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

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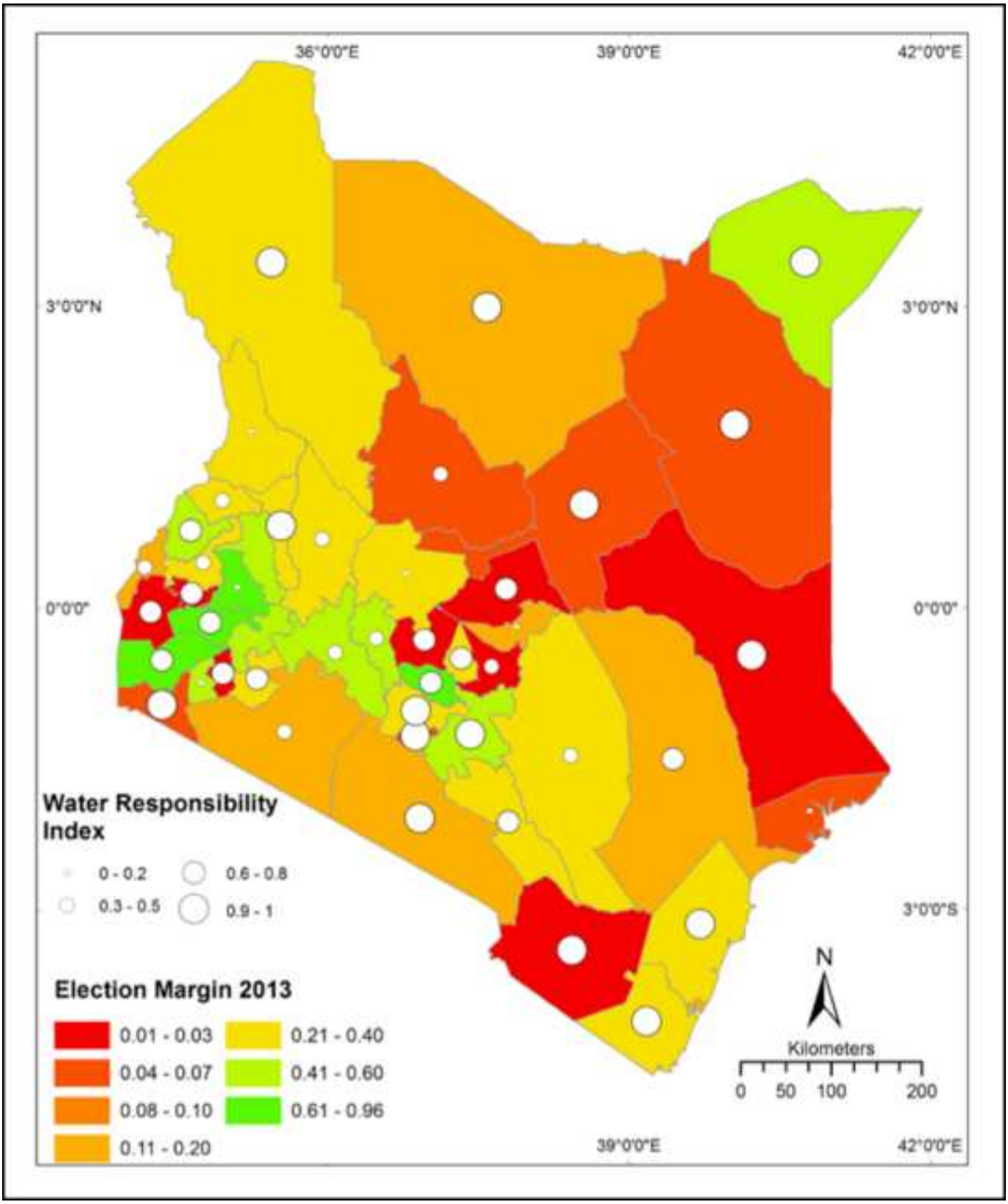
Graphical Abstract



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

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,

96 in light of public choice theory; second, the linkage between resource and responsibility; and
97 third, harnessing the devolution process for progress towards the SDG of increasing reliable
98 water services. The analysis shows that high sociopolitical risks are, to a large extent,
99 acknowledged by the CEC members, but as political "entrepreneurs" (North, 1990) these
100 devolved duty-bearers are also driven by gubernatorial election results and budget
101 allocations. Recognising the various components of the water service mandate in light of
102 socioclimatic and political risks is an important step in the process of translating them into
103 implementation strategies, as variations in people's attentional focus, perceptions and
104 constructions of reality clearly impact on their actions (Carver and Scheier, 1981; Wood and
105 Bandura, 1989). Providing insights into mandated decision-makers' current perceptions and
106 how the varying pressures they are exposed to affect them may therefore be an important
107 contribution towards the global effort to streamline pathways to the effective
108 implementation and monitoring of SDG 6.1 (Hutton and Varughese, 2016; WHO/UNICEF,
109 2017, 2015). To prevent increased regional disparities through varying recognition and
110 implementation of the devolved mandate, national-level regulation is critical to ensure
111 equity and consistency in the implementation of the water service mandate across varying
112 geographies.
113
114 ## 2. BACKGROUND
115 ### 2.1. Does devolution drive service delivery?
116 Decentralisation reforms are commonly introduced with the aim of moderating power
117 concentration in the capital, enhancing the development of rural regions in particular
118 (Crawford and Hartmann, 2008), and improving accountability and responsiveness within
119 the system by altering governance structures (Faguet, 2014). The agents of change, political

