model 1, which appears to be a relatively good fit given that responses are driven by subjectivity and other factors that cannot be captured here. The Durbin-Watson statistic (2.17) suggests that the errors in the regression are independent. The analysis of variance test (Model 1: F=6.83, p<0.001) suggests that the model is significantly better at predicting the outcome than using the mean as a best guess.

TABLE 4. Results of multivariable linear regression analysis with Water Responsibility Index as dependent variable

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Model 1 fit: $R^2 = 0.592$</th>
<th>Unstandardised coefficients</th>
<th>Standardised coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>S.E.</td>
</tr>
<tr>
<td>Aridity</td>
<td></td>
<td>0.082</td>
<td>0.083</td>
</tr>
<tr>
<td>County water budget</td>
<td>1.848**</td>
<td>0.659</td>
<td>0.356**</td>
</tr>
<tr>
<td>SQRT election margin 2013</td>
<td>-0.447*</td>
<td>0.166</td>
<td>-0.330*</td>
</tr>
<tr>
<td>Ln urbanisation level</td>
<td>0.296***</td>
<td>0.073</td>
<td>0.556***</td>
</tr>
<tr>
<td>Poverty rate</td>
<td>0.881**</td>
<td>0.260</td>
<td>0.506**</td>
</tr>
<tr>
<td>Water service satisfaction</td>
<td>0.177*</td>
<td>0.081</td>
<td>0.277*</td>
</tr>
<tr>
<td>Baseline water coverage</td>
<td>-0.499*</td>
<td>0.193</td>
<td>-0.294*</td>
</tr>
</tbody>
</table>

Note: * p<0.05; ** p<0.01; *** p<0.001

All variables apart from aridity are statistically significant in Model 1 at the five percent level. If all other variables are held constant, Model 1 suggests that a widening of the election margin is associated with a decrease in the Water Responsibility Index (for further associations see Figure 2). Higher poverty and urbanisation rates in the county are associated with an increase in water service responsibility. A higher baseline coverage is associated with a decrease in service responsibility levels. These findings may suggest that
poorer and underserved (especially urban) areas tend to gain a specific level of attention by the county decision-makers. An increase in water service satisfaction is associated with higher water service responsibility, which may mutually reinforce an upward trend. An increase in the county water budget has a strong positive effect on water responsibility levels, which supports the notion that it is linked to the capacity to deliver the mandate.

These results can be further disaggregated by examining the level of responsibility across all five criteria for urban and rural areas individually (Table 5). Forty-one out of 47 variables are observed, and 46 percent (Model 2) and 43 percent (Model 3) of the variance in urban and rural water service responsibility levels are explained respectively. The most striking findings here are that only two variables are significant across both models; the largest effect is for the county water budget. Having access to more finance appears to influence service
responsibility for rural areas in particular, and a higher poverty rate has double the effect on water service responsibility for rural areas compared to urban areas. A lower baseline coverage in urban settings seems to be a significant factor for urban responsibility levels, but not for rural ones.

[Table 5 about here]

**TABLE 5. Results of multivariable linear regression models with urban versus rural Water Responsibility Index as dependent variables**

<table>
<thead>
<tr>
<th></th>
<th>Urban responsibility index</th>
<th>Rural responsibility index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coef.</td>
<td>S.E.</td>
</tr>
<tr>
<td>Aridity</td>
<td>0.000</td>
<td>0.103</td>
</tr>
<tr>
<td>County water budget</td>
<td>1.765*</td>
<td>0.813</td>
</tr>
<tr>
<td>SQRT election margin</td>
<td>-0.310</td>
<td>0.210</td>
</tr>
<tr>
<td>Ln urbanisation level</td>
<td>0.268**</td>
<td>0.081</td>
</tr>
<tr>
<td>Poverty rate</td>
<td>0.504</td>
<td>0.323</td>
</tr>
<tr>
<td>Water service</td>
<td>0.136</td>
<td>0.097</td>
</tr>
<tr>
<td>satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline water</td>
<td>-0.672**</td>
<td>0.240</td>
</tr>
<tr>
<td>coverage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * p<0.05; ** p<0.01; *** p<0.001

