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Regionalization and water governance: a case study of a Swiss wastewater utility

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Abstract

The aim of this paper is to evaluate how regionalization trends might affect the performance of water governance in terms of three overarching performance criteria: legitimacy, efficiency and effectiveness. The empirical component of this paper draws from a case-study analysis of the wastewater utility in Zurich, Switzerland. The findings indicate that establishing competencies through the process of autonomization can lead to an increase in a utility’s organizational efficiency and effectiveness; yet there is a notable trade-off with legitimacy because such processes tend to decrease direct democratic influence.

Keywords: Governance; regionalization; wastewater utility; Switzerland; case-study

1. Introduction

Considering the profound changes currently occurring in the water sector in industrialized countries, this research focuses on the governance of water services in the Western European context. In contrast to other utility sectors, the water sector has been less affected by liberalization reforms. There is, however, a general shift away from a statist paradigm and towards diverse governance modes in the water sector (Palaniappan, Cooley, Gleick, & Wolff, 2007). This change typically entails the spread of responsibilities among different actors (e.g., non-state actors such as private and civil societal) and across multiple centers of power at different political levels (Benz, 2001; Finger, Groenewegen, & Künneke, 2005). In this context, the regional level is emerging as a focal area within which water governance occurs. While regions are often understood as spanning multiple nation-states, this research addresses regions within nation-states.

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2 We use the term governance to refer to diverse modes of social coordination between interdependent actors. We thus depict a range of ideal-type governance modes - from state control (hierarchy) to market competition - with network forms like associations and partnerships in between (Jessop, 1998; Mayntz, 2006).
Regional governance increasingly plays a central role in water governance in the Western European context as policymaking becomes rescaled at the level of a region (Fürst, 2007). Regional governance refers to collaborative problem-solving processes among actors that join together to tackle common tasks (e.g., wastewater treatment) as a result of functional interdependencies rather than political boundaries (Fürst, 2007). In the Western European context, single municipalities are increasingly overloaded with new duties (e.g., renovation of facilities and dealing with micro-pollutants) and conventional (e.g., fragmented) approaches are argued as not sufficing to accomplish tasks efficiently and effectively (Fürst, 2004; Schedler, 2003). Therefore, local governments engage in alternative strategies such as either merging or cooperating in network configurations (e.g., associations or alliances) to solve common problems (Klinke & Worch, under review). The focus of this research is on the latter approaches, where the municipalities maintain their autonomy. Since these reforms typically involve an organizational form that is in between the municipal (local) and constituent state level, this is referred to as reorganization at the regional level and the process is called regionalization (Benz, 2000).

In terms of environmental governance, there is a movement to reorganize water management in terms of environmental regions - aligning institutional structures with the physical environment, e.g., river basins – as optimal units in order to enhance efficient and effective water governance. Another concept coupled with regionalization is professionalization, as it is argued that by forming larger organizational units at the regional level, the pooling of resources, for example, enables the availability of more money than under fragmentation. In this context, traditional legal norms and public law no longer suffice as there is increasing reliance on self-monitoring where the state takes a guiding rather than an interventionist stance (Fürst, 2007); yet such horizontal governance structures are interdependent with vertical structures and remain subject to governmental oversight. In fact, adequate supervision is argued as being essential to regional governance in order to ensure legitimacy (Benz, 2001). While some argue that in order to be considered a regional model, a region must have its own organization as with its own fiscal sovereignty (Glättli, 2007), others argue that regional governance entails “…horizontal coordination and cooperation between municipalities … [where] the participating local governments transfer political authority to the new arrangements” (Klinke & Worch, under review, p. 16). According to the latter definition, these new arrangements may involve such organizational forms as associations or consortia, which typically lack fiscal sovereignty. Yet both conceptualizations of regional governance seem to agree that the new forms cover a greater geographical area (than single municipalities in the prior arrangements).

While the underlying logic of regional governance is that it will enable more efficient and effective implementation of goals and hence increase the long-term acceptance of policy (Benz, 2001), the institutional framework at the regional level is weaker than at the local and national levels (Benz, 2004), which might impede performance. Since the regional level can be described as “a political vacuum” in terms of political authority and competencies (Klinke & Worch, under review, p. 10) the institutional development of competencies and authority (in terms of independent decision-making rights about finances, personnel etc.) at the regional level becomes central (Benz, 2004). Increasing the competencies and authority at the regional level is argued as leading to more effective water governance in terms of problem-solving and attaining sustainable solutions (Klinke & Worch, under review). Such approaches may be coupled with processes like autonomization, which entail separating political decision-making from operational and management decisions. As autonomization processes enable more strategic decision-making at the operational level via increased competencies, they may serve as stepping stones for achieving regionalization with a stronger institutional framework. However, since such processes entail that decision-making becomes more removed from the political sphere (e.g., direct voter input) than in traditional local governance (Peters & Pierre, 2006), they are argued as undermining democratic structures insofar as they weaken democratic legitimacy requirements like accountability, responsiveness and governability (Kersbergen and van Waarden 2004; Warner et al. 2008; Kooiman 2002). While previously the state’s accountability to citizens was a focal criterion in the governance of public utility sectors (Gilmour & Jensen, 1998), current reforms often emphasize economic efficiency and output-effectiveness as major performance indicators in many OECD countries (Benz & Papadopoulos, 2006; Haque, 2001). Since water is a vital resource for life, has natural monopoly features and de facto exhibits public good characteristics (Kamm, 2006), only focusing on efficiency and output-oriented effectiveness performance can be problematic as this might lead to the neglect of the public interest in terms of universal water service provision. Empirical studies show that reforms solely focusing on the latter criteria in the
water sector have had mixed success (Araral, 2009; Perard, 2009). For example, disconnection rates were found to drastically rise following water privatization in England (Lobina & Hall, 2001).