120 or economic “entrepreneurs”, are expected to respond to the incentives embodied in the
121 institutional framework (North, 1990).
122
123 A significant amount of literature examines institutional transitions that aim at building
124 pathways out of poverty in Africa and demonstrate varying impacts on service delivery
125 (Conyers, 2007; Crawford and Hartmann, 2008; Lein and Tagseth, 2009; Nsibambi, 1998;
126 Palotti, 2008; Robinson, 2007; Uhlendahl et al., 2011; Wekwete, 2007) and poverty
127 reduction (Bossuyt and Gould, 2000; Crook and Sverrisson, 2001; Francis and James, 2003;
128 Grindle, 2007; Vedeld, 2003; Von Braun and Grote, 2002). Both background conditions (such
129 as the political power structure) and process conditions (such as information flows)
130 determine the impact of decentralisation. As outlined above, one important, but not
131 sufficient, condition for effective implementation of decentralisation reforms is the
132 perception of the devolved decision-makers of what their mandate entails. This has been
133 identified as a gap in the literature.
134
135 Kenya has devolved certain functions and powers to the counties as a corrective to its
136 underlying political shortcomings such as state over-centralisation, which allowed certain
137 ethnic groups to dominate politics, and eventually led to election violence (Cheeseman et
138 al., 2016; D’Arcy and Cornell, 2016). The election violence of 2007/08 is often cited as one of
139 the reasons for introducing devolution, in order to promote a sense of inclusion among the
140 multitude of ethnic groups (Cheeseman, 2011; Horowitz, 2015). In the run-up to Kenya’s
141 second general election under its devolved system, the centre of public attention was as
142 much on the race over the hotly contested 47 governors’ seats as it was on the presidential
143 campaign (Waddilove, 2017). In line with Falleti’s (2005) theory of sequential

144 decentralisation, the 2010 constitution gave the political process of devolution momentum
145 from the outset, which placed political pressure on county stakeholders throughout their
146 term and at the same time facilitated coordination among them. Some go as far as to
147 describe devolution in Kenya as the "governance of governors" (Cheeseman et al., 2016) – a
148 political elite at the county level capable of acting in concert as a counterweight to the
149 national government by building their own constituency while demonstrating their ability to
150 protect local interests by fulfilling the constitutionally assigned functions. A danger
151 highlighted by Crook and Sverrisson (2001) is the misdistribution[2] of funds for ambiguously
152 defined functions between the levels of government, which stable institutional
153 arrangements may offset. Devolution in Kenya has also fostered the localisation of ethnic
154 politics and led to the creation of new majorities and minorities in counties not
155 overwhelmingly dominated by one ethnic group (Carrier and Kochore, 2014; Nyabira and
156 Ayele, 2016), which may have implications for the delivery of public goods and services to all
157 citizens, as certain areas may be unevenly targeted for investment (Kimenyi, 2006). This
158 may also be a consequence of corruption (Burbidge, 2015; Keefer and Khemani, 2005;
159 Treisman, 2002) and the "decentralisation of patronage networks" in Kenya (Cornell and
160 D'Arcy, 2014).
161
162 A broad body of literature argues that governments subject to electoral competition are
163 more likely to provide basic services to their citizens (Brown and Mobarak, 2009; Lake and
164 Baum, 2001), including health, sanitation and clean water supply (Besley and Kudamatsu,
165 2006). Providing easily accessible and reliable water services to citizens is a frequent election
166 promise across Kenya's county governments. Promises range from a certain distance – for
167 example providing water within a 1000-metre radius of the household as specified by World

168 Health Organisation (WHO) guidelines, depending on geography and population, to a certain
169 timeframe, usually within a legislative period (Cherono, 2017; Kimanthi, 2016; Muthoni,
170 2017; Nyamori, 2017; Zani, 2016).
171
172 **2.2. Political economy of the right to water in Kenya**
173 This section provides an outline of the legal framework and the political economy
174 determining the implementation of the right to water in Kenya. As part of its path towards
175 middle-income country status, outlined in its Vision 2030 (Government of Kenya, 2007),
176 Kenya subscribed to the human right to water and sanitation (UNGA, 2010). The conditions
177 for the attainment of this human right include providing sufficient quantity, defined
178 between 50 and 100 litres of water per person per day; potable quality in line with WHO
179 guidelines; affordability (water costs that should not exceed three percent of the household
180 income); physical access within 1,000 metres, or within 30 minutes of the home; and non-
181 discrimination, meeting gender, lifecycle and privacy requirements[3] (UNOHCHR, 2005). The
182 internationally defined criteria of the right to water, a constitutional right in Kenya since
183 2010, form the basis of the Water Responsibility Index developed in this paper (see section
184 4.2). This right is defined in article 43 1(d) of the constitution, which states that "every
185 person has the right to clean and safe water in adequate quantities" (Government of Kenya,
186 2010). The duty-bearers mandated with its implementation are the 47 county governments
187 through their county water ministries headed by CEC members for water. While water
188 resource management essentially remains a national mandate, water service delivery has
189 been fully devolved, as outlined in the Fourth Schedule, Part II, 11 (Government of Kenya,
190 2010). Kenya's constitutional obligation is reflected in the Water Act 2016 (preceded by the
191 Water Bill 2014), which more specifically defines the roles and obligations of national and

192 county governments, also with regard to water services regulation (Republic of Kenya,
193 2016). Currently it is being translated into subnational laws and water strategies, following a
194 prototype County Water and Sanitation Services Bill (Mumma and Thomas, 2016).
195
196 The reality on the ground is that only around 42 percent of the total Kenyan population are
197 within formal water service provision areas and a mere 22 percent are actually served
198 (WASREB, 2015). This suggests that the right to water faces several challenges from its
199 inclusion in law to implementation on the ground. The dominance of the community-based
200 management approach over several decades is not least a result of the poor performance of
201 many state systems, or forced state retrenchment related to structural adjustment (Agrawal
202 and Gibson, 1999; Hall et al., 2014; Mosse, 2006). At the household level, water continues to
203 feature as a primary concern. For example in Kwale County on the Kenyan south coast, the
204 main reason for supporting devolution is the expectation of faster access to service delivery
205 (REACH, 2015). To increase citizen satisfaction by improving sector effectiveness, Ahmad et
206 al. (2005) argue, strong relationships of accountability between the actors in the service
207 delivery chain are critical. This is highlighted in the United Nations Universal Periodic Review
208 for Kenya, which incentivises the country to ensure that the rights to water and sanitation
209 are legally enforceable, particularly regarding gender and urban–rural inequalities, for which
210 implementation gaps had been identified (UN Human Rights Council, 2015). These gaps fall
211 under the human right criterion of non-discrimination. How the perceptions of the devolved
212 decision-makers – with regard to addressing such inequalities and improving water service
213 delivery – are influenced by a range of social, climatic and political risks is outlined below.
214

215 **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[4] (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.