5.3. **Water service responsibilities across risk zones in Kenya’s 47 counties**

Understanding the spatial variation of responsibility for water service delivery by the devolved duty-bearers provides important insights into the relationship between the various political and socioclimatic risks and how these can be clustered into the four risk zones of the sociopolitical risk model. Figure 3 shows the spatial distribution of election margins in the 2013 elections and current water service responsibility levels.
Applying the model to evaluate the perceived responsibility for the water service mandate across varying political and socioclimatic risks (Figure 4) allows for the examination of the responses across the four quadrants: risk mitigated, monitored, acknowledged and ignored. The risks scrutinised here are binary variables: electoral pressure as margins closer or wider than ten percent\(^{11}\) in the 2013 elections, and poverty levels below or above the median across Kenya (49 percent). Cross-tabulating political risk as expressed in close election margins with poverty levels, the highest level of mean responsibility appears to be in the high-risk quadrant for electoral pressure and poverty. Decision-makers in the counties falling into this quadrant appear to have a high recognition of their mandate; however, only five counties (11 percent) are covered here.

[Figure 3 about here: in COLOR online only, BW in print]
FIGURE 3. Map of Kenya showing Election Margin 2013 and Water Responsibility Index
Examining the five criteria of the Water Responsibility Index in more detail for the high-risk quadrant, it appears responsibility for physical access to water services and non-discrimination are fully accepted (100 percent) for urban and rural areas. Across the risk zones, the only other criterion scoring 100 percent is affordability. It is important to note that the five (mainly northern and north-eastern) counties in this quadrant have a very high proportion of poor, rural populations (Figure 3), which may explain the specific focus on affordability for those particularly marginalised areas. However, since the guarantee for potable quality is more difficult to provide for point sources in rural areas, it has a higher
score for urban areas. In these largely arid counties, sufficient quantity is the least accepted criterion due to water scarcity (Okullo et al., 2017; Peletz et al., 2016).

Whether high acknowledgement of responsibility for the service provision criteria leads to actual mitigation strategies, remains to be shown. The acknowledgement of responsibilities appears to generally decrease across the risk zones in a ‘s’ shape from top right down to bottom left (the low-risk quadrant), where four categories in the rural domain are below the 50 percent mark. Of Kenya’s counties, 28 percent are situated in the risk ignored quadrant. While political and socioclimatic risks may be relatively lower in this quadrant, the duty-bearers’ mandate for these 28 percent of counties is the same, according to the agenda 2030: water service delivery for all that are currently not served, which highlights the importance of regulation in Kenya’s devolved system.

[Figure 4 about here: in COLOR online only, BW in print]

**FIGURE 4.** Five water service responsibilities across the risk zones
For all those 32 counties facing low electoral pressure, the water service responsibilities for the five categories are lower, on average. When it comes to affordability, those in the high poverty and low electoral pressure quadrant would face the highest tariffs if the subjective statements in the survey were implemented in practice. Duty-bearers stated that a fair tariff for rural water provision in these 19 counties would be USD 1.69 per cubic metre (USD 0.21 more than urban fair tariffs in this quadrant). This is extremely high considering the global poverty line, currently defined at USD 1.90 per day (World Bank, 2015). These findings relate to important discussions about subsidies and pro-poor measures. Of the political entrepreneurs at the county level, 40 percent state that users should pay the full cost of water provision. Of those counties supporting subsidies, the majority (57 percent) state that county governments should pay for the subsidy, followed by donors (26 percent) and the national government (23 percent). Given the variability of the affordability criterion, the consideration of subsidies and who should pay for them appears to be an important implication for the capacity to deliver SDG target 6.1.
6. **IMPLICATIONS**

