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Governing Urban Water Conflict through Watershed Councils—A Public Policy Analysis Approach and Critique

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Abstract: Cities face substantial water governance challenges, even more so when their activities are water-intensive, as global tourism is. As the lower-most level of government, municipalities face important challenges when dealing with water stress. Designing robust urban water policy thus may require us to challenge currently popular modes of governance by river basin councils, as predicated by the integrated water resources management (IWRM) paradigm. In this paper, I conduct a public policy analysis of a case study of intra-urban water conflict in the Mexican city of San Miguel de Allende (SMA), an extremely popular tourist destination with substantive water scarcity challenges. I draw insights from an application of the Institutional Grammar Tool, IGT (as proposed by Ostrom and Crawford) on a series of textual datasets derived from ethnographic, qualitative longitudinal field research, document analysis, and elite interviews with stakeholders to explain the reasons underlying community concerns about urban water supply which have derived in conflict in San Miguel de Allende and increasingly manifested over the past few years (2017–2020). My analysis suggests that to tackle growing intra-urban antagonism derived from increasing water insecurity in San Miguel de Allende, a more localized, micro-watershed approach might be more fruitful than a traditional river basin council strategy.

Keywords: river basin council; watershed; water governance; policy analysis; water policy; integrated water resources management; urban water; polycentricity; intractable water conflict; San Miguel de Allende

1. Introduction

Water is a vital resource not only for human consumption through drinking, but even more so to help sustain industrial and commercial activities. Increasingly, urban contexts have been facing substantive water stress, not only because of abrupt climatic events but also due to increased urbanization, industrial growth, declining infrastructure, and rapid urban expansion [1,2]. Cities whose main economic activity is based on tourism face additional pressure on their local water systems because many visits and tourist traffic increase demand for a broad range of services, from public transportation to restaurants and the maintenance of garden and green areas [3,4], thus adding strain to already-stressed reservoirs. The colonial city of San Miguel de Allende, in the central state of Guanajuato, in Mexico, was designated as a UNESCO World Heritage Site in 2008 (as noted here: https://www.worldheritagesite.org/list/San+Miguel+de+Allende) and is widely considered one of the top touristic destinations in Mexico with more than 56,000 international visitors per year, potentially topping 650,000 total visitors in 2019, according to official data from the government of Guanajuato (https://www.eluniversal.com.mx/estados/destaca-la-entidad-como-centro-turistico). In a similar fashion to many other cities that are also popular tourist destinations, such as Mallorca and Barcelona

in Spain [5–8], Casablanca in Morocco, and many others, San Miguel de Allende faces liquid resources shortages and increasing water insecurity, leading to the emergence of conflict within the city confines.

Models of governance have been evolving over the past 50 years [9]. Increasingly, participatory, bottom-up models of resource management have been touted as holding much promise in tackling the multiple challenges facing urban water governance [10]. Integrated water resources management (IWRM) has been promoted since the late 1990s as a paradigm that could potentially improve how water resources are governed across jurisdictions [11–13]. IWRM implementation requires that governments successfully engage multiple stakeholders in a round-table fashion. Stakeholders from a broad range of constituencies and user groups participate in river basin (or watershed) councils where allocation deliberations and other policy processes take place. Nevertheless, IWRM has also been criticized as political boundaries and physical ones do not always overlap [14–19]. Moreover, watershed councils present coordination problems that, while not unique, are especially challenging. Designing proper water policy thus may require a reconsideration of the conventional IWRM wisdom.

In this paper, I used a public policy analysis approach to showcase the challenges of designing and implementing urban water policy through watershed councils and the potential conflicts that can arise from jurisdictional mismatches. Examining empirical evidence from a broader study of water conflicts in Mexico, this paper showcases challenges within three realms: politics, policy, and polity. This paper is part of a series of scholarly products derived from a much larger research project. In this article, I only focus on a fraction of the broader research agenda from the project, specifically, whether IWRM can be used at the urban level and how useful can it be in contexts where domestic water demands compete with economically-driven decisions, such as increasing tourism and fostering urban expansion. These trade-offs are uniquely suitable for a policy-analytical framework like the one deployed in this article. Methodologically speaking, I used a combined ethnographic and qualitative longitudinal research approach, document analysis, as well as elite interviews with stakeholder within the Río Laja river basin, and specifically, within the city of San Miguel de Allende, in the central state of Guanajuato. Conclusions drawn from this research challenge the Organisation for Economic Cooperation and Development (OECD)-led conventional wisdom that watershed councils are the best institutional arrangement for urban water governance. Using a case study of increasing perceived water insecurity in San Miguel de Allende, specific challenges that governing water in cities presents with regards to IWRM are highlighted, suggesting that a new framework needs to be used in practice to address implementation obstacles.

This article is structured as follows: in the second section, after this brief introduction, I offer a summary of the literature on IWRM with focus specifically on the IWRM implementation in the Mexican context. I question whether IWRM is as robust a framework for water governance as the OECD touts it to be, and whether its implementation in Mexico has yielded as much of a positive result as it is argued that it has. The third section of the paper provides historical context about the city of San Miguel de Allende, as well as the range of water issues it faces. The fourth section presents the results of deploying a policy-analytical framework that uses the Institutional Grammar Tool to analyze institutional statements that govern how water is managed in San Miguel de Allende. Data drawn from interviews and ethnographic fieldwork are analyzed to examine how policies which intended to implement IWRM in Mexico have worked at the subnational level, specifically in San Miguel de Allende. The fifth section offers a discussion; the sixth section offers a conclusion. This section presents a synthetic overview of how this policy-analytical framework can be used to examine other problems of urban water governance. The conclusion offers a relatively pessimistic view of IWRM as the correct approach to govern water in urban and peri-urban settings.

2. Theoretical Framework: Is IWRM the Right Model to Govern Urban Water?

Over the past couple of decades, IWRM has emerged as the most dominant paradigm [20–24] for water management. IWRM promotes the managing of water resources through river basins/watersheds and using the river basin council as a model for effective/efficient water governance. The concept

of integrated water resources management (IWRM) has evolved through time. The Global Water Partnership (https://www.gwp.org/en/GWP-CEE/about/why/what-is-iwrm/) defines IWRM as:

> "a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems".

Conventional IWRM wisdom suggests that multilevel, multi-stakeholder water governance should be relatively straightforward to implement if the process is centered around and operated by a watershed (river basin) council [25]. Latin American countries became interested in IWRM through two different channels [26]. Firstly, these nations were interested in imitating US experiences with river basin management [27], specifically the Tennessee Valley Authority (TVA). As Tortajada has aptly mentioned, the shortcomings and potential inapplicability of the IWRM model to Latin American countries have become more apparent as failed attempts are documented more frequently. Nevertheless, it is still a rather popular concept. Secondly, the Organisation for Economic Cooperation and Development (OECD) has very strongly pushed for IWRM to be adopted worldwide. This top-down push for the adoption of a governance model that emerged from countries of the Global North fails to recognize potential implementation barriers and even intrinsic shortcomings directly derived from the model. Many countries that have adopted IWRM have a very robust rule of law, and their historical tradition of citizen participation is strong. Nevertheless, there are many nations where rule of law is weak, and citizens are systematically and routinely denied from participating in water-related decision-making. If we push for the implementation of IWRM in countries where there are substantial obstacles to citizen inclusion in water policy, the potentially most useful features of IWRM will be negated.

