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"Governance restricts": A contextual assessment of the wastewater treatment policy in the Guadalupe River Basin, Mexico

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ABSTRACT

Lack of wastewater treatment is among the main water problems worldwide. The implementation of wastewater treatment policies faces varying challenges given the many different contexts. Therefore, context-sensitive approaches are required from a governance perspective. This paper aims to improve the understanding of the role of contextual factors in water and wastewater governance drawing on empirical evidence from Latin America, with a focus on the Guadalupe River Basin in Mexico. The findings indicate that the governance context restricts the implementation of wastewater treatment policy. Thus, future reforms should consider the top-down nature of the policy implementation process.

1. Introduction

Despite significant improvements in drinking water supply, lack of wastewater treatment remains as one of the main water problems around the world (Ardakanian et al., 2015). In developing countries, approximately 90% of wastewater is discharged untreated into rivers, lakes and oceans (Corcoran et al., 2010). The average wastewater treatment level reaches 70% in high-income countries, but falls to 38% in upper-middle-income countries and declines further to 28% in lower-middle-income countries (Allaoui et al., 2015). These levels demonstrate that wastewater governance is failing worldwide. This state of affairs has negative consequences for human health and nature, and comes with high economic costs (UN WATER, 2014; WHO and UN Water, 2014).

The consensus among the international community is that water problems are, in many ways, best seen as governance issues; as the amount of water can be enough and solutions are well known, but inequality, lack of access and mismanagement are still present, implying that the real challenge is the implementation of the solutions (Gupta, 2011; Jacobson et al., 2013; Marques et al., 2016; Miranda et al., 2011; OECD, 2011; Peniche Camps and Gúzman Arroyo, 2012; UN WATER, 2006). Despite this consensus, there is not much consistency in the understandings and meanings of the governance concept (Bressers and Kuks, 2003). Due to this reason and the importance of governance, many scholars have tried in the last decades to categorise those understandings and meanings (Bressers and Kuks, 2003; Klijn, 2008; Rhodes, 1996; Van Kersbergen and Van Waarden, 2004). Thus, governance has become an important and common concept in the water sector (Pahl-Wostl, 2015). The broadness of the term is reflected in its derivative concepts, such as "water governance", "good water governance", "water governance assessment" (Casiano and Boer de, 2015; Vinke-de Kruijf and Özerol, 2013) or "improved water governance" (Stockholm International Water Institute, 2015). Governance can be conceptualised as "a social function" or "a system" (Pahl-Wostl, 2015, p. 25). The first conceptualization relates to the normative perspective, which considers governance as a desired outcome, while the second one reflects a neutral perspective that considers governance as a combination of institutional arrangements. Water governance, as a normative concept, has been promoted by international organisations. Commonly, the analytical frameworks of these organisations are inspired by political practices, certain philosophical principles and objectives inherent to specific societies (Hufty, 2009, p. 3). International organisations such as the United Nations and the Organization for Economic

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Cooperation and Development (OECD) have established water governance principles. For example, the OECD principles on water governance focus on efficiency, effectiveness, trust and engagement (Akhmouch and Correia, 2016). Currently, most OECD member countries have decentralised their water policy-making, and river basin management has been encouraged in both federal and unitary countries (OECD, 2011).

Various scholars have criticised the normative perspective and called for contextual consideration; arguing that governance problems require context-specific answers, rather than "panaceas" or "universal remedies" (Gupta et al., 2013, p. 577; Ostrom et al., 2007, p. 15176; Pahl-Wostl, 2015, p. 11). This criticism also entails the development of several frameworks that consider contextual factors (Ansell and Gash, 2008; Bressers and Kuks, 2013; Ostrom et al., 2007; Pahl-Wostl, 2009, 2015; Pahl-Wostl et al., 2010; Thiel and Egerton, 2011; Van Rijswick et al., 2014). One of them is the Governance Assessment Tool (GAT), applied in this article and explained in Section 2. Other is the Management Transition Framework, which is described as "an interdisciplinary conceptual and methodological framework supporting the analysis of water systems, management processes and multi-level governance regimes" (Pahl-Wostl et al., 2010, p. 571). Another framework is the Ten Building Blocks for Sustainable Water Governance, described as "an objective, impartial and undogmatic assessment of the applicability of integrated water resources management" (Van Rijswick et al., 2014, p. 726). The frameworks mentioned are applied to assess water governance and, as the GAT, they also help to improve our understanding of contextual factors of the governance arrangement in the implementation of water policies. Actually, the understanding of both the impact that governance has on the performance and efficiency of the water utilities, and how the improvement in the governance can influence the outcomes in a consistent manner, contribute to redraft the water governance concept (Marques et al., 2016).