We argue that it is critical to acknowledge the tradeoffs between legitimacy, efficiency and effectiveness in different contexts and under various governance modes. For instance, what may be more efficient and/or effective, may not be the most legitimate (Hendriks, 2009, p. 343). However, such research that addresses legitimacy along with effectiveness and efficiency as evaluative criteria, particularly with respect to environmental governance, is rather lacking (Newig & Fritsch, 2009). While governance studies address effectiveness and legitimacy, they fail to combine these with efficiency (Karlsson-Vinkhuyzen & Vihma, 2009). Conversely, economic studies focus on efficiency and effectiveness, while neglecting legitimacy. This paper thus includes all three criteria and explores the following questions: 1) to what extent might regionalization (with a focus on autonomization as a stepping stone) affect the performance of water governance in terms of efficiency, legitimacy and effectiveness? And 2) what are the tradeoffs between efficiency, effectiveness and legitimacy?

The empirical component of this paper draws from a case-study analysis of the wastewater utility in Zurich, Switzerland: the wastewater division in the municipal department for Waste Disposal and Recycling (WDR). While the focus is on the single case in Zurich, references will be made to contrasting cases in order to draw some comparisons. The paper is structured as follows: an analytical framework for measuring performance is developed in section 2. The methods are then outlined in section 3. Next, section 4 and 5 present the results of the case-study, which indicate that establishing competencies and authority through the process of autonomization can lead to an increase in a utility’s organizational efficiency and effectiveness. Moreover, it is argued that autonomization might serve as a stepping stone for a utility to regionalize and thus increase its efficiency and effectiveness. Yet there is a notable trade-off with legitimacy because such processes tend to decrease direct democratic influence. Section 6 provides a discussion and section 7 concludes this paper by exploring potential trajectories for our case and raising questions for future research.

2. Theoretical background: an analytical framework for evaluating water governance

In order to evaluate how a water utility performs in the context of regionalization, we employ an analytical framework that enables evaluating the performance of a water utility in terms of legitimacy, efficiency and effectiveness in relation to governance dimensions. Efficiency and effectiveness are predominant criteria applied in environmental research (Bernauer, 1995; Howlett, 2009; O’Neill, Balsiger, & VanDeveer, 2004). Yet focusing only on the latter two criteria is insufficient as policymaking involves more than objective decision-making since it can entail moral judgment (Dahl, 1985; Dryzek, 1990). Moreover, focusing solely on market values such as efficiency and effectiveness in terms of productivity, cost-utility and customer satisfaction is argued as leading to the erosion of public service values such as upholding the public interest (e.g., universal service provision, accountability, public trust) (Haque, 2001). In the context of transformation from mainly state involvement in the provision of water services to the inclusion of diverse actors, legitimacy is becoming a central concern. While under state control, democratic legitimacy is typically ascertained via citizen’s equal rights to vote for decision-makers, altered governance modes lead to central questions regarding how legitimacy (particularly in terms of accountability) can be maintained (Haque, 2001; Schmelzle, 2008). Legitimacy is also an important element to consider when assessing governance because in order to be effective over the long-term, policies and regulations must be viewed as legitimate; a legitimacy deficit weakens public support and provision of resources (Stoker, 1998).

These three criteria serve as the performance dimensions that are the dependent (or response) variables. We derived the analytic requirements via different theoretical perspectives in a previous paper. We now draw indicators from this prior work and supplement them with practical water sector performance indicators delineated by the

International Water Association (IWA), World Bank (WB) reports and European Commission (EC) research (Alegre et al., 2007; Cardoso, Matos, Pinheiro, & Almeida, 2006; Saleth & Dinar, 1999). General performance measures typically involve design, input and process/implementation measures (throughput), as well as output, outcome and impact measures (Bamberger, Rugh, & Mabry, 2006). We combine the criteria and indicators in an analytical framework that takes into account that legitimacy, efficiency and effectiveness are interdependent, involve trade-offs and have multiple applications. Table 1 outlines the main and secondary indicators for the three criteria. Our focus here is on indicators relevant to the regionalization discourse: 1) legitimacy in terms of inclusion and representativeness, as well as transparency and accountability; 2) organizational and dynamic efficiency and 3) effectiveness in terms of decision-making processes, problems-solving (e.g., outputs - achievement of goals, outcomes and impacts of policymaking) and a utilities’ ability to adjust flexibly and find sustainable solutions (e.g., integrated water management). Thus both the political processes affecting a water utility (in terms of input and output) as well as the organization itself can be evaluated.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Main indicator</th>
<th>Secondary indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legitimacy</td>
<td>Inclusion &amp; representativeness</td>
<td>Fair access &amp; decision-making rights – relevant actors included in decision-making process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Decision-making process – via negotiated rule-making, collective deliberation &amp; discussion; relationship between operational &amp; regulatory levels</td>
</tr>
<tr>
<td>Transparency</td>
<td></td>
<td>Public scrutiny – public consultation, direct/indirect channels of public influence</td>
</tr>
<tr>
<td>Accountability</td>
<td></td>
<td>Responsibility – clear division of roles &amp; competencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monitoring/enforcing – network inspections, water quality tests</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Organizational</td>
<td>Professional management - business plans, strategic planning, inclusion of private actors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Personnel training – internal/external continuing education courses</td>
</tr>
<tr>
<td>Dynamic</td>
<td>Decision-making</td>
<td>Economies of scale&lt;sup&gt;4&lt;/sup&gt; – increased finances &amp; know-how</td>
</tr>
<tr>
<td></td>
<td>Problem-solving</td>
<td>Responsive/reflexive approaches – policy goals, policy problem &amp; solution, compliance</td>
</tr>
<tr>
<td></td>
<td>Adjustment flexibility</td>
<td>Learning – social &amp; policy learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adaptive strategies – long-term, holistic, societal, economic &amp; environmental needs</td>
</tr>
</tbody>
</table>

In order to contextualize the performance of a water utility, we employ governance dimensions as the independent (or explanatory) variables. We operationalize governance based on the following dimensions: 1) structural elements, 2) regulatory style and 3) actors. *Structural elements* pertain to the degree of vertical and horizontal division of responsibilities and the state-society relation (Lenschow, 1999). These features are determined by legal, policy and administrative frames, which relate to the degree of the state’s role in the provision of goods and services versus outsourcing/privatization. The *regulatory style* refers to the mode of control, i.e., the tools used to control and steer (Lenschow, 1999). The *actors* dimension relates to the actors that play a major role in the decision-making and in the provision of water services, e.g., state versus non-state.