240 In a situation of high socioclimatic, or social or climatic, risks, for example through aridity,
241 high poverty rates or urbanisation levels, which increase water demand, what effect do
242 political risks, such as tight election margins, have on the duty-bearers' level of responsibility
243 for their mandate – and vice versa? Following the logic of mutuality of gain, certain
244 socioclimatic risks need addressing to avoid public bad: if those are high, there may be a high
245 utility for duty-bearers in addressing them (Brown and Lall, 2006; Granados and Sánchez,
246 2014; Ostrom, 1975). If they face an incentive through competition over re-election, they
247 may also anticipate a high utility for meeting their mandated obligations (Eizenga, 2015;
248 Gutierrez, 2007). The sociopolitical risk model presented here provides a tool to examine
249 how political and socioclimatic risks interact and affect perceptions. For example, it may be
250 able to explain why, under similar socioclimatic conditions, two decision-makers have
251 different perceptions of responsibility. They may be experiencing varying degrees of political
252 pressure. High socioclimatic *and* political risks may imply that decision-makers are strongly
253 incentivised for risk *mitigation* through embracing far-reaching responsibility for their
254 mandate; high political risks but low socioclimatic risks may incentivise them for close
255 *monitoring*; low political risk but high socioclimatic risks may lead to an *acknowledgement* of
256 their responsibility, which may have important implications as having reliable water supply
257 has been associated with improved levels of health and livelihoods (Hunter et al., 2010);
258 whereas low overall risks may imply that it is less harmful to *ignore* responsibility. Therefore,
259 the sociopolitical risk model provides a conceptual frame for the empirical analysis of
260 socioclimatic factors and electoral competition, which are hypothesised to influence the
261 decision-makers' perception of their responsibility across four risk zones (Figure 1). This
262 model could be applied to different types of service provision, including water, health and
263 education.

[Figure 1 about here]

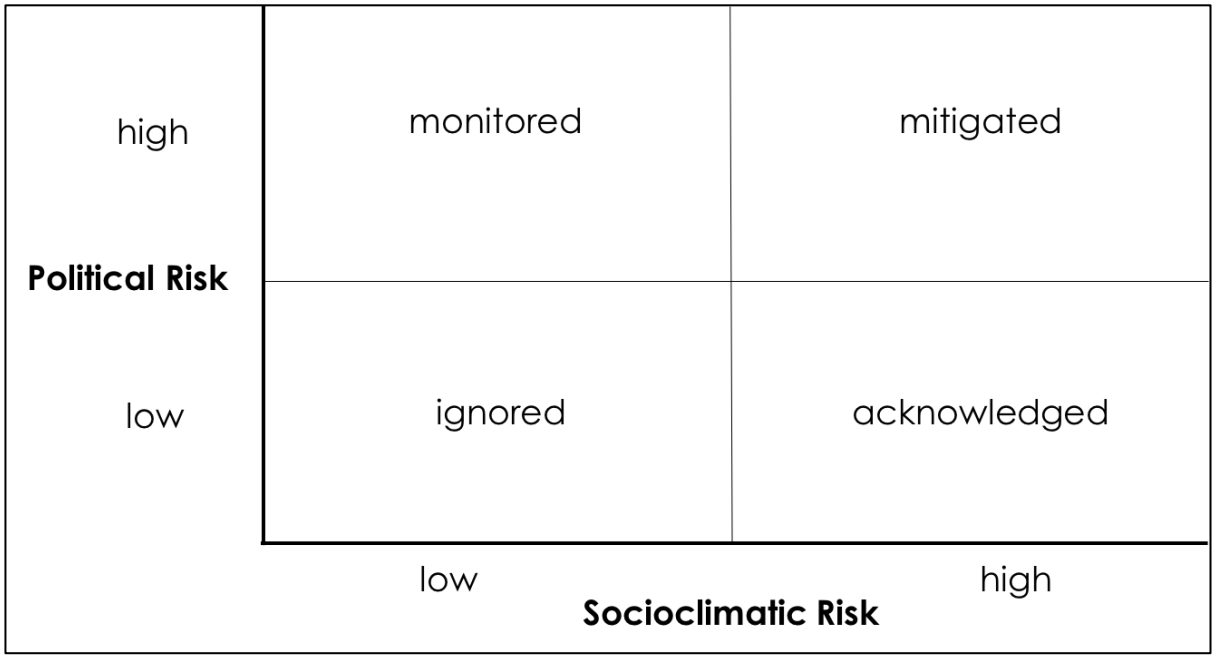


FIGURE 1. Sociopolitical risk model

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

306 This paper applies a mixed methods approach. Semi-structured interviews with policymakers
307 at national and county levels helped shape the survey examining the stakeholders'
308 perceptions of the water service mandate. In April and May 2015, 27 semi-structured
309 interviews were conducted to guide the research on water sector transformation and the
310 making of the Water Act, 2016 (Republic of Kenya, 2016). In addition to selected
311 representatives from county governments, national representatives were interviewed in the
312 Ministry for Water and Irrigation, the Water Services Regulatory Board (WASREB), the Water
313 Resources Management Authority (WRMA), the Water Services Trust Fund, now Water
314 Sector Trust Fund (WSTF) and the Water Appeal Board.
315
316 The data underpinning this study were collected through a survey with members of all 47
317 county water ministries in two stages: a) through a survey conducted at the first summit of
318 the members of the CECs for Water in Baringo on 30–31 October 2015, organised by the
319 Water Services Trust Fund, where 26 of the 47 counties were represented; b) the remaining
320 21 surveys were undertaken either in person or over the telephone in November and
321 December 2015. Of the surveys, 72 percent were conducted with the CEC members for
322 water themselves. Some directed their Chief Officers (15 percent) or Directors of Water
323 Services (11 percent) to respond. Representing the frontline bureaucrats in the county water
324 ministries, these individuals were deemed best suited by the CEC members for water to
325 respond to the question of perceived responsibility for the water service mandate, which is
326 measured in terms of subjective statements. While these responses do not constitute formal
327 resolutions, they indicate how county mandates were interpreted towards the end of the
328 three-year transition period. A similar analysis should be conducted once county legislation
329 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.