It is well known by public policy scholars and practitioners that issuing policies does not guarantee the expected results (Meier and McFarlane, 1995). Even governance systems that are well-designed, from a certain point of view, do not automatically deliver the expected outcomes (Birkland, 2011; Durlak and DuPre, 2008; McLaughlin, 1987; O'Toole, 2004; Pressman and Wildavsky, 1984). Wastewater treatment policy in Mexico provides an example of this lack of intended results. Since 2000, the federal government made significant investments to increase the number of wastewater treatment plants (WWTPs) (Peña de la et al., 2013). The number of WWTPs increased from 793 in 2000 (CONAGUA, 2014) to 2337 in 2014 (CONAGUA, 2015c). However, many of these WWTPs are not being operated, while others are abandoned or incomplete, and some do not work properly (Valle, 2014). None of the national water plans achieved their objectives on wastewater treatment levels (Casiano and Bressers, 2015). The current wastewater treatment level is around 55% for municipal discharges (CONAGUA, 2015b) and 19% for the industry (Green-Peace, 2014).

Water governance assessments have become important policy tools as they can help both the identification of policy implementation challenges and the recommendation of pragmatic reforms, as well as uncover the relationship between programmes, regulations and the achievement of goals (Jacobson et al., 2013). In recent years, various methodologies have been developed to assess water governance. The United Nations Development Programme (UNDP) has compiled 13 (Jacobson et al., 2013) and the OECD 25 (OECD, 2015). Besides these evaluation tools, only a few studies on wastewater governance assessment have been carried out in Mexico, including the studies on the Lerma-Chapala basin (Pacheco-Vega, 2009), the Aguascalientes case (Pacheco-Vega, 2015a), the Atoyac-Zahuapan sub-basin (Casiano Flores et al., 2016; Rodríguez, 2010) and the Puebla Alto Atoyac sub-basin (Casiano and Boer de, 2015).

This paper aims to bridge three research gaps in the wastewater policy and governance literature, with a focus on Mexico, a part of the Latin American context. Firstly, water governance analysis usually concentrates on water supply, demand and distribution, while only a few studies examine sanitation and wastewater (Pacheco-Vega, 2015b). Secondly, most studies on wastewater emerge from the perspectives of engineering and natural sciences, whereas only a few are from a social science perspective (Pacheco-Vega, 2015b). Thirdly, in Latin America, there are no sub-national studies that provide an in-depth examination of wastewater policies (Pacheco-Vega, 2015b). In a broader sense, the paper also contributes to the governance-focused debate on policy implementation (Van Rijswick et al., 2014).

Previous studies in the Mexican context show that wastewater treatment policy has been driven by the government through federal programmes, implying a "top-down" implementation approach (Casiano and Boer de, 2015; Casiano Flores et al., 2016). For a comprehensive analysis that allows both top-down and bottom-up implementation approaches, this paper focuses on the Guadalupe River Basin. This case is among the few in Mexico that involves the creation of a sub-basin commission in a bottom-up fashion (Franco-Garcia et al., 2013), alongside the influence of the National Water Commission's (CONAGUA) top-down programmes. The traditional "top-down" implementation approach relies on clear directives and the assignment of ultimate responsibility to the agencies involved; whereas the "bottom-up" approach of collaborative implementation includes recommendations that establish clear criteria for resolving the conflicts among different stakeholders (Koontz and Newig, 2014). Both approaches create a context that influences the policy implementation by supporting the actions of the stakeholders and/or by creating restrictions for the implementation process. To assess the nature and degree of this influence, our research question is formulated as follows: How supportive or restrictive is the context created by the combination of bottom-up and top-down implementation approaches for the implementation of the wastewater treatment policy?

To answer this question, we start with an elaboration of the Governance Assessment Tool, which is followed by a description of the assessment methodology and the empirical case. Then the results from the governance assessment are presented, and finally concluding remarks are provided.

2. The governance assessment tool as a theoretical and methodological framework

The Governance Assessment Tool (GAT) is part of those frameworks that consider governance from an institutional arrangement perspective. It is related to the UN's fifth methodology type, which is described as a tool with a highly academic character (Jacobson et al., 2013, p. 68) and it is also part of the 25 assessment tools compiled by OECD (OECD, 2015, p. 31). The GAT has been applied in the analysis of water projects implementation in the Netherlands (Boer de and Bressers, 2011), Canada (Boer de, 2012), north-west Europe (Germany, United Kingdom, France, Belgium and The Netherlands) (Bressers et al., 2016), Romania (Vinke-de Kruijf et al., 2015), Mexico (Casiano and Boer de, 2015; Casiano Flores et al., 2016) and Palestine (Al-Khatib et al., 2017; Judeh et al., 2017). Here, governance is regarded as "beyond the government" and defined as the underlying structural context that guides and organises the actions and interactions of the actors involved in water resources management (Bressers and Kuks, 2013).

The elements of the GAT are based on the Contextual Interaction Theory (CIT) (Boer de, 2012; Boer de and Bressers, 2011; Bressers

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