In their critique, Giordano and Shah highlight several issues with IWRM, including the cooptation of the term to refer to something that is not at all networked, power-sharing participatory water management, which would be my definition of real IWRM. Their critique offers several important institutional and conceptual innovations that would be better suited to govern water than IWRM. Three of these include "ignoring the basin", "find better ways to signal scarcity than price alone", and "participation is not always necessary" [21]. As Biswas aptly indicates,

> "not only no one has a clear idea as to what exactly this concept means in operational terms, but also their views of it in terms of vagueness has contributed to the high popularity of the integrated water resources management concept since people could continue to do what they had done before, or are doing at present, but put these activities under an increasingly popular bandwagon for which considerable resources have been made available by the donors and international institutions" ([28], p. 7).

Even though criticism of "the new way of governing water" (e.g., integrated water resources management and its associated literature) is scant, there are at least four strands of criticism in the literature that we can find:

(a) Criticism of IWRM's vagueness
(b) Criticism of watersheds as the right unit of analysis
(c) Criticism of watershed councils as the right model of institutional innovation of water governance
(d) Criticism of governance as a conceptual framework to manage water resources

While all four avenues of criticism are interrelated, this paper concerns itself primarily with criticizing the "governing water by river basin councils" part. The manuscript examines the case study of Mexico's adoption of the paradigm and challenges its wisdom and current implementation. I am particularly interested in showing whether there is any significant promise for IWRM to help with robust urban water governance, and I use a Mexican case in central Mexico because this country has been implementing IWRM since the late 1980s and early 1990s. The emergence of the Lerma–Chapala river basin council marked the very first applied case of this institutional reform. While some

scholars [29–32] and the OECD [33] itself have widely praised the Lerma–Chapala river basin council as a model for other countries' adoption of the IWRM model, I am much more critical of this rosy view, given Mexico's inherent and long-standing barriers to citizen participation and power devolution.

Water policies all over the world are different and responsibilities for the allocation, extraction and delivery of this resource are distributed across various levels of government. Frequently, different jurisdictions have shared responsibilities, and the direction of governance responsibility can quickly shift across scales. For example, water policy in Mexico is set by the federal government as water is "the property of the Nation", according to the Mexican Constitution. However, the same Constitution establishes that cities (more specifically, municipalities) are responsible for providing public services, including sanitation, sewerage, wastewater treatment, solid waste management, and drinking water. Governing water in Canada is complex as its institutional architecture is entirely federalized thereby creating a fragmented governance structure [34,35]. The governance of water in the United States of America is also extraordinarily complex, as there are specific regulatory and service delivery functions that are delegated to subnational units, whereas others are retained by the federal government.

Water flows and is stored throughout the Earth's surface and in underground reservoirs. This vital liquid regularly crosses physical and political boundaries. Water crosses boundaries and scales [28,36–39] and there is enormous variation across countries, states/provinces/regions, and cities regarding who is responsible for water allocation, distribution, and delivery. In Canada, governing water is tortuous as there is a broad range of jurisdictional issues and shared responsibilities across levels of government. States, provinces, metropolitan regions, communes, and other subnational units have always had a role in water politics. There is admittedly a wide variation in how water is governed at the national and subnational scales, but the role of subnational units (be it provinces or states, regions, or metropolitan areas) in water politics has been studied at length, much like the potential for inter-state conflict at the sub-national level. Just for starters, the entire literature on integrated water resources management (IWRM) has been premised on the potential for water governance at the river basin or watershed levels [24,40]. These watersheds and river basins may be binational (such as the case of the Rio Grande between the United States and Mexico), transnational (such as the Lempa river basin in Central America, shared by Guatemala, Honduras and El Salvador), or subnational (such as the Lerma–Chapala river basin in central Mexico, or the Valley of Mexico watershed).

The IWRM paradigm has been applied regardless of scale or type of watershed. However, the collaborative behavior between river basin actors premised by the IWRM literature is primarily theoretical and driven by a misunderstanding of the politics of shared resources across political and jurisdictional boundaries, as many critiques of IWRM-based governance models point out [28,38]. Sharing resources across borders, whether these are cross-national or sub-national, has always had the potential to lead to conflict, a phenomenon that has been well documented elsewhere [41–45]. Many watersheds and river basins encompass territory that is shared between two or more states or regions. While Moore argues that there is only a small amount of literature looking at the role of subnational states in water politics and that relatively little attention has been given to subnational politics in the role of conflict emergence and subnational cooperation to solve these disputes [46], an in-depth, systematic literature review reveals a much broader range of scholarship looking at these issues. The literature is abundant in a broad range of different languages other than English (such as French and Spanish), but even within the Anglo-Saxon world, this discussion has already been had at length.

Implementing integrated water resource management (IWRM) at an urban scale requires us to consider the potential for scalar mismatch [47–49]. Rivers do not necessarily run through the "correct" trajectory and jurisdictional borders may frequently not agree with physical delimitations [50]. The most ardent proponents of IWRM suggest that by virtue of focusing on a biophysical–geographical boundary around a river, the traditional definition of watershed, one can also enact governance mechanisms that facilitate cooperation in resource management [21,51,52]. However, rivers act as boundaries themselves, and can also cross territory from one state to another, from one province

to another, or from one country to another. This belief that river basin councils are the most effective model for governing watersheds appears to stem from an implicit understanding that all relevant stakeholders will be able to participate in the council and their voices will be equally heard. An assumption that the river basin council will enact shared decision-making and that every stakeholder sitting at the table shares the same degree of power across all jurisdictions and territories is inherent to IWRM.

Mexico is not the only Latin American country to experiment with IWRM. In the 1990s, Brazil adopted the decentralized model of water governance that was espoused by the tenets of IWRM [53]. The Mexican case is particularly worrisome regarding scalar mismatch, however. Pacheco-Vega has noted since the early 2000s that the organizational architecture of river basin councils does not match administrative and jurisdictional boundaries across practically any Mexican river basin. Furthermore, the existence of river basin councils in Mexico does not guarantee that there will be empowerment across the board in all these councils. In the case of the Lerma–Chapala river basin, while there were representatives of all five states, whether the Consejo de Cuenca Lerma–Chapala can set policy guidelines is rather unclear.

My intention with this paper is to shed light on our understanding of the river basin model as an effective institutional reform and as a robust governance mechanism through a brief meta-analysis of a series of Mexican water policy case studies. I aim to offer a balanced view, showcasing case studies of successful implementation of the river basin model, as well as cases where the model has failed. I find that the case of Mexican water policy is one where implementing IWRM has been less than successful. I test whether we can offer a more definite answer on the effectiveness of the river basin model for water governance. In this section I focus specifically on IWRM implementation in the Mexican context. Here, I ask: if IWRM is as robust a framework for water governance as the OECD touts it to be, then why is that its implementation in Mexico has not yielded as much of a positive result as it should have?

The notion of governance as a conceptual tool to explain the complexity of how water is managed and governed has increasingly gained popularity [54], I argue, because it provides a mental simplification of a complex issue. Conceptualizing water management as "governance" enables the analyst to visualize in their mind the complex web of interrelationships between governments, private and public actors, and the governed resource. Complexity and multiplicity are two inextricable interrelated notions. "Governance" as an idea has become highly popular both in the Spanish language [55–57] and in the English language scholarship on water management [34,58,59].

As indicated by Edelenbos and Teisman,

> "in a complexity approach, the effects of interventions in water governance systems are guided by how other actors deal with interventions more than by the internal rationality of the intervention. A water governance system, going beyond the boundaries of levels, functions and domains, is a compounded and messy system (Teisman and Edelenbos 2011). Actions of each of the parts will influence the efficiency, legitimacy and effectiveness of the other parts, while nobody is in charge to coordinate all the actions (Crosby and Brison 2005)" ([60], p. 90).