6.1. **Balancing risks and opportunities for the water service mandate**

The political entrepreneurs at the devolved governments are appointed for a four-year term to deliver the right to water to all Kenyans. They are tasked with ensuring their counties are on track with the sustainable development agenda. Their – not least fiscal – capacity to balance socio-climatic and political risks with the uptake of responsibility for the full mandate will ultimately determine the success or failure of Kenya’s institutional transformation in responding to the sustainable development challenge. While behavioural public choice theory assumes decision-making is not only determined by goal orientation but also by cognitive and psychological factors (Viscusi and Gayer, 2015), Hood (2011, 2007) points to the decision-makers’ endeavour to avoid blame and achieve positive feedback. Officeholders’ perceptions are therefore likely to be influenced by the risks facing them. This section discusses the balancing of collective risks for the county population – ideally achieving *low perceived harm* – against individual risks for the officeholder with *high perceived responsibility* for underserved and poorer areas (Hood, 2011; McGinnis and Ostrom, 2011; Ostrom and Ostrom, 1971). Since all the criteria of sufficient quantity, potable quality, affordability, physical access and non-discrimination are not fully acknowledged by the decision-makers in all 47 counties, the sociopolitical risk model helps to empirically test which a) socioclimatic and b) political risks impact on the duty-bearers’ perception of responsibility for the water service mandate. Variations in perceptions of responsibility for urban and rural areas are also highlighted.
First, in line with the principle of mutuality of gain (Buchanan and Yoon, 2000), the utility for decision-makers seems to increase with both rising socioclimatic and political risks. In terms of the collective risks faced by the county populations, the findings suggest that, across the 47 county water ministries, water service responsibility is higher for those parts of the population outside current provision areas. This is an important finding: in 2015, when the data underlying this study were collected, only 22 percent of Kenya’s population were served in terms of water service coverage (WASREB, 2015). The distinction between urban and rural responsibility levels shows that baseline water coverage (see table 1) is only significant for urban areas, suggesting that county decision-makers’ responsibility focuses on urban areas currently not served but within the reach of water service providers, whereas rural areas may appear out of reach. The second finding relating to collective risks suggests that a higher poverty level in the county has a positive effect on the decision-makers’ responsibility levels. When disaggregated for urban and rural areas, this factor is only significant for rural areas (and has double the effect), which might indicate that the hotspots in rural areas receive higher levels of attention after being neglected and left to the communities under centralised government arrangements (Blaikie, 2006; Mamdani, 1996). If responsibility is correlated with delivery, this finding can be considered as promising for progress towards the sustainable development agenda.

Second, the motivation for acknowledging responsibility for the unserved may be reinforced by the anticipation of positive feedback in elections due to recognisable achievements, according to the principle of politics-as-exchange posited by public choice theory, and to successful avoidance of blame (Hood, 2011). The validity of the proposition is supported by the fact that the closeness of the 2013 election margin appears to be a significant positive
factor for water service responsibility by the decision-makers, who may strive for
attributable successes to strengthen the position of the governor, on whose re-election they
depend – and at the same time their own position within the county government. Thus,
improved service delivery may reduce the political risk they face individually and offer the
prospect to continue their function beyond the next election. Urban–rural differentiation
also suggests that tighter election margins are associated with a higher responsibility level
for rural areas, which may be related to the fact that, despite a rapid urbanisation rate (4.15
percent per annum), 73.5 percent of Kenya’s population is rural (World Bank, 2016).
Generally, urban water provision outperforms rural water provision (WASREB, 2015).
Demonstrating responsibility for rural areas may thus contribute to improving future
election results.