3. Methods

We choose a qualitative case-study methodology because it is useful to understand complex phenomena, where the context affects the case, there are many uncontrollable variables, and the case is a real-world situation (Yin, 2003). The case-study approach enables analytic generalization rather than statistical generalization (Yin, 1994),

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<sup>4</sup> Economies of scale: “unit costs decrease as the capacity increases, reducing marginal costs with higher performance” (Maurer, Wolfram, & Herlyn, 2009, p. 1).
which involves comparing empirical analysis to a previously developed theory, or proposition. Correspondingly, the sampling is theoretical (rather than random or stratified) (Eisenhardt & Graebner, 2007), where the case and unit of analysis are selected because they can illuminate a specific phenomenon.

Switzerland is a noteworthy example of regional governance as recent studies have found that largely network forms at the regional level exist in the Swiss wastewater sector (Klinke & Worch, under review). Furthermore, as Switzerland practices consociational democracy, it has a history of horizontal steering with an emphasis on consensus and cooperation among diverse actors. In the context of decreasing public funding, increasing mandates via new regulations as well as perceived inflexibility and the stifling of operative decisions by rigid political control (Poldervaart, 2007; Schedler, 2003), there has been an emphasis on regionalization as well as means of control based on the premises of management (e.g., New Public Management, autonomization and corporatization) to improve economic efficiency and output-oriented effectiveness (Benz & Papadopoulus, 2006). These trends are valuable for assessing the trade-offs and tensions between efficiency, effectiveness and legitimacy.

We select the wastewater utility managed by the WDR in the city of Zurich (in the canton of Zurich) as the unit of analysis because it can be considered a regional governance form as it is a communal consortium. In the Swiss water sector, a consortium typically involves binding contractual relationships under public law between two or more municipalities, where one municipality is dominant as its infrastructure and facilities are shared with the (typically) neighboring municipality (for a fee) (Herlyn & Maurer, 2007). Moreover, Zurich is an interesting case because the WDR has gone through an autonomization process, becoming a semi-autonomous public enterprise, which may serve as a stepping stone for it to expand its size and become a form of regional governance with institutionalized competencies and authority. Furthermore, the WDR has started to align its water management tasks with the river basin, hence focusing on an environmental region. While we are not claiming that this utility is representative of organizational forms in the Swiss wastewater sector (e.g., the treatment facility is the largest in the country), we deem it valuable to analyze this utility in the city of Zurich because it plays a central role in Switzerland as it is one of the country’s five metropolitan areas and the nation’s largest city. Focusing on an urban region is also pertinent as they are increasingly relevant to water governance research to the extent that urbanization is one of the most central phenomena affecting the provision of such public services like water. The limitation of this sampling is that it does not engage in a full comparative case-study analysis because it focuses on a single, in-depth case-study of the utility in Zurich and only makes reference to contrasting cases (e.g., the wastewater utility in Berne) in the discussion as points of comparison. Moreover, while the focus is on the wastewater sub-sector, some comparisons with the water supply sub-sector are made insofar as is relevant for discussing integrated approaches.

According to the mandate that case-studies involve multiple data sources (Scholz & Tietje, 2002) and the principle of triangulation, the empirical analysis is comprised of various forms of information gathering. The data sources include: 1) documentary information (e.g., reports, administrative documents, formal studies, informational bulletins, meeting minutes and evaluations); 2) archival records (e.g., databases, organizational records, survey data); 3) interviews - a) seven in-person expert interviews in 2009 and 2010 and b) ex-post analysis of ten expert interviews (conducted in 2007 and 2008). The interviewees include: experts at the federal level (from the Federal Institute of Aquatic Research - Eawag, the Federal Office of the Environment - FOEN, Swiss Water Agenda 21), consultants, cantonal officials (Basel-land, Zurich, Bern), members of the national water supply and gas association, a manager of the wastewater division in WDR, a short phone interview with an employee in the WDR, as well as a brief phone interview and e-mail exchange with a lawyer in Zurich. The sampling method for finding interviewee partners was purposive and convenience sampling. Based on the analytical framework, a semi-structured interview questionnaire guideline was developed that focused on: 1) types of organizational and regulatory forms in the Swiss water sector; 2) transformation occurring in the Swiss water sector and 3) relation/assessment of the different organizational and regulatory forms in terms of indicators of legitimacy, efficiency and effectiveness. In order to maintain anonymity, the interviews conducted in 2009/10 are referenced as expert 1 through 7 and the 2007/08 interviews are referenced as ex-post 1 through 10.

The cases are described as follows: first the governance dimensions are delineated and then these are evaluated based on the evaluative criteria in the analytical framework as well as themes that emerged from the data.
4. Governance dimensions

The three governance dimensions - structural elements, regulatory style and actors - are described below. Since the regulatory and operational levels are interdependent, their interplay (in terms of division of responsibilities and regulatory style) is significant in terms of legitimacy, specifically with respect to accountability, which will be shown in the discussion.

4.1. Structural elements: political structure & legal framework

Water governance is dispersed across a three-tiered multi-level system in Switzerland: federal, cantonal and municipal (see table 2). Defined at the federal level, the main legal framework governing water resources in Switzerland is the federal 1991 Water Protection Law (WPL) (Eidgenossenschaft, 1991) and its related 1998 ordinance (Bundesrat, 1998). As Switzerland’s political system is very close to a direct democracy, sovereignty lies with the citizens who participate and hence citizen participation is fostered (Knoepfel, Larrue, Varone, & Hill, 2007). An important player at the federal level is the Federal Office of the Environment (FOEN). The FOEN has the right to address water resources protection, implement policy instruments and is responsible for supervising water resources management at the cantonal and municipal levels. Yet in terms of infrastructure, organization and management of the water sector, the FOEN has almost no competencies as the operational tasks are carried out by the cantons and municipalities. Hence, although the levels are hierarchically ordered under the federal level, the cantonal and municipal levels traditionally retain a high level of political sovereignty (Ladner, 2002). While the cantons hold all authoritative duties not clearly assigned to the national government in the federal constitution, the actual implementation of policies is typically delegated to the municipal level. Accordingly, municipalities hold the responsibility for building, operating and maintaining the water infrastructure. While the responsibility of ensuring water services is public (the water sector is predominantly governed by public law and water supply is considered a public function in Switzerland), specific tasks can be delegated to third parties. Yet typically the technical facilities (e.g., treatment plants) as well as the infrastructure network (e.g., pipelines) are owned by municipalities (Klinke & Worch, under review).