Van Kersbergen and Van Waarden find a number of common elements in every analysis of the concept of governance [61]:

1. Governance is polycentric instead of unicentric [62].
2. Networks (be they within or among organizations)
3. Emphasis is placed on processes or governing functions instead of governing structures
4. Relationships among actors present different risks and uncertainties; therefore, institutional design varies by subject matter and sector.

Criticisms of IWRM design and implementation are not solely circumscribed to Latin American countries or even those of the Global South. There are numerous uncertainties regarding how

IWRM should be implemented and once the process is launched, including the kinds of obstacles that governments and other stakeholders will face in order to make IWRM effective in the decision-making process. Implementation of IWRM in Germany was met with obstacles precisely because there is so much uncertainty associated with all stages of IWRM adoption and launch [63]. There are a lot of unknowns, not only regarding water volumes, but also inter-basin transfers, abrupt climatic events, and groundwater aquifer recharging processes. The Water Framework Directive (WFD) of the European Union (EU) established an approach to union-wide water governance that offers several elements of the IWRM approach [64] by establishing the river basin scale as the administrative unit for water management. In theory, given the WFD, one could expect that there would be fewer obstacles for the implementation of IWRM in European countries. However, this was not the case [65]. Arguably, a transition towards IWRM within the European context would require articulation and collaboration across nations, a challenge that seems, if not unsurmountable, at least difficult, as the Rhine River Basin experience shows [66,67].

Exploring watersheds as boundary objects may be a new concept in the human geography literature [68], but it is not uncommon in the policy sciences. The mismatch between political boundaries and geographical boundaries has been highlighted before in the literature and has led to strong criticism (albeit by a small crowd of scholars) of governing by river basins [50,69]. Though the notion is not new, a broader critique can be made of the misuse of watersheds as units of analysis: beyond the mismatch between physical boundaries, jurisdictions, and geographical scales, the complex, nested, interconnected nature of watersheds and their sub-components means that linear analyses are mostly useless. Intricate and often non-intuitive feedback loops within the watershed render it a much more complicated unit of analysis than is commonly acknowledged.

3. The Case Study: San Miguel de Allende and the Lerma–Chapala River Basin

San Miguel de Allende (SMA) is a small city in central Mexico, characterized as an extremely popular tourist destination. Located in the central state of Guanajuato, its territory is located within the Lerma–Chapala watershed [70]. Even though geographical nomenclature also includes San Miguel de Allende in two different sub-watersheds such as the Cuenca de la Independencia (Independence basin) and the Cuenca del río Laja (Río Laja river basin), are both in fact sub-watersheds, rather than entire basins. For the purposes of this paper, I consider San Miguel de Allende to be located within the Río Laja river basin (see Figure 1). This alignment helps explain how non-governmental organizations, such as Salvemos el Río Laja (Let's Save the Laja River), have engaged with the challenges of water insecurity in San Miguel de Allende and the surrounding municipalities, even though apparently their scope of action and mandate are much broader. Figure 1 shows where San Miguel de Allende is located with regards to the entire country. The figure should be read from left to right and from top to bottom, where the leftmost part of the display presents where Guanajuato is located with respect to the rest of the country, the right hand side presents where San Miguel de Allende is located within the state of Guanajuato, and the largest layout presents SMA at the bottom, alongside the Presa Allende.

The Lerma–Chapala river basin embodies land from five different states in central Mexico: Guanajuato, Jalisco, Michoacán, Querétaro, and the State of Mexico (see Figure 2). The latter should not be confused with Mexico City, currently now considered as well as a state of the Mexican federation, whereas before it was a metropolitan zone comprised of several delegations and the Federal District. This river basin and its associated watershed council have both received much scholarly attention since the Consejo de Cuenca Lerma–Chapala's inception in 1993. The CCLCh was touted as a major institutional reform that would enable fuller participation by stakeholders and citizens from the public in the development and implementation of Mexican water policies.

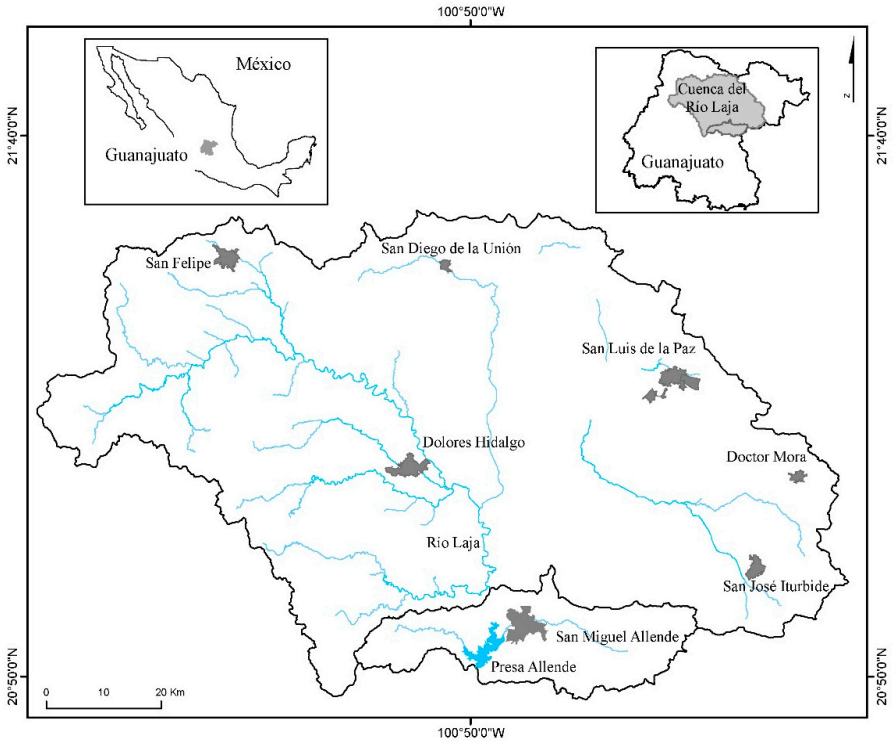


Figure 1. San Miguel de Allende in a national context, the state of Guanajuato, and the Río Laja river basin. Source: own construction (built by Oscar Salvatore, following [71]).