While political risk has been identified as a critical driver for the duty-bearers’ perceived
responsibility to deliver water services, only 30 percent of the counties are faced with high
competition as defined in the sociopolitical risk model. Political pressure through the
tightness of the election margin alone may thus not be sufficient to drive water service
responsibility, especially given the disputed reliability of election data (Cheeseman et al.,
2014). Opinion poll data may also represent an important factor of political pressure
influencing decision-makers’ perceptions, which should be tested in future research.
Moreover, election alliances that break off in the course of a political term, or the formation
of new alliances (for example the Jubilee Party or the National Super Alliance in 2016/2017),
can change the political dynamics within a county. Corruption and nepotism can create a
political economy that is unfavourable to bringing water services to all citizens in a county
(D’Arcy and Cornell, 2016; Lynch, 2006; Weingast, 2014). Ethnic block voting has been
identified as a prevailing factor in Kenya’s political landscape (Brass and Cheeseman, 2013),
which certainly limits the officeholders’ scope of being rewarded for their successes. Of the
governors re-elected in 2017 (Independent Electoral and Boundaries Commission, 2017) 45
percent serve in counties with a high Water Responsibility Index\textsuperscript{14}.

Overall, the danger of political entrepreneurs defining ambitious targets for one group while
accepting more modest ones for others – for example across the different risk zones or for
urban versus rural water users – stands in direct contrast to the “universality” claim of
international and national frameworks. The difficulty in achieving the five human rights
criteria at once has been recognised through the principle of “progressive realisation” (UN
Human Rights Council, 2013) of the right to water until “universality” is achieved. It
concedes that, in case of resource or other constraints, certain rights cannot be realised
immediately (UNTS, 1983).

6.2. \textbf{Resource and responsibility, and the capacity to deliver?}

Responsibility alone cannot deliver improved service delivery. The strongest effect across
the three models is perceived for county water budgets as a proportion of the total county
budget. The constitution (Government of Kenya, 2010) determines that, for every financial
year, a minimum share of 15 percent of all revenue raised by the national government will
be allocated to county governments (Article 203(2)), but each county government sets its
own annual budget (Article 224). Hence, water budgets vary from close to zero to 28 percent
of the total county budget, according to the county water ministries\textsuperscript{15} – and the effect is
considerable compared to the other variables. Access to more funds (through higher county
water budgets) appears to drive service responsibility for rural areas, which may relate to
the fact that the rural proportion of the population to be served with safely managed
drinking water by 2030 is considerably larger than that in urban settings.

When asked about water budget allocation, the majority of counties provide that more than
75 percent is spent on the development and construction of new water infrastructure.
Apparently, incumbents favour visible achievements over sustainability. This may be due to
their expectation of being rewarded for evident, favourable outcomes by the voter (Harding
and Stasavage, 2014). Moreover, the question of budget allocations is also linked to water
user tariffs. Two fifths of the county decision-makers state that users should pay the full cost
of provision, which would include standard operation and maintenance costs. Perceived fair
tariffs for rural areas are defined at higher rates than for urban ones, the difference being
particularly stark in the risk ignored quadrant (37 percent higher for rural than for urban
areas). This is linked to the question of affordability, the least recognised criterion of the
Water Responsibility Index, as it is relative due to varying socioclimatic realities in each
county and their potential to reinforce existing inequalities.

Kenya’s devolved decision-makers’ challenge to deliver on their mandate is reflected globally
(Hutton and Varughese, 2016). Not only are USD 114 billion needed for capital investments
to meet SDG targets 6.1 and 6.2, but spending on operation and maintenance for the newly
served from 2015 to 2029 is likely to outweigh capital costs by 1.4 times for basic water,
sanitation and hygiene (WASH), and 1.6 times for safely managed WASH services, by 2029
(Hutton and Varughese, 2016). It is thus important that budgetary allocations not only focus
on new infrastructure development but also on operation and maintenance to ensure that
safely-managed services can be sustained (Fonseca and Pories, 2017), affordability for the
marginalised is recognised and the water service responsibility of the officeholders can translate into results.