385 [Table 1 about here]

386 **TABLE 1. Definitions of variables included in the analysis**

Variables	Definition	Data source
Dependent variable		
Water Responsibility Index	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	CEC survey
Explanatory variables		
Election margin	Percent margin between election results of winning candidate and runner-up in 2013 gubernatorial elections for governors' seats	IEBC 2013
Aridity[a]	0 = sub-humid to humid 1 = semi-arid to arid	CGIAR-CSI 2009
Baseline water coverage	Percentage of people served with drinking water by a utility (percentage of the total population within the service area of the utility in 2013)	WASREB 2013
Poverty rate	Percentage of county population living in poverty, 2005/06	KNBS 2006
Urbanisation level	Percentage of county population living in urban areas, 2009	KNBS 2010
Water service satisfaction	Binary level of citizen satisfaction with current government handling water and sanitation services 0=unsatisfied 1=satisfied	Afrobarometer 2015
County water budget	County water budget, as percent of total county budget in FY 2015/16	CEC survey

387 [a] Aridity was transformed into a binary variable, as averaging rainfall across the political
388 county boundaries would not reflect the often-high variation between arid and humid
389 regions. This variable reflects the climate zone for the larger part of each county.
390

391 Kenya is a country "rich" in variability, as illustrated by the political and socioclimatic factors
392 examined in this study (Table 2). The mean election margin was 27 percent in 2013,
393 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 about here]

TABLE 2. Characteristics of counties included in regression models

a. Summary statistics of continuous variables

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

[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

	Humid	**Arid**
Aridity	47% (n=22)	53% (n=25)
	Satisfied	**Unsatisfied**
Water service satisfaction	66% (n=31)	34% (n=16)

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

436 responsibility of the five categories of sufficient quantity, potable quality, affordability,
437 physical access and non-discrimination for water service provision, the response was mixed
438 (Table 3). According to common practice, the question is disaggregated for urban and rural
439 areas. Responsibilities are acknowledged between the 50–80 percent range – no criterion is
440 universally adopted across Kenya. Affordability appears to be the most contested criterion
441 for urban and rural areas. Of all the criteria, water being of potable quality stands out: the
442 respondents are 30 percent more likely to view this as their responsibility in an urban
443 context than in a rural one. The following section examines which factors influence the
444 acknowledgement of these responsibilities by the duty-bearers.
445

446 [Table 3 about here]
447
448 **TABLE 3. Summary statistics for acceptance of water service responsibilities by county**
449 **water ministries**
450 a. Water service responsibilities

Water service responsibilities	**Urban**		**Rural**		**Urban vs. Rural**	
Characteristic	**Yes**	**No**	**Yes**	**No**	**Risk Ratio[a]**	**p**
Sufficient quantity	70% (32)	30% (14)	59% (26)	41% (18)	1.2	0.16
Potable quality	77% (34)	23% (10)	60% (25)	40% (17)	1.3*	0.04
Affordability	57% (26)	43% (20)	54% (23)	46% (20)	1.1	0.39
Physical access	78% (35)	22% (10)	72% (31)	23% (12)	1.1	0.28
Non-discrimination	79% (35)	22% (10)	77% (34)	23% (10)	1.0	0.48

451 [a] This represents the likelihood of a respondent thinking that a characteristic of water service
452 delivery is their responsibility in an urban context relative to a rural one.
453 * indicates statistically significant association at 5% level (p<0.05)
454
455 b. Fair tariffs[8] and provision levels

Measure	**Urban** (46)[b]				**Rural** (47)			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Fair tariff (USD/m3)[c]	1.15	1.05	0.49	>4.93	1.43	1.08	0.49	>4.93
Fair drinking water provision (l/c/day)	43	12	10	>50	31	14	10	>50

456 [b] Data were not available for one county.
457 [c] Conversion Rate: 1 KES = 0.01 USD (6 March 2016)
458

459 **5.2. <u>Which factors influence the perception of the water service mandate?</u>**

460 Drawing on the sociopolitical risk model, a number of socioclimatic and political risk factors
461 are empirically tested (Tables 4 and 5). For purposes of interpretability, multivariate linear
462 regression models were used rather than generalised linear models, since the difference in
463 the root mean square error was small. The disadvantage of linear models is that the
464 predicted values are not constrained between zero and one, and three values are beyond
465 the valid range.[9] 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 about here]

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

Dependent variable: Water Responsibility Index	**Model 1 fit:** R^2 = 0.592			
	Unstandardised coefficients		Standardised coefficients	
	B	**S.E.**	**Beta**	**P**
Aridity	0.082	0.083	0.134	0.329
County water budget	1.848**	0.659	0.356**	0.008
SQRT election margin 2013	-0.447*	0.166	-0.330*	0.011
Ln urbanisation level	0.296***	0.073	0.556***	<0.001
Poverty rate	0.881**	0.260	0.506**	0.002
Water service satisfaction	0.177*	0.081	0.277*	0.037
Baseline water coverage	-0.499*	0.193	-0.294*	0.015

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).[10] 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.

[Figure 2 about here]