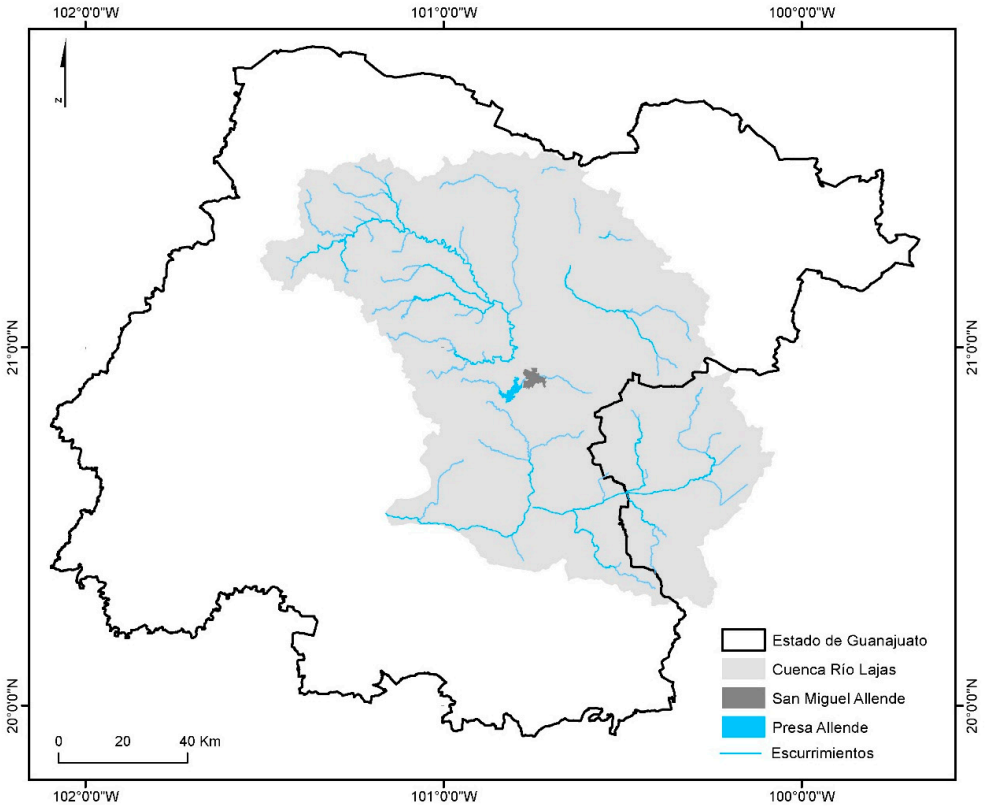
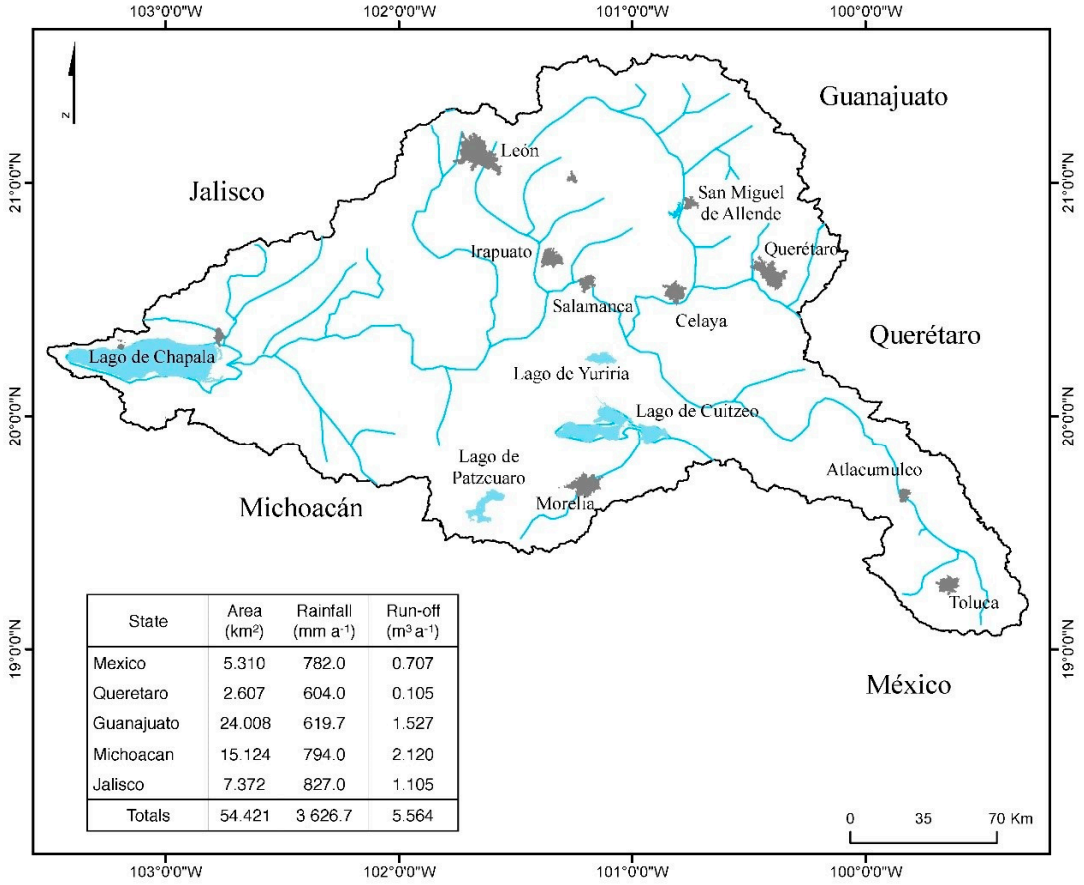


Figure 2. The Río Laja watershed within the context of the state of Guanajuato. Source: Own construction (map drawn by Oscar Salvatore).

The city of San Miguel de Allende is in the Northern area of the state of Guanajuato (Figure 3). The city has a dam that was built and inaugurated in 1967 to improve access to water by farmers within the region. The Presa Allende was not originally intended as a water reservoir for urban use, but it had agricultural purposes as a government representative told me on 7 August 2017. It was also intended to control potential flooding that could occur if enough water had accumulated in the Laja River. The Laja River flows through a total of 11 municipalities with an extension of 120 km. The river basin covers about a quarter of the state of Guanajuato's surface.



State	Area (km²)	Rainfall (mm a⁻¹)	Run-off (m³ a⁻¹)
Mexico	5.310	782.0	0.707
Queretaro	2.607	604.0	0.105
Guanajuato	24.008	619.7	1.527
Michoacan	15.124	794.0	2.120
Jalisco	7.372	827.0	1.105
Totals	54.421	3 626.7	5.564

Figure 3. The Lerma–Chapala river basin. Source: own construction (built by Oscar Salvatore), constructed following [72].

Figure 2 shows the location of the Río Laja's river basin. As the figure shows, this basin covers a lot of the surface of the territory of the State of Guanajuato, particularly towards the northernmost part of the state. As indicated previously, the state of Guanajuato and therefore the city of San Miguel de Allende are both located within the territory of the Lerma–Chapala river basin, which has its own watershed council, the Consejo de Cuenca Lerma–Chapala. Figure 3 shows the entire Cuenca Lerma–Chapala, including major rivers, the largest lakes within the watershed (Cuitzeo and Pátzcuaro in the state of Michoacán, Chapala in the state of Jalisco, and Yuriria in the state of Guanajuato).

River basin councils are multi-stakeholder roundtables where representatives of a broad range of consumptive water uses sit, alongside members of various other constituencies such as civil society and academia. Given that river basin councils are intended to be governing bodies, representatives from the federal, state, and local governments all participate in the council.

Though there are historically relevant water conflicts across the entire Lerma–Chapala watershed, for the purposes of this article, it is important to focus on just one sub-component of the entire watershed so that the analysis may be viable. The chosen case study (SMA) offers specific insights that speak to the implementation of IWRM at the subnational level and the conflicts that arise in the

realm of urban water governance as a result. The following paragraphs and sections will lay out the reasoning to choose this specific case for analysis.

The city of San Miguel de Allende is, as mentioned before, an iconic, touristic town located in the central state of Guanajuato, in Mexico. Traditionally well known as a US retiree destination, the city's iconic views and architecture has placed it as a major tourist activity center. Originally known as "San Miguel El Grande", SMA was founded because of Spaniards' advances in their quest to communicate between Mexico City and mining sites in Zacatecas and Guanajuato. Tourist destinations face substantial environmental challenges in all areas, not only water consumption: increased tourist foot and car traffic through all major routes towards and within the city, exponential growth in the number of hotels and lodging locations, etc. As it will become apparent from the analysis presented in the following sections, excess national and international tourism leads to a substantial increase in water consumption within the city, thus creating opportunities for the emergence of conflicts, disputes, and protests around its extraction, allocation, and usage.