6.3. Harnessing devolution for SDG progress on delivering water services for all?

The discussion above suggests that the devolved duty-bearers may act as political entrepreneurs within a bargaining situation, which puts them in a position where they can seek step-by-step progress. Situated between constitutional and ordinary politics, they have full responsibility for the water service mandate while facing diverse sociopolitical risks and budgetary constraints. The final part of this paper reflects on some general aspects of the political economy of devolution as a catalyst for institutional improvements in water service delivery, on the promises and dangers of devolution, and on the role of oversight under risk regulation regimes (Hood et al., 2001).

The degree of responsibility county decision-makers acknowledge for the various functions of the water service mandate is influenced by the political economy of devolution. It incentivises county governments to demonstrate improved performance compared to the pre-devolution situation. Their apparent ambition to out-perform the national government appears to manifest itself at the level of the Council of Governors, aiming at functioning county governments and administrations to prove the success of devolution and forming a counterweight to the national government (Cheeseman et al., 2016). The vagueness of the 2010 Constitution with regard to water service regulation has led to further power struggles between national and county levels, with the national government leaning on Article 186(3), stating that a function or power not assigned is a function or power of the national government. Arguing that, depending on power structures, it is often local-central relations
(including budget allocations) that determine the impact of decentralisation on poverty, 

Crook (2003) concludes that allocating resources to hitherto unserved areas can be particularly effective in generating user satisfaction. Since improved service delivery is a key element in county election manifestos (Cherono, 2017; Kimanthi, 2016; Muthoni, 2017; Nyamori, 2017) and a stated expectation by the Kenyan population (Afrobarometer, 2015), the utility of fulfilling their election promises may be high for county water ministers of the new legislative period starting in 2017.

Regarding the promises and dangers of devolution, the findings support the notion that devolution is likely to enhance downward accountability. While facing an imperative constitutional mandate to deliver universal water services, many officeholders are highly motivated to make a success of devolution (Pitcher, 2012; Shepsle, 1991) for the poorer and more marginalised county populations with lower baseline coverage – but also for themselves as self-interested individuals and members of the county governments, as public choice theory would have it. However, the citizens’ capacity to make their politicians accountable depends not only on the degree of information available to them (Adserà et al., 2003) but also on their power status, their efforts to ensure accountability, their desire for adequate representation or their ability to choose the lesser of two evils, which Cho (2012) found an important factor for public trust in 16 sub-Saharan African countries. Given the varying degrees of the duty-bearers’ perceived responsibility across the risk zones, and the possibility that counties pass and implement markedly diverging county water bills, there is a danger of reinforcing regional disparities – cited in the literature as one of the dangers of decentralisation (Rodden and Wibbels, 2002; Stein, 1998).
To counterbalance such developments, the role of the national regulator is critical for strict implementation and enforcement of the constitution, as well as for overseeing and monitoring the fulfilment of the constitutional mandate (Ahmad et al., 2005). The regulator may thus be able to mediate some of the uneven outcomes resulting from variations in the uptake of the water service mandate. Yet, if not only incremental percentage-point by percentage-point progression towards “safely managed water services” (WHO/UNICEF, 2017, 2015) but well-defined and measurable progress toward universal service delivery is to be achieved for the 58 percent of Kenyans still outside service provision areas, institutional rethinking and cooperation are required, particularly in rural regions and informal settlements (WASREB, 2015). Counties are responsible beyond the current reach of those service provision areas. Adequate budgetary allocations to the individual criteria of the water service mandate and the development of county legislation and water master plans for implementation are thus critical.

Instead, therefore, of viewing the water sector as a hierarchical structure, it may be considered as a system with overlapping jurisdictions for different levels of operation and multiorganisational arrangements. “Rational, self-interested public administrators” (Ostrom and Ostrom, 1971) – here the devolved duty-bearers for water services – may consciously bargain to increase efficiency and mobilise political support from the public to avoid political deadlock while stabilising their departments within county governments.