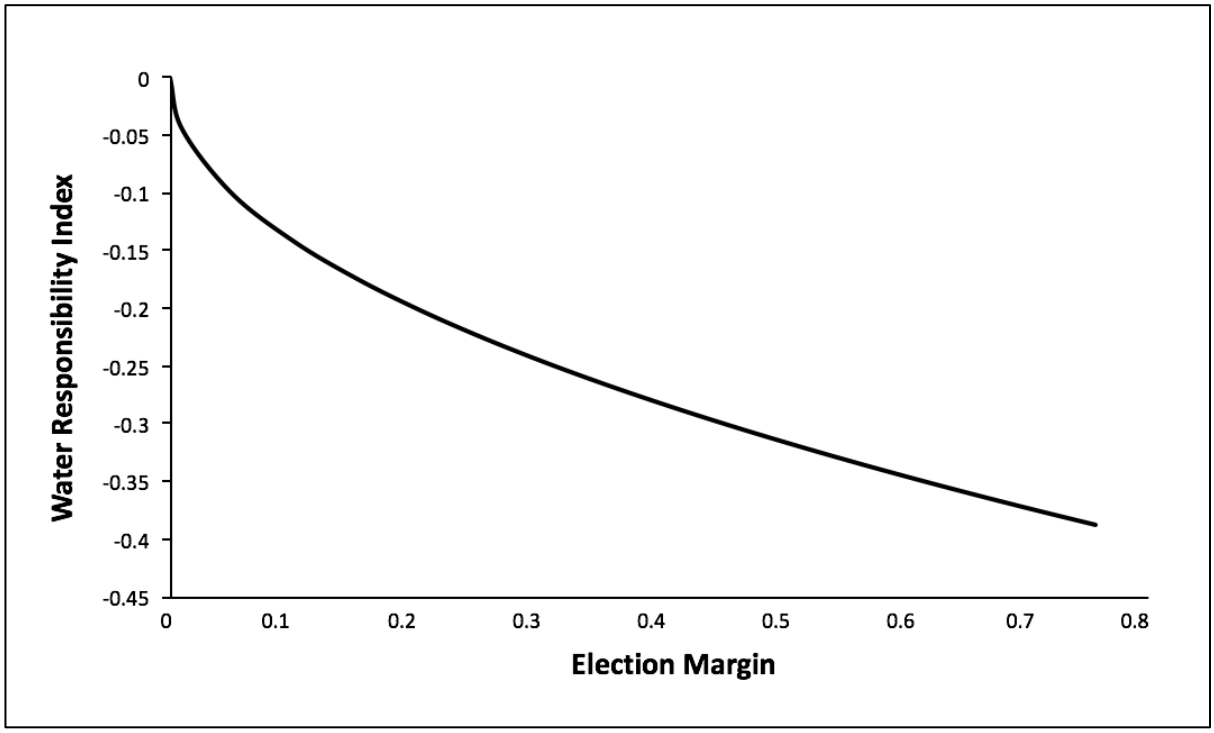


FIGURE 2. Predicted association between widening of Election Margin and Water Responsibility Index

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

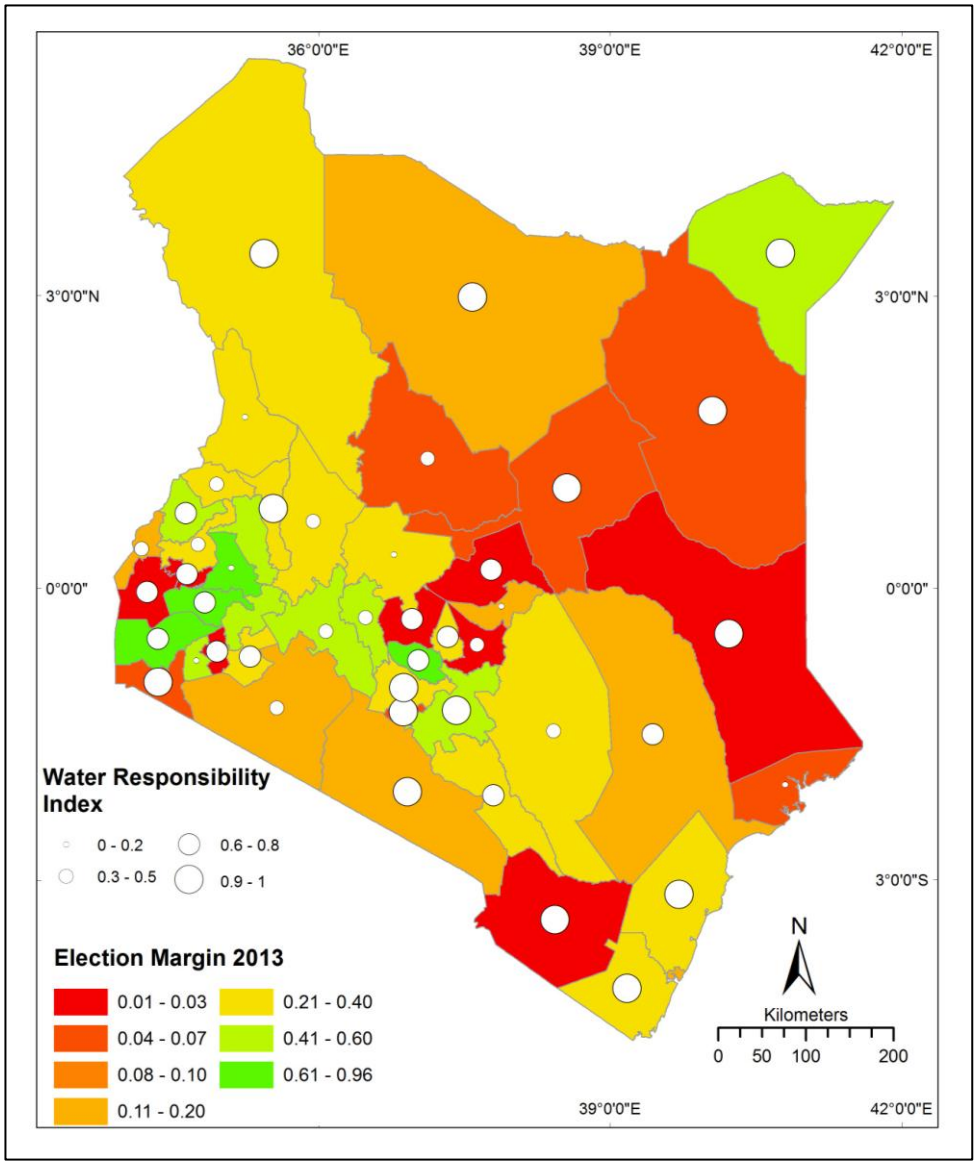
Dependent variable:	**Urban responsibility index** **Model 2** fit: R^2 = 0.456			**Rural responsibility index** **Model 3** fit: R^2=0.428		
	Coef.	**S.E.**	**P**	**Coef.**	**S.E.**	**P**
Aridity	0.000	0.103	0.998	0.132	0.120	0.277
County water budget	1.765*	0.813	0.037	2.209*	0.951	0.026
SQRT election margin	-0.310	0.210	0.148	-0.549*	0.240	0.029
Ln urbanisation level	0.268**	0.081	0.002	0.260*	0.108	0.019
Poverty rate	0.504	0.323	0.128	1.166**	0.375	0.004
Water service satisfaction	0.136	0.097	0.171	0.170	0.117	0.155
Baseline water coverage	-0.672**	0.240	0.008	-0.397	0.279	0.164

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.