4. Methods

Methodological strategy: This analysis combines document analysis (water laws at the federal, state-level, and local level), on-the-ground interviews and ethnographic observation. Laws were decomposed using the Institutional Grammar Tool. Using the legal framework and aided by a literature review, I decomposed the complex institutional arrangement and organizational architectures of urban water governance in Mexico, as shown in the results section. This paper uses four different types of methods for data collection (literature review and document review, two seasons of ethnographic fieldwork, and multiple elite interviews), and two methods of textual analysis: An Institutional Grammar Tool analysis of laws, regulations, bylaws, and legal codes, and a case study development through systematic qualitative coding of ethnographic and interview text.

Case selection: This specific case study was chosen because a preliminary review of newspaper articles and a media scan provided a clear picture that there was a conflict boiling up in the city, despite apparent relative low protest intensity. This summary of the San Miguel de Allende water crisis written by the NGO "Caminos del Agua" is a very good summary of the situation: https://caminosdeagua.org/news/2017/9/29/guanajuatos-water-crisis-serves-as-the-basis-for-a-us-university-course. However, the conflict had not entirely exploded. For the larger project on which this research is based, we needed a case study of a water conflict that was not extremely protracted and where protests were relatively muted. This meant that the San Miguel de Allende case study was the perfect choice for our project. Water conflicts in Mexican cities have been growing substantially [72–75] and several of them have become protracted and intractable, the El Zapotillo dam and aqueduct project being built between the states of Jalisco and Guanajuato being one of them. We would not have been able to collect much data within the context of an intractable water conflict at the peak of protesting action. Therefore, we chose a case where the situation would comparatively be much less algid.

Fieldwork and interviews: I conducted preliminary fieldwork in San Miguel de Allende in early 2017, alongside the research team I lead, with an intensive solo ethnographic season in late November of 2018. This type of methodological approach to studying water insecurity and socio-environmental conflict is standard in the field [76,77]. Fieldwork results pointed out to a situation of conflict across different jurisdictions, yet the source and visibility of disputes were quite heterogeneous. To discern and differentiate the various types of conflict triggers and community responses, I first engaged in snowball sampling and purposive sampling until I reached saturation [78], perusing the network of contacts developed during the preliminary fieldwork. I conducted additional interviews with representatives of non-governmental organizations beyond those carried away by the team during preliminary and subsequent fieldwork seasons. During my solo fieldwork season, I conducted a few interviews alongside a lead researcher from a different research group who also helped set up some interviewees. However, each one of us asked different questions from the same contacts. Obviously, our shared interviewing facilitated deeper probing and my fieldwork notes are influenced

by responses that interviewers gave the other researcher. I am grateful to Dr. Jaime Hoogesteger for joining me and helping with the fieldwork. In total, I carried out eight in-person extended, unstructured, in-depth interviews with various key stakeholders who had insight on the water issues facing this city and region over the period from November 2017 through February 2018. Each interview lasted at least 90 min and most between 90 min and 2 h, with some reaching up to 4 h of duration. I taped our conversations whenever possible and took copious notes in my fieldwork notebook. I also embedded myself ethnographically for a few days in a row in the city of San Miguel de Allende several times over the same period, and had numerous informal conversations with city residents, all of which informed my analysis. My team (the research group I lead) conducted multi-sited ethnographies examining a broad range of conflicts across the Mexican territory, and I accompanied the San Miguel de Allende and Cuenca de la Independencia team to undertake fieldwork several times from February 2017 through May 2019. This paper draws from data collected both by my team and myself, though interview quotations and ethnographic field notes for this paper come from my own fieldwork. Following required standard qualitative ethical review protocols, I ensured confidentiality of interviewees and reassured them of the use of these interviews' data.

Analytical strategy I (interview data and ethnographic field notes): Following standard practice in qualitative methods [79–81], all interviews were transcribed. Interviews took place in Spanish except for two where the interviewee was a native English speaker. In these two cases I conducted the interview in English. All text derived from ethnographic field notes, participant observation notes, and interviews were coded twice, once using the software MAXQDA and once by hand. I took field notes in both English and Spanish and ran the coding process in both languages to ensure that translation would not detract from the insights gained during the process. I followed Bernard and Ryan's approach to develop themes [82–84]

Analytical strategy II (laws, regulations and codes Institutional Grammar Tool (IGT) analysis): I also undertook a regulatory analysis of the state-level laws, the National Water Law (Ley de Aguas Nacionales (LAN) and municipal-level regulations and bylaws using Ostrom and Crawford's Institutional Grammar Tool with the empirical innovations proposed by Siddiki, Basurto, and others [85,86]. The IGT is a systematic approach to coding rules that are encoded in regulations, laws, bylaws, and other instruments. Each one of the components under study are called institutional statements. For example, a regulatory statement indicating the maximum amount of wastewater that can be discharged in a river basin could be an institutional statement. These statements are coded according to a specific set of rules (originally ADICO, the Ostrom and Crawford approach, but now ABDICO as per Siddiki, Basurto et al. [85,86]. Each statement is decomposed using a classification of each component. The Attribute (A) is the actor or agent that executes the aIm (I), the goal of the statement, whereas the oBject is the receiver of the action. The Deontic (D) establishes what is permitted, mandated, or forbidden, whereas the aIm describes what action the Deontic refers to. The Condition (C) modifies the aIm in either temporal or spatial terms, often using words like "when", "where", and "how". Finally, the sanction is established in the Or Else operator (O) [85,86]. An example that draws out how the ABDICO decomposition works is presented in the results section of this paper.

The goal of this component of the analysis was to determine whether the regulatory approach used in the Mexican water legal framework was conducive or deleterious to improved urban water governance. Given that the core tenets of the Mexican Ley de Aguas Nacionales are the governance by river basin councils and the implementation from the top-down of integrated water resources management, theoretical expectations would yield a likelihood that these regulations have influenced how urban water is governed in San Miguel de Allende. To test this hypothesis, IGT was used to determine appropriateness and degree of coordination (or lack thereof) between the federal level regulation and the local level "reglamento" (bylaw or regulation).

Though the IGT development was methodologically robust and theoretically sound, there had been only few attempts to make it operational. Analyzing institutions and institutional statements was complicated without a pragmatic heuristic that could help researchers examine rules, strategies

and norms as encoded in texts. Basurto, Siddiki, and collaborators first established a systematic approach to the application of the IGT that operationalizes the grammar of institutions and applies it to specific pieces of legislation. Because the Basurto, Siddiki et al. approach is amenable to the study of laws (leyes), regulations, and bylaws (reglamentos)—statutes (estatutos)—it is useful for the purposes of this paper. Furthermore, IGT has recently been applied to analyses of the recently reformed Nicaraguan water law [87], diagnosing decisions to fund the development of drainage in the Denver Metropolitan Area before and after the 2013 Colorado floods [88], and evaluating Ukrainian soil protection policy [89].

I coded all regulations in the 2004 version of the LAN and in the 2011 version of the Ley de Aguas de Guanajuato (Guanajuato State's Water Laws) using IGT [86]. I then chose a sub-set of each one that was specific to IWRM for further critical examination. I decided to use the most stable available version of the LAN. The term "stable" merits explanation. Over the past few years, the Mexican government has had several discussions around the need for a "new and improved" National Waters Law. This new law would address changes in the Mexican water governance system, such as the integration of citizens into decision-making processes [90–94]. However, there have been many criticisms of this law, not the least of them its systematic push for water privatization [95]. I extracted and coded 345 institutional statements using the ABDICO framework.