Swiss water governance is traditionally marked by a strong sectoral orientation. Specifically, wastewater and water supply are typically managed by different organizations. There are, however, several multi-utility companies that integrate wastewater and water supply as well as gas and electricity (e.g., Stadtwerke). Yet more typically, water supply is integrated with gas and electricity, while wastewater is managed under the same roof as other waste products. There is a discussion to integrate the management of wastewater and the water supply sectors (under one organizational entity) in order to reap organizational synergies. Yet integrating wastewater and water supply at the organizational level is controversial in Switzerland as it is argued that associating drinking water with wastewater is not acceptable (Expert 1, 2009).

Swiss water governance is also oriented around political rather than physical catchment boundaries. Yet a current discussion in the Swiss water world revolves around a shift towards a more holistic approach to water management, that is, towards focusing on environmental regions, e.g., river basins. Here a central question relates to finding an appropriate organizational structure oriented around the hydrological catchment area rather than political boundaries.

<table>
<thead>
<tr>
<th>Govt. level</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>Defines legal framework for water protection water standards</td>
</tr>
<tr>
<td>Cantonal</td>
<td>Regulation of water resources:</td>
</tr>
<tr>
<td></td>
<td>- Administrative, legal, technical &amp; financial control responsibilities</td>
</tr>
<tr>
<td></td>
<td>- Responsibility for providing water services (can delegate to lower level)</td>
</tr>
<tr>
<td>Municipal</td>
<td>Typically responsible for providing water services</td>
</tr>
</tbody>
</table>
(Vollenweider, 2006). The future trend envisioned at the federal level involves moving away from sectoral/local governance and towards inter-sectoral and regional governance (Expert 3, 2009). The FOEN is active in providing information about integrated water management and regionalization and ideas are slowly infiltrating Swiss water management (Expert 3, 2009). However, while holistic planning and legal aspects have been addressed, the financial piece has not been solved yet (Expert 1, 2009). The financial aspect is particularly challenging with respect to transferring funds between political boundaries (in the case of intercommunal or intercantonal cooperation). Furthermore, it is predicted that costs in the wastewater sector will increase due to increasing tasks (e.g., the need to renovate and addressing micro-pollutants), which will necessitate extra funding (Herlyn & Maurer, 2007). Since governmental funding is decreasing, the rising costs will complicate things further as the extra money will most likely lead to an increase in user-fees, which is always controversial (Expert 1, 2009). To address such challenges, strategies such as regionalization and professionalization are promoted in the Swiss wastewater sector. These approaches are often argued to increase efficiency (in terms of reduced costs) and effectiveness as there is more professionalism through organization at the regional level (Pfammater et al., 2007; Expert 3, 2009).

4.1.1. Structural elements - the case of Zurich’s wastewater system

The structural elements important to the case are the regulatory (federal and cantonal) level as well as the operational; these are described in this respective order below.

The regulatory level

The focal regulatory actor in this research is the department for Waste, Water, Energy and Air (WWEA), which is the cantonal specialist department responsible for the implementation of the federal water protection law as well for monitoring the municipalities’ and private actors’ compliance (Zürich, 1974). The WWEA addresses both water supply and wastewater. The WWEA is ordered below the cantonal council (Regierungsrat) (Zürich, 1974) and the building directorate (Baudirektion) (Zürich, 1974) (see table 3). The WWEA has the authority to immediately intervene with municipalities and private actors when there is actual or potential water pollution incidence (Zürich, 1974). The WWEA’s role is both strategic and operational: its main goal is to develop and implement action plans but it also engages in advising (Amt für Abfall Wasser Energie und Luft, 2004).

<table>
<thead>
<tr>
<th>Institutional Scale</th>
<th>Responsible entity</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>Swiss confederation (bicameral parliament)</td>
<td>Defines the legal framework for water protection</td>
</tr>
<tr>
<td></td>
<td>FOEN</td>
<td>Water protection strategies &amp; policy instruments, no enforcement</td>
</tr>
<tr>
<td>Cantonal</td>
<td>Cantonal council</td>
<td>Overarching oversight</td>
</tr>
<tr>
<td></td>
<td>Building directorate</td>
<td>Overarching decision-making, monitoring local &amp; regional levels</td>
</tr>
<tr>
<td></td>
<td>Department for Waste, Water, Energy and Air</td>
<td>Direct monitoring of municipalities &amp; setting standards; sets goals, plans &amp; guidelines</td>
</tr>
<tr>
<td>Municipal</td>
<td>Department for Waste Disposal and Recycling</td>
<td>Direct monitoring, implementation &amp; operation of wastewater services tasks</td>
</tr>
</tbody>
</table>

The operational level

The municipalities in the canton of Zurich are responsible for the immediate monitoring of the compliance with federal and cantonal water protection laws (Zürich, 1974). While at the cantonal level, wastewater and water supply are integrated under the WWEA, at the municipal level, they remain separate. Our focus is on wastewater, where the responsible entity in the city of Zurich is the Service Division for the Civil Engineering and Waste Disposal and Recycling in the city’s department for Waste Disposal and Recycling (WDR). The WDR is a public enterprise with a Chief Executive Officer, five areas of operation and five respective general managers: 1) wastewater division, 2)
waste and city cleaning, 3) waste heating and energy, 4) administrative services and IT support, and 5) maintenance services. The focus of this paper is on the wastewater division in WDR (hereafter referred to as the Division), which includes the wastewater treatment facility (Werdhölzli) as well as the drainage system in the city of Zurich. The wastewater treatment facility was completed in 1985 and is the country’s largest, treating 70 to 90 million cubic-meters of wastewater yearly. The drainage system in Zurich is 4,000 kilometers long (including the private sewer system) (Pauli, 2009).