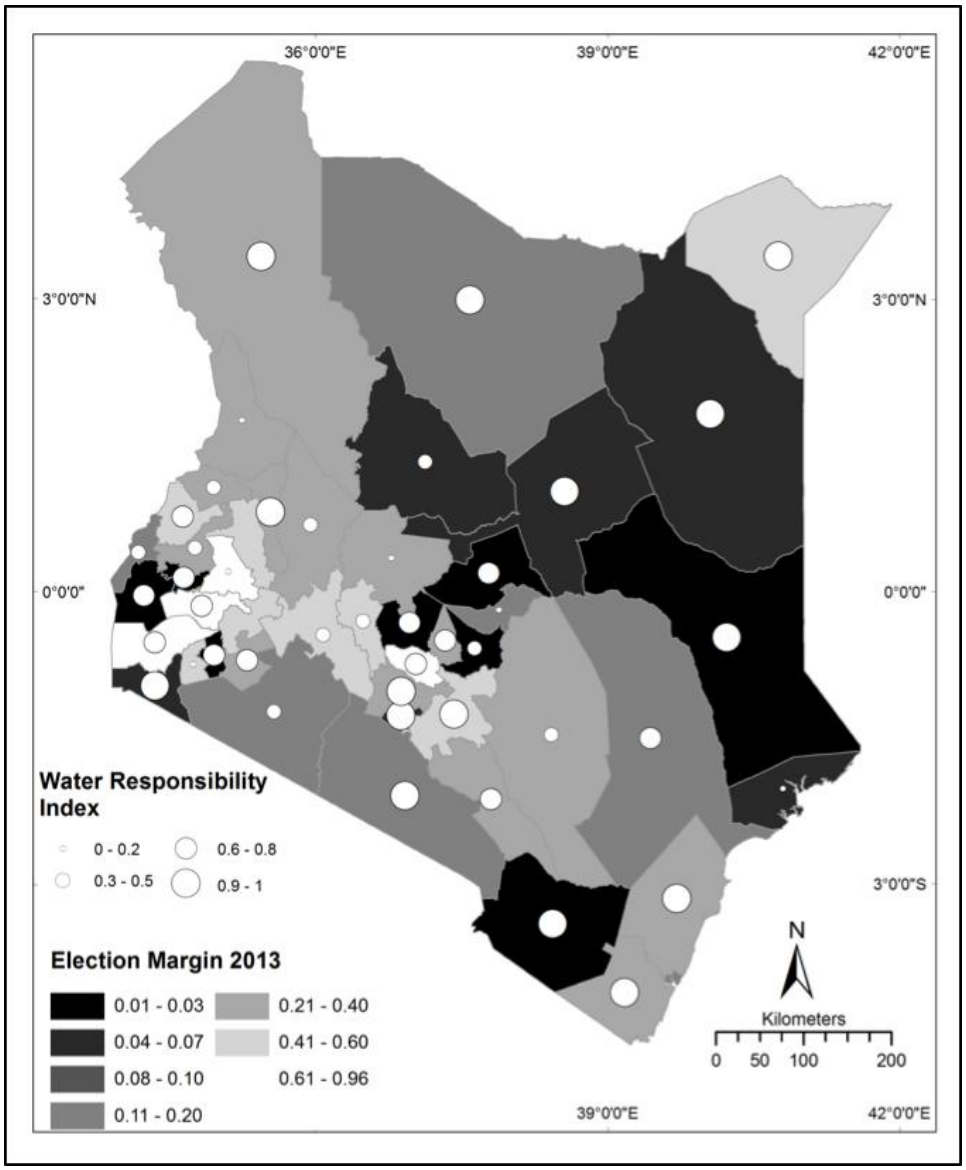
521 Applying the model to evaluate the perceived responsibility for the water service mandate
522 across varying political and socioclimatic risks (Figure 4) allows for the examination of the
523 responses across the four quadrants: risk mitigated, monitored, acknowledged and ignored.
524 The risks scrutinised here are binary variables: electoral pressure as margins closer or wider
525 than ten percent[11] in the 2013 elections, and poverty levels below or above the median
526 across Kenya (49 percent). Cross-tabulating political risk as expressed in close election
527 margins with poverty levels, the highest level of mean responsibility appears to be in the
528 high-risk quadrant for electoral pressure and poverty. Decision-makers in the counties falling
529 into this quadrant appear to have a high recognition of their mandate; however, only five
530 counties (11 percent) are covered here.
531
532 [Figure 3 about here: in COLOR online only, BW in print]



533

534 **FIGURE 3. Map of Kenya showing Election Margin 2013 and Water Responsibility Index**

535



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]