7. **CONCLUSION**
The sociopolitical risk model provides a tool to analyse factors influencing decision-makers in charge of public service provision and to examine how their perceived responsibility for the constitutional mandate is related to perceived avoidable harm. The model can be applied to institutional transformations during decentralisation processes in various sectors, and also in other sub-Saharan African countries. Its operationalisation to the Kenyan case shows, first, the allocation of adequate financial resources appears to be the strongest limiting factor for the recognition of responsibilities and their translation into actual water service delivery. Second, the wide variance which the model reveals in the decision-makers’ perceived responsibility for the water service mandate needs to be streamlined across human rights criteria so that regional disparities do not grow and transformative development is sustained, especially in rural, marginalised areas. This highlights the importance of spatial concepts of central–regional, interregional and urban–rural relations for political decision-making and the crucial role of regulation at the national level for universal coverage.

At the start of Kenya’s second term under devolution with 47 county governments in charge of the provision of services in sectors such as water and health, this study observes that the devolved duty-bearers generally adopted a target-oriented approach towards the implementation of the constitution so as to achieve progressive realisation of the human right to water during the first phase of Kenya’s devolution process. Their perceived responsibility appears to focus on the poor in underserved areas. However, recognition of the constitutional water service mandate is related to the varying socio-climatic and political risks they face in their counties. Thus, inequalities remain although devolution has evidently been tapped for progress towards target 6.1 of the sustainable development agenda. While no direct link with improved service levels can be established for the first legislative period,
perceptions of responsibility for the constitutional mandate have started to manifest themselves in county legislation and institution building.

The sociopolitical risk model may also provide an effective evaluation tool for the perception of the water service mandate by the second round of county-level decision-makers, allowing insights into whether responsibility for the water service mandate continues to focus on the poor and can translate into service improvements. Using the model to analyse potential differences between new and continuing administrations may yield interesting results about political dynamics. Globally, the question whether the targets of the 2030 Agenda for Sustainable Development are achieved begins with the acknowledgement and uptake of the mandate by duty-bearers, before actual progress can be measured, and depends on each country’s and its subnational institutions’ sociopolitical and geographical realities.
REFERENCES


Crawford, G., Hartmann, C., 2008. Decentralisation in Africa: A Pathway out of Poverty and
Conflict. Amsterdam University Press, Amsterdam.


Nyabira, B.C., Ayele, Z.A., 2016. The state of political inclusion of ethnic communities under
1025 Management in Multitiered Systems. World Politics 54, 494–531.
1026 Shepsle, K., 1991. Discretion, Institutions, and the Problem of Government Commitment, in:
1027 Bourdieu, P., Coleman, J. (Eds.), Social Theory for a Changing Society. Westview Press,
1028 Boulder, pp. 245–263.
1030 International Development, Nairobi.
1032 Administration and Development 23, 7–16. doi:10.1002/pad.255
1034 American Development Bank, Washington, D.C.
1036 Challenges, Tensions and Opportunities. Aquatic Procedia 6, 87–95.
1037 doi:http://dx.doi.org/10.1016/j.aqpro.2016.06.010
1038 Treisman, D., 2002. Decentralization and the Quality of Government. Department of Political
1039 Science, UCLA, Los Angeles.
1040 Uhlendahl, T., Salian, P., Casarotto, C., Doetsch, J., 2011. Good water governance and IWRM
1045 4.28.16).


United Nations General Assembly.


Waddilove, H., 2017. Kenya voted for change and got it... at the local level. African Arguments.


Endnotes

1 “County Executive Committee Members” is the official term for “County Water Ministers”; however, the latter is more commonly used.

2 In the sense that sectors such as water and health are devolved but not enough finances are allocated for the counties to fully implement their mandates.

3 Waterpoints should be positioned to enable use for personal hygiene, including menstrual hygiene.

4 The definition is adapted from Viscusi and Gayer’s (2015) behavioural economic definition.

5 Prior to data collection, research permits and approvals were obtained from the Government of Kenya’s National Council of Science and Technology and the Central University Research Ethics Committee at the author’s institution.