The results section presents a selection of the IGT analysis that are specifically related to issues of urban water governance, water conflict, and the implementation of IWRM at the urban level.

5. Results and Discussion: San Miguel de Allende as a Site of Muted Urban Water Struggle and Protest

The presentation of results is organized by each meaningful code derived from the qualitative data analysis of interviews and ethnographic field notes. Each code is underlined at the beginning of the sub-section to maintain uniformity with Water's editorial requirements.

The complexities of Mexico's water governance framework and the challenges of perceived urban water insecurity in San Miguel de Allende: The organizational architecture and legal institutional framework analysis offered highly interesting results with regards to institutional complexity and jurisdictional mismatch. There are several governing bodies that have a direct relationship with San Miguel de Allende and its water. Here, I will lay out the complexity of the many different water-associated bodies. While non-governmental organizations (NGOs) have a very important role to play in who gets to discuss water issues in San Miguel de Allende, I do not include them in the set of formal agencies for water management, and instead will describe how their involvement has changed the way in which the vital liquid is managed in this region. This section does include data drawn from interviews with NGO representatives and government officials.

At the federal or national level, the National Water Commission (Comisión Nacional del Agua (CONAGUA or CNA)) is the primary governing body for water. According to the Mexican Constitution, water "is the property of the nation". How we interpret this statement is largely rhetorical, since water extraction permits are acquired by users, but these are in fact licenses in perpetuity, rather than purchased. The historical context for Mexican water policy is helpful here since most public policies were developed by hydraulic engineers and specialists up until the mid-1950s. Throughout the years, water-related solutions were focused on technical improvements and developing infrastructure for water delivery. This intellectual heritage has remained as a cornerstone of Mexican water policy but is in direct opposition to the central tenets of IWRM.

The state of Guanajuato has its own water governing body, the Comisión Estatal del Agua de Guanajuato (CEAG), Guanajuato State's Water Commission, even though its attributions are laid out in a rather complex manner. One of the most important differences that exist between the CEAG and other state-level water governing bodies is that individual policy entrepreneurs changed the way in which water governance was undertaken at the state level, through the expansion of jurisdictional responsibilities and improved program delivery. More importantly, the state of Guanajuato established

in the mid-1990s a keen interest in developing independent water planning processes [96] and improving wastewater treatment across the state [47] beyond what individual municipalities would require.

This improvement did not come from any sort of evolutionary process, but was driven by specific policy entrepreneurs, in this case, the former head of CEAG (at the time, the Commission for Water and Sanitation of Guanajuato, Comisión Estatal de Agua y Saneamiento, CEASG), Ricardo Sandoval Minero. A civil engineer with graduate training in water planning and governance, Sandoval Minero took CEASG well beyond where it was when it was founded in 1991. Originally a smaller agency within a branch of the state-level Secretaría de Desarrollo y Obras Públicas (SDUOP, Secretariat of Development and Public Works), the Dirección General de Obras Hidráulicas (DGOH, General Directorate for Water Works) was responsible for water, sewerage, sewage, and wastewater treatment across the state. However, in 1991, the DGOH was transformed into the CEASG, an agency originally created to coordinate and execute rural drinking water programs and urban water delivery projects [96,97].

State-level water agencies in Mexico tend to have a rather limited project delivery and programmatic structure spectrum. Because water is "the property of the nation", most regulatory functions are delegated to the national-level water body, CONAGUA. However, in the state of Guanajuato, since 1996 under the leadership of Vicente Guerrero Reynoso, CEASG expanded their programmatic scope to support local water utilities, improve sanitation coverage, and establish an integrated program for water management at the state level [96].

COTAS de Río Laja (Consejo Técnico de Aguas, Technical Council for Water, COTAS) is a hybrid model where the governing body is a multi-stakeholder roundtable, but all participants are focused and use only groundwater. Therefore, those who sit at the table are usually farm owners who have purchased rights to implement extractive processes in water wells located within the limits of their farm. Other stakeholders have limited say when discussing allocation across different consumptive usages.

The city of San Miguel de Allende has a local water utility with limited regulatory powers, and from conversations with residents and other interviewees, it also has relatively limited capacity to provide water to the city and surrounding areas, despite the existence of a dam relatively close by. San Miguel de Allende depends on groundwater much like the rest of Mexico, and the urban context is fed by three aquifers: the San Miguel aquifer, the Río Laja, and the Laguna Seca reservoir (as per a COTAS Rio Laja representative, interviewed on 19 January 2018). The latter faces problems because there is very little rainfall and therefore, it is really hard to know exactly how depleted it is. Moreover, delimiting each aquifer has become quite complicated as the city grows and the surrounding municipalities expand.

Urban centers in Mexico are largely dependent on aquifers [98,99] and frequently compete with agro-industrial uses, particularly within central Mexico [100,101]. Cities in Guanajuato have also tended to privilege agricultural uses over urban consumption, thus increasing pre-existing pressures on water wells within the urban and peri-urban areas [96,102–104]. Farmers have traditionally had a lot of power over water allocation in Latin American jurisdictions, especially in Mexico [105], though Nicaragua is one example where these stakeholders are disenfranchised within urban water governance processes [106–108].

The challenges of implementing IWRM at the urban level: IWRM is predicated on the fundamental tenet that it improves citizen participation in water governance [109–111]. While this broad statement can be challenged across the board using a broad range of case studies, I focus primarily on the Mexican IWRM implementation case as it highlights the realities of public participation in a country with a highly complex institutional arrangement [112], organizational architectures that do not match political and biophysical-geospatial boundaries, and a set of actors with diffuse interests and responsibilities [38]. In theory, IWRM would lead to a more polycentric mode of governance by virtue of engaging stakeholders in river basin councils [113–115]. These roundtables are predicated on the value of including multiple users and representatives from academia, civil society, and all three levels of government: federal, state-level, and municipal. Nevertheless, because of the mismatch between jurisdictional political boundaries and hydrogeological ones [50], these river basin councils

often do not serve the most relevant interests. In the case of the Lerma–Chapala river basin council, the challenges facing San Miguel de Allende were not tabled and NGO representatives manifested (18 January 2018) that it was challenging to work with government.

Regulatory mismatches and jurisdictional overlaps analysis through IGT: As shown above, the policy-analytical exercise tested the alignment of integrated water resources management (IWRM) with subnational water policies at the state and local levels in Guanajuato, Mexico. This inquiry was driven by an interest in understanding whether IWRM can be used for urban water governance and how can this theoretical paradigm be implemented on the ground. In responding to the prompt of this special issue, water policies at the city, state, and national were analyzed with regards to these policies through their stated manifestations: regulations ("reglamentos") and laws ("leyes"), using the Institutional Grammar Tool [85,86]. IGT is usually used when dealing with formal (encoded) rules [116], rather than informal ones, though some efforts have been made to reveal these in cases where informal rules can be relatively easily discerned and encoded [117]. I based my analysis on interview and ethnographic data to reveal patterns of informal governance rules associated with the use of urban water and supplemented it with the IGT application. This analysis is only the second one that is applied to Mexican case studies, the first being a study of tobacco legislation [118]. Where this analysis diverges from Espinosa, beyond the actual issue area, is in the harnessing of policy-analytical strategies and the integration of ethnographic and interview data to an IGT analysis. Methodologically, it is a contribution in that fieldwork, field notes, and interviews were conducted in two languages, as was the case with the IGT analysis.