4.2. Regulatory style

The regulatory style in the Swiss water sector seems to be cooperative as the cantons prefer giving recommendations rather than top-down mandates. Whereas historically, the federal and cantonal levels had some financial clout via subsidies that they could grant to municipalities for technical aspects in the water sector, today, they are only able to provide subsidies for specific purposes. This change weakens the state’s role, and while the cantons legally have the power to determine municipal autonomy, in reality, cantons rarely intervene. The current aim is to have self-sufficient utilities (e.g., full-cost coverage by fees); while certain cantons provide special (extra) financing or special instruments (e.g., wastewater funds), others forbid this practice (Poldervaart, 2007). In the canton of Zurich, the WWEA is perceived as playing more of an advising rather than a regulating role because it lacks authority: while it could previously use subsidies as steering tools, it no longer has these at its disposal. The perceived “mentality of municipalities is that if the canton cannot provide public funding, then it no longer has a say” (Ex-post 5, 2008).

4.3. Actors

The WDR is organized as a communal consortium where the city of Zurich is the dominant municipality that governs the Division. Six municipalities have contracts with the Division in order to have their wastewater treated in Zurich. The municipalities of Wallisellen, Kilchberg and Zollikon have all their wastewater treated in Zurich while Adliswil, Opfikon and Rümlang only have a part treated there. Each municipality has its unique contract (some are more than 80 years old).

5. Evaluation of performance

This section is presented according to the three evaluative criteria (legitimacy, efficiency and effectiveness) and ordered according to the indicators (shown in table 1). It is also noted whether or not the indicators are found to have a causal link with regionalization and/or autonomization.

5.1. Legitimacy

5.1.1. Inclusion and transparency

Due to the direct democratic system, it is argued that legitimacy is a precondition of change in Switzerland. Overall, policy-making is based on consensus and finding shared understanding prior to a public vote. However, in the case of the Division, no such democratic approach is taken vis-à-vis its contract municipalities as they have no decision-making rights; they only participate by paying the Division a fee in exchange for having their wastewater treated. The contract municipalities would like to have some decision-making clout and form a composite actor (Verbund), which would give them more rights. Yet according to the Division, this is only a hope of the municipalities because the Division has no interest in giving its contract municipalities any decision-making competencies. In contrast, within the Division, there seems to be an inclusive atmosphere as the management incorporates the goals of its employees and engages in goal formulation and position-fixing (Standortsbestimmung) exchanges with its personnel. Moreover, the Division’s relationship with the WWEA is not perceived as overly hierarchical as it is described as “very good” and “cooperative” with easy dialogue: “we have informal phone conversations whenever something comes up” (Ex-post 7, 2007). The above characteristics are not found as having a causal relationship with the autonomization process. However, if a communal consortium can be considered a
regional model (as we do in this research), then the Division’s hierarchical stance weakens this governance form’s legitimacy; this form of regionalization thus seems to weaken legitimacy in terms of inclusion and decision-making rights.

As a consequence of autonomization, the Division has more financial freedom than before, which entails that the public has less direct influence. However, if there is a legal change or projects entail large sums of money, then there typically is a public consultation period (Vernehmlassung) and a public vote. Yet the Division has free discretion to make decisions about daily operations and finances for a budget of up to 100,000 Swiss francs. For a budget of up to 300,000 Swiss francs, the director of the WDR needs to approve and for a budget over 1,000,000 Swiss francs, the city council must approve. In addition, project leaders and regular employees now have financial competencies: a project leader has discretion of finances of up to 25,000 Swiss francs and regular workers of up to 5,000 (Ex-post 7, 2007). The research thus demonstrates a causal link between the Division’s autonomization process and increased flexibility regarding financial decision-making. Yet there is a trade-off with legitimacy as there is less direct democratic input.

5.1.2. Accountability

The WWEA and the Division’s responsibilities are summarized in table 4. While prior to autonomization, the WDR and hence also the Division lacked clear competencies, which often led to conflicts with the technical services and the Division, there has been a clarification of roles since the restructuring of the WDR (see organizational efficiency below). After autonomization, it is now clear that the general managers are responsible (and have authority) for their respective area of operation, which has reduced discussions and conflicts. There thus seems to be a causal link between autonomization and the clarification of roles and tasks, which increases accountability.

<table>
<thead>
<tr>
<th>Actor</th>
<th>Tasks</th>
</tr>
</thead>
</table>
| WWEA  | general drainage plan check every two to three years  
|       | monitoring performance of WDR’s wastewater treatment facility four times a year with a general annual evaluation  
|       | testing whether operators’ accuracy in measuring the water quality by testing the same sample (that the municipality already tested) in cantonal laboratory  
|       | annual meetings with operator to discuss their yearly performance (issues a letter satisfaction/dissatisfaction with the performance of the operator)  
| WDR   | controlling the operation, investments, personnel etc. of wastewater facility & sewerage system  
|       | determining groundwater protection areas  
|       | enactment & maintenance of drainage systems, treatment facilities & fee ordinances  
|       | issuing ordinances regarding drainage system (must be approved by the building directorate)  
|       | internal communications, personnel, services, business development/quality, legal service & controlling department  
|       | responding to citizen complaints about discolored water waterways |

The WWEA is satisfied that the Division can accomplish the tasks of managing and running the wastewater treatment plant and drainage system rather independently. Moreover, the Division is essentially self-regulated where the WWEA conducts periodic tests. If there are any problems, the WWEA has a discussion with the operator, typically conducts a few more tests to see if the problem is ongoing and possibly issues a citation or a final warning if cheating or faulty measurements are repeatedly found. If problems still do not cease, then the responsible person may be fired. If there are continuous problems beyond the individual level, then there is a discussion with the WWEA, the Division, and the wastewater facility commission (Kläranlagenkommission) (comprised of the municipal councilors - Gemeinderäten). However, the canton is wary of intervening too closely with the municipal level. Despite this apprehension, if the WDR cannot guarantee the effective operation of the wastewater treatment
facility, then the canton takes-over. There appears to be no link between autonomization and the monitoring of the Division by the WWEA.