6 Transmission date of gubernatorial election results: 28 September 2017.

7 A new KIHBS survey was conducted in 2015/16; however, the data were not yet available at the time of the analysis of the paper.

8 This is a subjective measure captured in the CEC survey. The question, disaggregated into urban and rural, was: “What do you consider a fair drinking water tariff?”

9 The variable “election margin” was transformed into its square root (SQRT) as we do not expect a linear relationship of this variable with the outcome variable and the square root transformation provided a close to normal distribution. Similarly, for a close to normal distribution the variable “urbanisation level” was transformed into a natural logarithm (Ln).

10 A model with the margins from the 2017 gubernatorial elections supports this trend, but the effect is smaller.
The analysis was conducted for five and ten percent margins, yielding similar results. Due to small sample size for high electoral pressure, ten percent was chosen, which was also selected as a suitable threshold for tight margins by Nelson (1996) and Fisman et al. (2014).

When applying the Mann-Whitney U test, fair tariff levels for rural areas in high poverty counties differed significantly from fair tariff levels in rural areas in low poverty counties (U=356, p<0.05).

A Pearson product-moment correlation was run to determine the relationship between the Water Responsibility Index and the improvement in water coverage between 2013 and 2015, for which data was available. There is a moderate, positive correlation between them, which is statistically significant (r=0.3, n=39, p<0.05). This is not a strong correlation, however; the Water Responsibility Index relates to a mandate that is in the process of implementation, and remains in some respects an election promise rather than a solid achievement. Overall, the positive correlation suggests counties that have a higher Water Responsibility Index tend to be on an upward trend in terms of improving coverage.

A “high” Water Responsibility Index is assigned for the values between 0.8 and 1.

These data were collected as part of the CEC survey and reflect the perception of the proportion of the water budget as part of the total county budget by the county decision-makers.

The question in the survey used the common measurements for urban tariffs (in Kenyan shillings/m³) and rural tariffs (per 20-litre jerrican), as they are the most common means to collect tariffs on the ground. The difference in measurement may also contribute to the differences between urban and rural tariffs.
Highlights

- Novel insights into Kenya’s devolution and water service reform are discussed.
- Perceptions by all devolved county water ministries of the first term are presented.
- A sociopolitical risk model is developed to examine responsibility by policymakers.
- Political, socioclimatic and spatial factors impact perceptions of responsibility.
- Risks, resources and perceptions are critical for delivering the right to water.
Acknowledgements

The author is grateful to Government of Kenya staff in the National Ministry of Water and Irrigation, the Water Services Trust Fund, the Water Services Regulatory Board, and all 47 County Governments for their support for the study. Rural Focus Ltd. (Kenya) supported the study logistics. The author is also grateful to all colleagues in the Oxford University Water Programme, especially Director Dr Rob Hope, Dr Dustin Garrick, Dr Katrina Charles, Patrick Thomson, Jacob Katuva, Farah Colchester and Alex Fischer, who supported the research and provided valuable comments for this article.

Funding

The author is a DPhil Scholar supported by the Oxford University Clarendon Fund, working in the Water Programme of the Smith School of Enterprise and the Environment. We acknowledge financial support from the UK Department for International Development for the ‘REACH: Improving water security for the poor’ Programme (201880), the UPGro Programme on ‘Groundwater Risk Management for Growth and Development’ (NE/M008894/1) funded by the UK Natural Environment Research Council, the UK Economic and Social Research Council and the UK Department for International Development, as well as the ‘Mobile payment systems to reduce rural water risks in Africa’ Project (ES/N000137/1) funded by the UK Economic and Social Research Council. An anonymous version of the data is available from the author on reasonable request after the end of the grant. The views expressed and information contained in this paper are not necessarily those of or endorsed by these funders, who can accept no responsibility for such views or information or for any reliance placed on them.

Conflict of interest: The author declares no competing interest exists.