IGT helps demonstrate how encoded institutions are rather lax and less enforceable than one might think can be derived directly. When we apply IGT to the Mexican Constitution's article that operationalizes the human right to water norm (Article 4, paragraph 6), the exact text indicates that "Every person (A) has the right (D) to gain access to, procurement and treatment of water (I) in a sufficient, healthy, acceptable and accessible manner (C)". Because of the ADIC operators present in this article of the Mexican Constitution, this institutional statement would be coded by Ostrom and Crawford and Siddiki, Basurto, and collaborators as a norm. This is an important finding and one that requires further analysis. The core, most fundamental article in the Mexican Constitution, the one that establishes the right of every Mexican citizen to access water at all points, basically establishes no mechanism for enforcement. To be an enforceable rule, the text of this institutional statement would need to include an "Or Else" operator. "Or Else" operators, as Siddiki and coauthors indicate, are the very core components of institutional statements that establish enforcement and compliance mechanisms. Without this operator, there is no way for government actors to ensure that there will be compliance with this right, therefore rendering this text as a virtuous goal or a long-term strategy, but not effectively a rule that will be enforced.

After coding the entire 2004 Mexican National Water Law (LAN) as updated in 2020 and searching for rules that would facilitate or enable the implementation of IWRM at the urban (city/municipality) level, I was unable to find any. This is an important empirical finding. From my IGT coding, most of the text of the LAN is basically a set of strategies with many norms but very few rules. Extracting the sets of articles from the municipal regulation (reglamento) that could have linked urban water governance mechanisms with the federal-level LAN and analyzing using IGT also revealed the same pattern of discordance; there is no stipulation. This is a valuable finding that helps us put into context the importance of agreement and coordination across levels of government for the implementation of IWRM.

Muted water conflicts in tourist urban settings: Water scarcity is a major driver for conflict both in urban and rural contexts [72,103,119–123]. However, as I show in this paper, the case of San Miguel de Allende is quite unique in that there is no universally accepted conflict, but instead, there are instances of conflictive behavior. I call this behavioral pattern "muted protest". This "muted protest" is a type of collective action mobilization where actors' actions demonstrate disagreements regarding water allocation through non-violent protest in high-interest, low-impact policy realms. The San

Miguel de Allende case offers very peculiar and puzzling circumstances. Interviewees across the board recognized that there was a major water crisis looming in the city, but other policy issues including increased violence attributed to organized crime superseded discussions around the water crisis. As an interviewee from an NGO (7 August 2017) put it "we are aware of the water issues plaguing San Miguel de Allende, but they take a back seat towards other issues we need to consider".

Historically speaking, inadequate urban planning in San Miguel de Allende has led to improper water planning. While the National Water Commission built a dam in the outskirts of the city, again this dam and its water were intended to serve agricultural farmers within the region and prevent floods [124]. In 1992, operation of the Sistema de Agua Potable y Alcantarillado de San Miguel de Allende (SAPASMA, Water and Sewerage System of San Miguel de Allende) was decentralized. While the purpose of SAPASMA was to provide smart strategies for water management within the city of San Miguel de Allende, its operation quickly proved highly politicized [125,126].

In cases where multiple stakeholder cooperation and intergovernmental coordination are reduced or non-existent, when the degree of politicization is high and where there are legal vacuums, we find a governance gap between the desired positive implementation and reality. Fieldwork and interview data, as well as secondary textual data analyzed, show that these factors are certainly present in the San Miguel de Allende case study. I ask: Which policies are intended to help implement IWRM and what effect have they had in the San Miguel de Allende and the Mexican cases?

Given the core assumptions in IWRM that the core unit of analysis should be the watershed, and that the key institutional arrangement for water governance should be the river basin/watershed council, I conducted a systematic inquiry into whether stakeholders in the Río Lerma/Río Laja sub-watershed ("sub-cuenca") were really able to engage in urban water policy design and implementation. What my interviews and ethnographic fieldwork revealed was that there were substantial obstacles for citizen engagement and a generalized perception that the Mexican government and the state of Guanajuato water agency were not supportive of robust water governance strategies that could help the city cope with increased tourism and systematic urban expansion, as well as rising land prices that effectively gentrified the city and pushed middle-to-low income citizens to the peripheries, where water insecurity was substantially increased.

One of the core obstacles for integrated water resources management is a disjointed approach to resource governance across different policy fields. Water-intensive activities are often at the center of political decision-making. While San Miguel de Allende is a tourist destination, it is also quite clear that there is little to any regulation of this blooming industry [127,128]. San Miguel de Allende has traditionally been a tourist destination, but more recently, also an American and Canadian immigration destination too [124]. Interviews revealed that there has been no effort on the part of the municipal government to either reduce the overwhelming influx of tourists nor the increasing demand of largely depleted groundwater reservoirs. Anecdotally, when I conducted fieldwork in San Miguel de Allende, I stayed in several boutique hotels. Their showers had extraordinarily robust water pressure and in fact wasted a lot. When I inquired with hotel owners, they seemed to shrug off any concern about water usage. Their main interest was increasing and retaining customers as tourism drives a substantial portion of commercial and industrial activity in the city.

Water insecurity and competing urban demands: One of the most recurring themes when I undertook fieldwork in San Miguel de Allende was a relatively generalized perception of water insecurity. One of the reasons why I find this case study compelling for a policy analysis of the fit of integrated water resources management for urban water governance is that at all points during my study, I could easily discern that there was a scalar mismatch between the scales and nodes where decisions about water governance are made and the specific location of resource governance challenges. The city of San Miguel de Allende is primarily a tourist town positioned in an excellent geographical location for access. A UNESCO World Heritage Site and a nationally protected Zone of Historic Monuments [124], San Miguel de Allende's touristic activities necessitate substantially high amounts of water resources. Hotels, hostels, restaurants, and historical sites all require water for their daily

activities. This means that water in San Miguel de Allende is not only used for agricultural purposes but also for urban consumption of temporary (floating) populations.

Perceived urban water insecurity was a theme among interviewees when discussing the recent phenomenon of urban expansion within the core of San Miguel de Allende. As the city has grown more popular as a tourist destination and a U.S. citizens' retirement location, so have increased demands for further water extraction. Moreover, a recent phenomenon of gentrification within the downtown core began pushing the water insecurity agenda more to the public agenda. The construction of a gated community and a series of apartment buildings, Capilla de Piedra, has led several local activists to push back, arguing that the increasing water insecurity is primarily driven by gentrification and increased urban expansion.

Uncertainty and data unreliability: Lack of proper data on hydrological balances and aquifer sizes has rendered governance mechanisms based on usage quotas relatively useless. Moreover, there is a dearth of proper water availability data which obscures any attempt to design robust policy options to manage water scarcity at the urban level. For the purposes of this policy analysis, I collected data on water extraction to determine which sector (industrial or urban) used the most water. I used the REPDA (Registro Público de Derechos de Agua, Public Water Rights' Registry, available at https://app.conagua.gob.mx/consultarepda.aspx) online tool to discern how many wells there were available in San Miguel de Allende. I extracted all available records within the registry by sector (see Table 1). I also downloaded data for two other cities in central Mexico: Aguascalientes and León, both cities that are considered as relatively well-visited by tourists. Results from this analysis are shown in Table 1.

Table 1. Comparison of consumptive usages in three Mexican cities (in number of titles assigned to each consumptive usage).