Through our study we found that while the WWEA prefers making recommendations rather than mandates, it wishes it had more clout in terms of positive incentives. For instance, the WWEA wanted to implement waste tax funds as it perceives this as a great steering instrument. Yet this was rejected by the cantonal council because it perceived political reasons. Specifically, the WWEA thinks that the council wants to curb the WWEA’s power. Moreover, the WWEA perceives that the direct democratic system in Switzerland is restrictive as this makes cantonal councilors afraid of implementing something that will then make them unpopular in their constituency (may cause them to lose their seat). The Division perceives the WWEA as being passive and wishes that it would intervene more directly. While there does not appear to be a causal link between the autonomization of the Division and accountability, it seems that a decoupling of the WWEA from the political system might enable the WWEA to exercise more clout.

5.2. Efficiency

5.2.1. Organizational efficiency

The WDR went through an autonomization process as its legal form changed from a municipal agency (i.e., bureau) to a semi-autonomous business enterprise in 2000. However, it remains under public law and is integrated into the city of Zurich, under direct oversight of the Zurich’s city council. As a business enterprise the WDR is relatively financially independent with its own accounting system (financed by infrastructure and wastewater fees), and more discretion regarding financial decisions than before (see above). The treatment facility employs 85 workers and the drainage system 116 (Pauli, 2009); the workforce is described as being well educated and professional (post 7, 2007). Moreover, the Division seeks to achieve a high level of professionalism and strategic planning in its organization (Pauli, 2009) by accomplishing the following:

- clearly defining goals and strategies in its business plan
- system for cataloguing operational figures
- instruments, platforms and networks as well as necessary resources (e.g., funding) for continuing education and training (continuing education programs through Human Resources Department of the city of Zurich and internal educational programs and providing advice and funds for external courses)
- special human resource computer software program (ERP-Standartssoftware SAP, HCM) in 2006 (stands for Enterprise Resource Planning and Human Capital Management), which led to more efficient and transparent processes that are beneficial for the workers and managers (Pauli, 2009)
- information exchange event - “WDR Platform” (ERZ Plattform) - opportunity for internal exchange where relevant themes regarding management and leadership are discussed (Pauli, 2009)

Through its restructuring, the “WDR was able to free itself a bit from the city hierarchy... and we use freedom” and becoming more horizontal (Ex-post 7, 2007). The operator is now much freer than before in terms of having the ability to change organizational aspects as he can now act more independent of daily political intervention. There thus appears to be a causal link between the Division’s autonomization and its organizational efficiency as the process led to increased flexibility, strategic planning and professionalism of the organization.

While the WDR has an integrated waste service management, addressing wastewater treatment, solid waste city cleaning, as well as waste heating and energy, with a focus on recycling and re-using waste products, research found no sign of a discussion of integrating the sub-sector of water supply into its domain. Albeit WWEA has integrated these two sub-sectors, there seems to be no such discussion at the operational level. While it might have been expected that a regionalization process, which typically tries to find synergies, might be coupled with integrating wastewater and water supply, this is not the case in terms of the Division’s reforms.
Dynamic efficiency

While the Division already benefits from economies of scale, as it is a large facility with six contract principalities, in the course of the autonomization process it also played with the idea of forming a new, larger organization, organized under private law (e.g., a joint-stock corporation) in order to increase efficiency in terms of handling tasks in a timely manner. Yet there appears to be no further discussion regarding the inclusion of private firms as such a prospect would need heavy political discussion in an environment that seems averse to such discussions. Moreover, the Division itself is critical of privatization reforms and views England as a bad example as it implicates the English water infrastructure as having been economically deteriorated since privatization.

The Division, however, is thinking of expanding its organization as it might have its own biogas-burning facility: instead of shipping the dewatered sludge to waste incinerators, the Division would dispose of this internally. Beyond biogas facility, and as a continuation of the autonomization process, the Division is considering the prospect of forming a new, larger organization under private law (e.g., a joint-stock corporation) in order to increase efficiency in terms of handling tasks in a timely manner. Yet there appears to be no further discussion regarding the inclusion of private firms as such a prospect would need heavy political discussion in an environment that seems averse to such discussions. Moreover, the Division itself is critical of privatization reforms and views England as a bad example as it implicates the English water infrastructure as having been economically deteriorated since privatization.

While the autonomization process has not directly affected the Division’s dynamic efficiency, as a regional form (incorporating multiple municipalities), it can reap the benefits of economies of scale. Yet the Division seems to
continue on a regionalization-autonomization track, as it considers expanding its organizational form, which appears to be a result of the autonomization process.

5.3. Effectiveness

5.3.1. Decision-making and problem-solving

Effective decision-making overlaps with efficiency indicators as it relates to the time needed to make decisions, which can be considered a cost (i.e., inefficiency). However, if decision-making requires little time (e.g., does not need to go through political decision-making) but the results are not acceptable to the constituents, then the process may not be effective, even though it is efficient. Therefore, we place decision-making under effectiveness; finding a balance between flexibility/autonomy (i.e., more efficient decision-making) and legitimacy (e.g., tied to political decision-making) is a tough task. In the case of the Division, large projects and budgets that need to go through the political process of decision-making are often delayed, making the process less efficient. For example, if decisions have to go through the parliament, which is the case for large budgets (20 million), then the decision-making process takes three to five months. While it is perceived that there are too many interfaces between the city of Zurich and the Division concerning the accounting system, the Division has increased autonomy since its autonomization and can retain some flexibility, as for instance, it is able to vary the wastewater fee within a 10% range, which only needs the consultation of the city council, not with the entire municipal council or public vote. The financial decision-making process is the only component where operational decisions are still tightly coupled with political decision-making. For instance, the Division has the ability to hire and fire personnel as needed and can make contracts with other municipalities, without needing to go through a political decision-making process. While this increases the Division’s flexibility, it weakens its legitimacy as the public has less influence over its operations. There thus appears to be a causal link between autonomization and increased decision-making competencies, yet this also involves a trade-off with legitimacy.