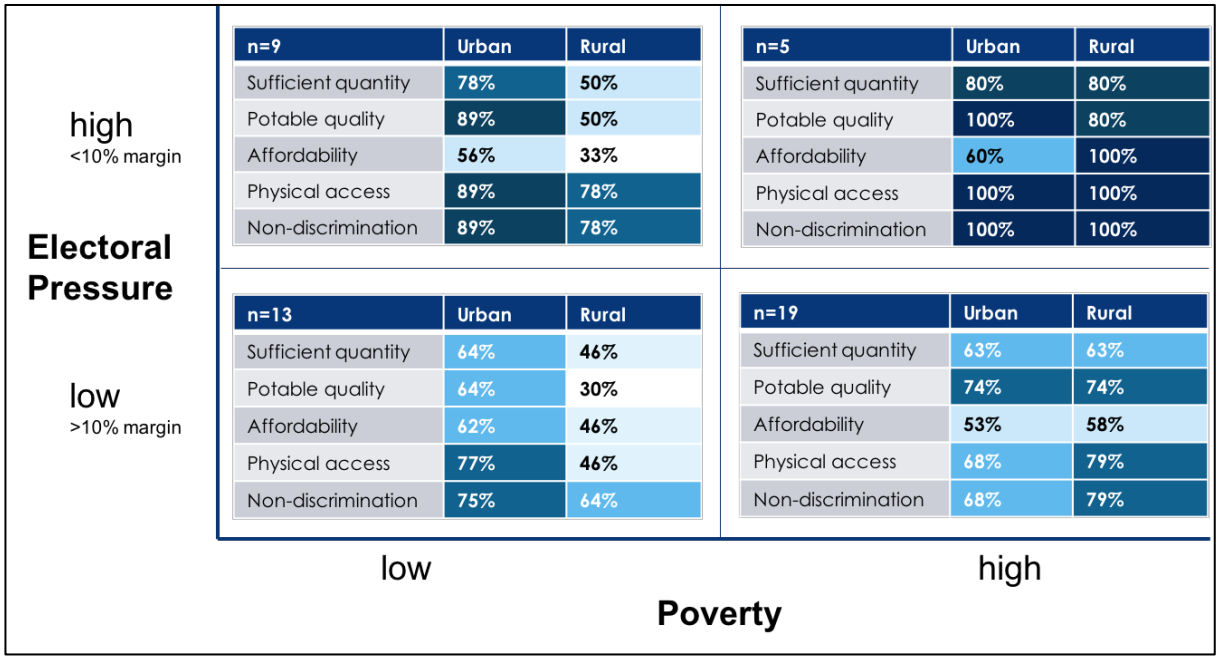
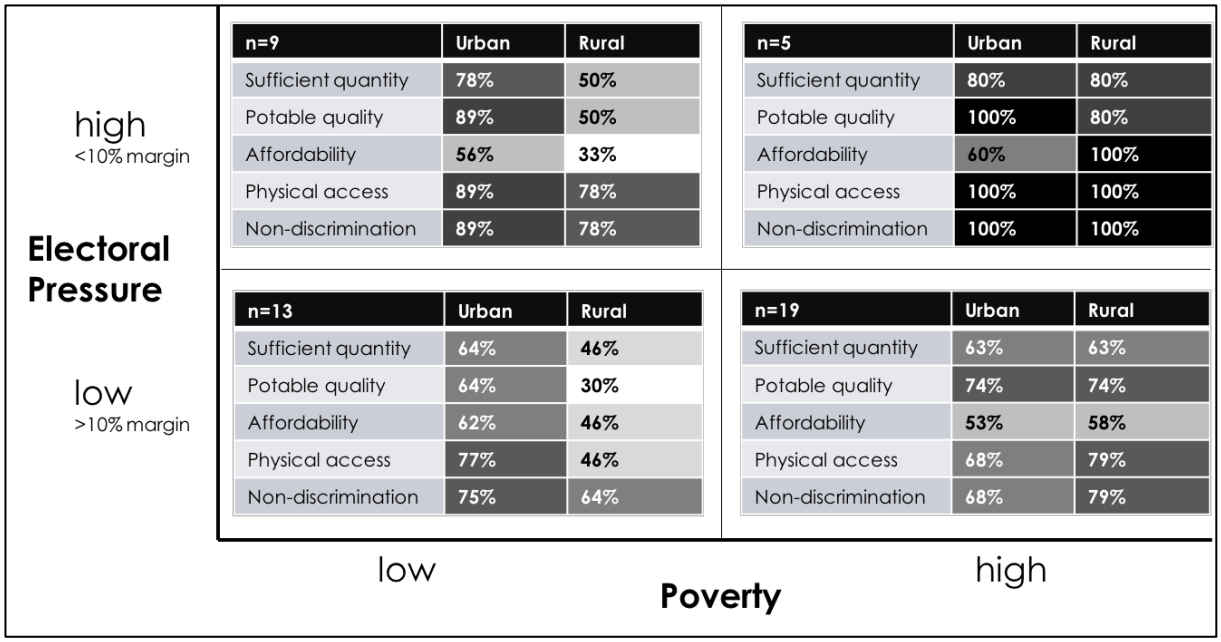


FIGURE 4. Five water service responsibilities across the risk zones



n=9	Urban	Rural
Sufficient quantity	78%	50%
Potable quality	89%	50%
Affordability	56%	33%
Physical access	89%	78%
Non-discrimination	89%	78%

n=5	Urban	Rural
Sufficient quantity	80%	80%
Potable quality	100%	80%
Affordability	60%	100%
Physical access	100%	100%
Non-discrimination	100%	100%

n=13	Urban	Rural
Sufficient quantity	64%	46%
Potable quality	64%	30%
Affordability	62%	46%
Physical access	77%	46%
Non-discrimination	75%	64%

n=19	Urban	Rural
Sufficient quantity	63%	63%
Potable quality	74%	74%
Affordability	53%	58%
Physical access	68%	79%
Non-discrimination	68%	79%

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[12] (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,[13] 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

627 factor for water service responsibility by the decision-makers, who may strive for
628 attributable successes to strengthen the position of the governor, on whose re-election they
629 depend – and at the same time their own position within the county government. Thus,
630 improved service delivery may reduce the political risk they face individually and offer the
631 prospect to continue their function beyond the next election. Urban–rural differentiation
632 also suggests that tighter election margins are associated with a higher responsibility level
633 for rural areas, which may be related to the fact that, despite a rapid urbanisation rate (4.15
634 percent per annum), 73.5 percent of Kenya's population is rural (World Bank, 2016).
635 Generally, urban water provision outperforms rural water provision (WASREB, 2015).
636 Demonstrating responsibility for rural areas may thus contribute to improving future
637 election results.
638
639 While political risk has been identified as a critical driver for the duty-bearers' perceived
640 responsibility to deliver water services, only 30 percent of the counties are faced with high
641 competition as defined in the sociopolitical risk model. Political pressure through the
642 tightness of the election margin alone may thus not be sufficient to drive water service
643 responsibility, especially given the disputed reliability of election data (Cheeseman et al.,
644 2014). Opinion poll data may also represent an important factor of political pressure
645 influencing decision-makers' perceptions, which should be tested in future research.
646 Moreover, election alliances that break off in the course of a political term, or the formation
647 of new alliances (for example the Jubilee Party or the National Super Alliance in 2016/2017),
648 can change the political dynamics within a county. Corruption and nepotism can create a
649 political economy that is unfavourable to bringing water services to all citizens in a county
650 (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[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. 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[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