The Division engages in effective problem-solving as it has no problems passing the WWEA’s inspections (Pauli, 2009). The Division provides superior water quality (of the effluent water), and specifically, certain parameters (e.g. total organic carbon and nitrogen contents) are markedly below the legal threshold (Pauli, 2009). There is thus effective protection of the physical environment as the water resources (groundwater and surface waters) have a very high quality. Yet there is no observed causality between autonomization and water quality performance as the Division has historically provided quality services.

5.3.2. Adjustment flexibility

As defined in Table 1, adjustment flexibility is associated with long-term adaptive and integrated water management strategies as well as social and policy learning. In the context of long-term adaptive strategies, the Division’s objective is to be 100% self-sustainable in terms of energy needs and embeds such sustainable practices into its business plan. The Division also engages in integrated water management by holistically looking at the river Limmat (into which the effluent water is discharged) water catchment, specifically by addressing flooding and measures to re-naturalize the river. This not only helps to mitigate major flood damages but also improves the well-being of the riparian ecosystem. While no direct causality in terms of autonomization and increased sustainable practices can be found, the clear implementation of sustainable practices into its business plans seems to have increased following autonomization.

Within the Division, there has been a learning process due to the autonomization process of the WDR (described above). While the autonomization process is described as having been a major challenge for the organization, the outcome has been quite positive. The Division did not fire any employees during the restructuring process, it simply redefined their jobs and the incumbent employees could re-apply to these jobs. The employees are now described as being much more independent and communicative, which leads to shorter decision-making paths and more credible decisions, as those affected immediately settle the issue with most conflicts now being solved internally. Moreover, there are weekly meetings (lasting 1.5 hours) where all issues are discussed. A major challenge was for people...
within the Division to learn how to work together in a team, where everyone has some responsibility. The Division initiated team-building exercises and conflict management courses - some of which were voluntary and others obligatory - so that the employees learned how to cope with conflicts, how to solve them within their team and to take responsibility (as autonomization entailed that the workers have more competencies than before). The autonomization process also led to more collaboration between the different areas of operation within the WDR, leading to the capitalization of synergies. These processes are said to have led to greater satisfaction among the workers in the Division, which is regarded as increasing the efficiency and effectiveness of the Division. Hence there appears to be a causal link between autonomization and increased efficiency and effectiveness in terms of interactions and operations within the Division (e.g., reducing transaction costs by solving conflicts internally).

5.4. Summary

In sum, table 6 shows the high level of performance of the Division in terms of legitimacy, efficiency and effectiveness (indicated by “+’s”). Only two strong negative indicators for the Division’s performance are found (indicated by “-’s”: 1) regarding inclusion, as the Division operates hierarchically and 2) regarding its lack of integrating water supply and wastewater. There are several areas where mixed success was found (indicated by “/’s”). Yet not all performance indicators are causally linked with regionalization or autonomization processes. Indicators are marked with grey shading where a causal link was found; darker grey indicates a stronger link.

Table 6: Summary of results

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Main indicator</th>
<th>Performance summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legitimacy</td>
<td>Inclusion</td>
<td>- contract municipalities are not given decision-making rights</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- decision-making between WDR &amp; WWEA seems to be based on negotiated rule-making &amp; discussion; internal cooperative relationship as well as external with WWEA</td>
</tr>
<tr>
<td>Transparency</td>
<td></td>
<td>/ - decreasing public scrutiny due to decoupling</td>
</tr>
<tr>
<td>Accountability</td>
<td></td>
<td>+ - clear division of roles and responsibilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>/ - systematic monitoring &amp; enforcement but WWEA lacks clout</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Organizational</td>
<td>+ - professional management- business plans, strategic planning, computer software, cataloguing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+ - offers personnel training – both internal/external continuing education courses; exchange platforms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- no synergies via an integrating water supply &amp; wastewater</td>
</tr>
<tr>
<td>Dynamic</td>
<td>Decision-making</td>
<td>/ - some delay due to long political decision-making paths but also some flexibility</td>
</tr>
<tr>
<td>Problem-solving</td>
<td></td>
<td>+ - division meets WWEA’s inspections, compliance with water quality standards</td>
</tr>
<tr>
<td>Adjustment</td>
<td></td>
<td>+ - internal learning - how to be a team, conflict management</td>
</tr>
<tr>
<td>flexibility</td>
<td></td>
<td>+ - sustainable practices embedded in business plan: e.g., energy saving strategies, integrated management</td>
</tr>
</tbody>
</table>

Key: + = stronger performance (achieving requirements of analytic indicator); / = mixed success; - = weaker (not achieving requirements); grey = causal link with regionalization and/or autonomization

6. Discussion

Returning to the first research question, to what extent might regionalization (with a focus on autonomization as a stepping stone) affect the performance of water governance in terms of efficiency, legitimacy and effectiveness, there is a positive correlation between autonomization and the utilities’ performance in terms of 1) clarifying roles and responsibilities, 2) an increase in professional management with more strategic planning and flexibility than before, 3) improved internal interactions (in terms of adjustment flexibility) as the employees in the Division have gone through a learning process and now can operate as a team and 4) increasing sustainable practices (to a certain
extent). Yet there appears to be a negative relationship between autonomization and transparency (as the public sphere has less oversight and control). In terms of effective decision-making, the autonomization process enabled the Division to have more flexibility, yet the Division wants more freedom as it still perceives itself as being restricted by the political system; this involves trade-offs (discussed below). In terms of regionalization, the organizational form of a communal consortium enables the Division to take a hierarchical stance vis-à-vis its contractual partners as it wants to remain the authoritative entity. As the contract municipalities have no decision-rights, this regional form weakens input-legitimacy.