675 the fact that the rural proportion of the population to be served with safely managed
676 drinking water by 2030 is considerably larger than that in urban settings.
677
678 When asked about water budget allocation, the majority of counties provide that more than
679 75 percent is spent on the development and construction of new water infrastructure.
680 Apparently, incumbents favour visible achievements over sustainability. This may be due to
681 their expectation of being rewarded for evident, favourable outcomes by the voter (Harding
682 and Stasavage, 2014). Moreover, the question of budget allocations is also linked to water
683 user tariffs. Two fifths of the county decision-makers state that users should pay the full cost
684 of provision, which would include standard operation and maintenance costs. Perceived fair
685 tariffs for rural areas are defined at higher rates than for urban ones,[16] the difference being
686 particularly stark in the risk ignored quadrant (37 percent higher for rural than for urban
687 areas). This is linked to the question of affordability, the least recognised criterion of the
688 Water Responsibility Index, as it is relative due to varying socioclimatic realities in each
689 county and their potential to reinforce existing inequalities.
690
691 Kenya's devolved decision-makers' challenge to deliver on their mandate is reflected globally
692 (Hutton and Varughese, 2016). Not only are USD 114 billion needed for capital investments
693 to meet SDG targets 6.1 and 6.2, but spending on operation and maintenance for the newly
694 served from 2015 to 2029 is likely to outweigh capital costs by 1.4 times for basic water,
695 sanitation and hygiene (WASH), and 1.6 times for safely managed WASH services, by 2029
696 (Hutton and Varughese, 2016). It is thus important that budgetary allocations not only focus
697 on new infrastructure development but also on operation and maintenance to ensure that
698 safely-managed services can be sustained (Fonseca and Pories, 2017), affordability for the

699 marginalised is recognised and the water service responsibility of the officeholders can
700 translate into results.
701
702 **6.3. Harnessing devolution for SDG progress on delivering water services for all?**
703 The discussion above suggests that the devolved duty-bearers may act as political
704 entrepreneurs within a bargaining situation, which puts them in a position where they can
705 seek step-by-step progress. Situated between constitutional and ordinary politics, they have
706 full responsibility for the water service mandate while facing diverse sociopolitical risks and
707 budgetary constraints. The final part of this paper reflects on some general aspects of the
708 political economy of devolution as a catalyst for institutional improvements in water service
709 delivery, on the promises and dangers of devolution, and on the role of oversight under risk
710 regulation regimes (Hood et al., 2001).
711
712 The degree of responsibility county decision-makers acknowledge for the various functions
713 of the water service mandate is influenced by the political economy of devolution. It
714 incentivises county governments to demonstrate improved performance compared to the
715 pre-devolution situation. Their apparent ambition to out-perform the national government
716 appears to manifest itself at the level of the Council of Governors, aiming at functioning
717 county governments and administrations to prove the success of devolution and forming a
718 counterweight to the national government (Cheeseman et al., 2016). The vagueness of the
719 2010 Constitution with regard to water service *regulation* has led to further power struggles
720 between national and county levels, with the national government leaning on Article 186(3),
721 stating that a function or power not assigned is a function or power of the national
722 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).

747 To counterbalance such developments, the role of the national regulator is critical for strict
748 implementation and enforcement of the constitution, as well as for overseeing and
749 monitoring the fulfilment of the constitutional mandate (Ahmad et al., 2005). The regulator
750 may thus be able to mediate some of the uneven outcomes resulting from variations in the
751 uptake of the water service mandate. Yet, if not only incremental percentage-point by
752 percentage-point progression towards "safely managed water services" (WHO/UNICEF,
753 2017, 2015) but well-defined and measurable progress toward universal service delivery is to
754 be achieved for the 58 percent of Kenyans still outside service provision areas, institutional
755 rethinking and cooperation are required, particularly in rural regions and informal
756 settlements (WASREB, 2015). Counties are responsible beyond the current reach of those
757 service provision areas. Adequate budgetary allocations to the individual criteria of the
758 water service mandate and the development of county legislation and water master plans
759 for implementation are thus critical.
760
761 Instead, therefore, of viewing the water sector as a hierarchical structure, it may be
762 considered as a system with overlapping jurisdictions for different levels of operation and
763 multiorganisational arrangements. "Rational, self-interested public administrators" (Ostrom
764 and Ostrom, 1971) – here the devolved duty-bearers for water services – may consciously
765 bargain to increase efficiency and mobilise political support from the public to avoid political
766 deadlock while stabilising their departments within county governments.
767

768 7. CONCLUSION

769

770 The sociopolitical risk model provides a tool to analyse factors influencing decision-makers in
771 charge of public service provision and to examine how their perceived responsibility for the
772 constitutional mandate is related to perceived avoidable harm. The model can be applied to
773 institutional transformations during decentralisation processes in various sectors, and also in
774 other sub-Saharan African countries. Its operationalisation to the Kenyan case shows, first,
775 the allocation of adequate financial resources appears to be the strongest limiting factor for
776 the recognition of responsibilities and their translation into actual water service delivery.
777 Second, the wide variance which the model reveals in the decision-makers' perceived
778 responsibility for the water service mandate needs to be streamlined across human rights
779 criteria so that regional disparities do not grow and transformative development is
780 sustained, especially in rural, marginalised areas. This highlights the importance of spatial
781 concepts of central–regional, interregional and urban–rural relations for political decision-
782 making and the crucial role of regulation at the national level for universal coverage.
783
784 At the start of Kenya's second term under devolution with 47 county governments in charge
785 of the provision of services in sectors such as water and health, this study observes that the
786 devolved duty-bearers generally adopted a target-oriented approach towards the
787 implementation of the constitution so as to achieve progressive realisation of the human
788 right to water during the first phase of Kenya's devolution process. Their perceived
789 responsibility appears to focus on the poor in underserved areas. However, recognition of
790 the constitutional water service mandate is related to the varying socio-climatic and political
791 risks they face in their counties. Thus, inequalities remain although devolution has evidently
792 been tapped for progress towards target 6.1 of the sustainable development agenda. While
793 no direct link with improved service levels can be established for the first legislative period,

794 perceptions of responsibility for the constitutional mandate have started to manifest
795 themselves in county legislation and institution building.
796
797 The sociopolitical risk model may also provide an effective evaluation tool for the perception
798 of the water service mandate by the second round of county-level decision-makers, allowing
799 insights into whether responsibility for the water service mandate continues to focus on the
800 poor and can translate into service improvements. Using the model to analyse potential
801 differences between new and continuing administrations may yield interesting results about
802 political dynamics. Globally, the question whether the targets of the 2030 Agenda for
803 Sustainable Development are achieved begins with the acknowledgement and uptake of the
804 mandate by duty-bearers, before actual progress can be measured, and depends on each
805 country's and its subnational institutions' sociopolitical and geographical realities.

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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.

[11] 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).

[12] 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 ($U=356$, $p<0.05$).

[13] 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.

[14] A "high" Water Responsibility Index is assigned for the values between 0.8 and 1.

[15] 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.

[16] The question in the survey used the common measurements for urban tariffs (in Kenyan shillings/m^3) 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.

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