In terms of indicators not causally linked with regionalization or autonomization, this study found that there is informal negotiated rule-making via dialogue between the relevant actors (in the decision-making process within the Division, the WDR and the WWEA), which leads to a high level of input-legitimacy. This is aligned with the broader political processes in Switzerland, which are based on negotiations with an emphasis on gaining shared understandings (Klinke & Worch, under review). Furthermore, the WWEA seems to take a rather passive regulatory role as it no longer has subsidies as incentive tools, which weakens its accountability and hence also legitimacy. In contrast to some other cantons, like Berne, the WWEA does not have wastewater funds that are seen as useful enforcement tools. In Berne, for instance, the cantonal regulator is able to give municipalities a set of choices but link one choice with a funding incentive (using the wastewater funds). In addition, while experts in the Swiss water sector acknowledge that synergies can be reaped by integrating the governance of the wastewater and water supply sub-sectors, this is not realized by the WDR, which might weaken its organizational efficiency. Finally, in terms of problem-solving, the Division has a high level of performance as it complies with the water quality standards and meets the WWEA’s inspections - even over-achieving in terms of certain parameters, successfully keeping the wastewater separate from groundwater, streams, rivers and the lake of Zurich.

Now moving on to the second research question regarding the trade-offs between efficiency, effectiveness and legitimacy, this research finds that regionalization and autonomization processes involve certain trade-offs between efficiency, effectiveness and legitimacy. Specifically, while through autonomization the Division has increased its effectiveness (in terms of increased decision-making competencies and flexibility), this weakens the Division’s input-legitimacy as the city of Zurich and hence the citizens have less influence over the Division’s operations. Conversely, the Division still feels like it is too tightly coupled with the city and wishes it had more autonomy. This exemplifies a tension between flexibility/autonomy (in terms of organizational and dynamic efficiency as well as effectiveness) on the one side and legitimacy via direct democracy on the other. The Division might be able to increase its performance in terms of efficiency and effectiveness if it were even more decoupled from the political system. For instance, in terms of its aim to expand its organizational size and accomplish wastewater tasks from other municipalities, the Division seems to be restricted by the political system. The Division thus seems to struggle against the restrictive political system. This is aligned with other studies that have found that the larger municipalities in Switzerland tend to fight against political bodies’ opposition towards reform (Steiner, 2001). The importance of decoupling might be stronger in a canton like Zurich, which is described as being rather conservative and averse to NPM reforms, than in a canton like Berne where there have been major reforms at the cantonal and municipal level (Schedler, 2003). Yet the above mentioned legitimacy concerns would consequently play a stronger role in Zurich.

In the context of the Swiss democratic system, where “comprehensive democratic compatibility” (Schedler, 2003, p. 329) is a precursor to policymaking, the efficiency/effectiveness-legitimacy trade-off found in regionalization approaches may be offset due to institutional mechanisms that promote direct democracy. For instance, it was found that attempts to curb democratic rights in support of increased efficiency have been effectively challenged (Schedler, 2003). Moreover, recent experiences show that legitimacy deficits in regional governance forms are sought to be solved. For example, in the case of task-oriented associations (Zweckverbände), which are argued as having a legitimacy deficit because voters lack a direct voice regarding their operations (Glättli, 2007), the cantonal constitution in Zurich was ratified in order to democratize these partnerships by creating a new institution within them that is comprised of the voters (i.e., giving them a direct voice) (Glättli, 2007). Thus, we argue that if the Division is perceived as having a strong legitimacy deficit, then measures might be taken to counter this. Yet this study provides insufficient information regarding the opinion of the citizens serviced by the Division to
judge whether or not there is a major democratic deficit in terms of the Division’s operations. The question that then arises is whether such a democratization process would defeat the original purpose of decoupling the management from political decision-making, as offsetting legitimacy deficits would entail a re-coupling with the political system.

7. Conclusion

This paper explored the performance of a Swiss wastewater utility in the context of regionalization. The findings indicate that establishing competencies and authority through the process of autonomization can lead to an increase in a utility’s organizational efficiency and effectiveness. Moreover, it is argued that autonomization might serve as a stepping stone for a utility to regionalize and thus increase its efficiency and effectiveness. Yet there is a notable trade-off with legitimacy because such processes tend to decrease direct democratic influence.

A potential trajectory for the Division seems to be expanding its size and taking over the wastewater treatment tasks for smaller facilities. Despite the proliferation of regionalization arguments in Switzerland, this process is also viewed critically as it faces political and socio-cultural opposition because it often clashes with traditional municipal autonomy and other public values (e.g., direct democratic input). Regionalization is said to be particularly problematic around large utilities (e.g., Zurich and Geneva) because smaller municipalities have greater fear that they will loose autonomy if they collaborate with large municipalities than if they join with municipalities of a similar size. In the case of the Division, the contract municipalities lack decision-making rights; this hierarchical stance might be an impediment for the Division to expand more. While there are trade-offs with legitimacy indicators as the decoupling of management from political decision-making leads to less direct democratic influence, our study found that institutional measures were taken to offset legitimacy deficits in other instances (e.g., the reform of task-oriented associations in Zurich), which could also aid in regionalization trajectories. The open question is whether a balance between legitimacy and efficiency requirements could be found or whether the reforms to offset legitimacy deficits would bring the process full-circle (i.e., re-coupling)?

Despite the widespread criticism that the traditional politics of the state are inadequate to handle today’s complex challenges, governmental oversight in the governance of public services remains essential (Theys, 2002). Specifically, reforms such as autonomization typically entail increased regulation (Rothenberger, 2002). Hence, an attempt to offset the trade-offs between efficiency/output-oriented effectiveness and legitimacy in Switzerland, without coming full-circle, may be to have increased hierarchical authority that is decoupled from the political system, e.g., an independent regulator. For instance, this research found that the WWEA’s regulatory competence seems to be restricted by the cantonal council. Perhaps a decoupling of the WWEA from the political system to become a more independent regulator would enable it to be a more effective regulatory player. While cantons prefer to encourage best practices through positive incentives (e.g., subsidies) than enforce strict mandates, having increased regulatory competence, in the form of more independent regulatory roles, could complement regionalization reforms as the cantons would have the competency to more effectively regulate (semi) autonomous entities at the regional level, which would strengthen legitimacy in terms of accountability. This then raises the question whether such decoupling of the cantonal water agencies would also be problematic as their legitimacy (in terms of democratic influence) would be decreased? What counter mechanisms would such decoupling necessitate (e.g., judicial review, independent expertise and public debate) in order to find a balance between efficiency, effectiveness and legitimacy? These questions merit further research.

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