Consumptive Usage	San Miguel de Allende	Aguascalientes	León
Agriculture	944	550	941
Diverse uses	63	236	69
Domestic	58	7	20
Industrial	8	89	58
Livestock and animal husbandry	7	156	3
Public, urban	111	500	233
Services	66	208	232
Aquaculture	1	0	1
Agro-industrial	0	0	2
Total	1258	1746	1559

Source: Own calculations based on REPDA (Dataset downloaded on 17 October 2019).

These results, while slightly shocking (no water titles assigned to tourism), would be more surprising were we not discussing the Mexican water policy framework. From Table 1, we can see that there are apparently no concessions for water use for touristic purposes. Note that each title is associated with one well for water extraction. San Miguel de Allende is a tourist town. In theory there should be a line item with tourism-specific concessions. However, there is none. Furthermore, because data from each title do not offer real data on how much water is really extracted, it is harder to obtain a fuller picture of what water consumption in San Miguel de Allende looks like. How do we reconcile these two empirically based facts? The answer is simple: there is absolutely no value in the REPDA as far as providing a fuller picture on water consumption, extraction, and usage. Because we lack instruments for monitoring water availability, we cannot make sound decisions on water allocation, implement tradable permits, or design proper standards and limits for extraction. Despite being located within a relatively well understood river basin (Lerma–Chapala), San Miguel de Allende lacks proper information and data about water extraction and usage.

A dearth of robust information on water volumes of water extraction and exact/correct/definite uses of these liquid resources is particularly jarring because it limits the ability of both residents

and government officials to make appropriate decisions on water allocation. As one informant (7 August 2017) said: "there are many, many "pirate" (illegal/illicit) water wells. You really can't know exactly how much water is being extracted in San Miguel de Allende simply because we have no appropriate registry for it".

This finding is particularly relevant for the case of San Miguel de Allende, a town that is well known for its tourist industry. If we are unable to determine how much water this industry is extracting, then we risk exhausting already stressed aquifers. To intelligently design water policy, we need robust data reporting and analysis. This is not the case right now in San Miguel de Allende, and from this case study, it is relatively easy to infer that this is not the case in most Mexican cities. From this follows that the current urban water governance configuration does not have enough data to make robust policy decisions.

Spatial configuration contradictions and jurisdictional mismatch: Another issue that came up during my fieldwork and interview analysis was the often-contradictory spatial configuration of watersheds. While most interviewees referred to the Cuenca del Río Laja, some scholarly literature refers to the Cuenca de la Independencia, and others focus on the Támbula-Picachos watershed [127]. For CONAGUA's purposes, it is only the Cuenca del Río Laja that counts, and even that one is a micro-cuenca that is embedded within the Lerma–Chapala river basin. This spatial confusion pervades discussions that go beyond the scholarly and spill over to common conversations among civil society organizations.

Integrated water resources management (IWRM) has proven to be an important paradigm that has driven numerous water governance strategies over the past 20 years. Nevertheless, it is important that we remain cautious and scrutinize whether IWRM does in fact achieve anything. Alleged improvements regarding water quantity allocation and water/wastewater treatment to ensure high water quality should be taken with a grain of salt. When we discuss the Mexican case, we find enthusiastic supporters of IWRM applications at the subnational level, specifically in their discussions of water governance within the Lerma–Chapala river basin [32]. At the same time, there are also skeptics [47] who argue strongly against rosy views of IWRM that misinterpret the complexity in institutional arrangements and organizational architectures in the Mexican water sector. In this paper, I side with Pacheco-Vega and Basurto as I find that governing by river basin council complicates potential opportunities for engagement by organized civil society groups alongside various other stakeholders. River basin councils, such as the Consejo de Cuenca Lerma–Chapala, operate at a much larger scale to effectively deal with urban water governance issues.

Undertaking water policy analysis is an important task that requires us to systematically examine different policy options, packages, instruments, strategies, initiatives, and programs. While the methods for policy analysis are varied, in this paper I chose to apply an Institutional Grammar Tool analysis of encoded rules in legislative documents to reveal the intricate institutional arrangement and organizational architecture of urban water governance in Mexico. My regulatory policy analysis complements interview data that point to a lack of coordination across jurisdictions to prevent urban water conflict in San Miguel de Allende. Citizens manifest an overt opposition to increased urban sprawl and tourism influx, yet the local government continues to promote the city as a tourist destination for domestic and global visitors. This increase in floating population also puts enormous pressure on local water resources, particularly since San Miguel de Allende, like most Mexican cities, depends on underground, highly depleted aquifers for urban water supply.

In cases where multiple stakeholder cooperation and intergovernmental coordination are reduced or non-existent, when the degree of politicization is high, and where there are legal vacuums, a governance gap between the desired positive implementation and reality develops. This is certainly the case in San Miguel de Allende. As it happens in other jurisdictions, subnational water governance in Mexico suffers from institutional misalignment and jurisdictional overlap. Because water governance under the IWRM paradigm requires cross-scalar interactions between actors, in a multi-level, quasi-polycentric fashion, when coordination does not occur appropriately, polycentricity

does not emerge [129]. This is the case with the centralized, top-down approach to water policy that the Mexican case offers. While the subnational units are in charge of drinking water supply, wastewater treatment, sewerage, and sewage infrastructure provision, the federal government continues to set policy across different jurisdictions and as a result, CONAGUA remains the most authoritative agency within the entire organizational architecture in the water sector.

This top-down approach by CONAGUA precludes a substantial transformation of the water governance organizational architecture and institutional arrangements to make it more polycentric. Implicit in polycentricity theory is an understanding that power will be shared across nodes. The challenge in traditionally top-down approaches to water policy is that shifting power balances across and redistributing decision-making across many different stakeholders is extraordinarily difficult. There might be some civil society inclusion here and there inside river basin councils or around other spaces, but there is little devolution of decisional power beyond traditional government agencies. Even when there is extensive and well-organized resistance against troubling governmental legal projects, such as the citizen-led water law initiative, "Agua Para Todos (Water for Everyone)", inclusion in decision-making processes remains quite limited.

Mexican water policies have been historically rather centralist, rather than federalized. Proper implementation of IWRM would require a much stronger federal system where subnational units were able to make stronger, more robust policy decisions regarding water extraction, access, allocation, usage, and treatment. As interviews with representatives of the local groundwater councils (COTAS) indicated, their ability and authority to make decisions regarding water use and allocation within the Río Laja watershed, where the city of San Miguel de Allende is located, is varied at best, and limited at worst. A COTAS representative said to me on 19th Jan 2018, "though we have some authority as established by laws and codes, we really do not get much say in how water is allocated, even if we would want to or we ought to". Moreover, geopolitical configuration of aquifers is complex, even more so in an area where defining limits to where each city or municipality can extract is hard to do. There is also substantial variation in water cost and pricing.

6. Conclusion: Towards a Context-Sensitive Policy-Analytical Framework for IWRM and Urban Water Governance

Biswas summarized well one of the biggest problems with IWRM, which I think deserves to be reiterated:

> "The definition of integrated water resources management is an important consideration. When the definitional problem can be successfully resolved in an operational manner, it may be possible to translate it into measurable criteria, which can then be used to appraise the degree to which the concept of integration has been implemented in a specific case, and also the overall relevance, usefulness and effectiveness of the concept in terms of improving practices and processes used for water management" ([28], p. 12).

The core research question driving this investigation was: "what are the factors that drive urban water conflict in San Miguel de Allende and can integrated water resources management (IWRM) effectively help us solve these conflicts?". Following the theme of the special issue ("Integrated Water Resources Management and Water Policy Analysis"), I applied policy-analytical tools to investigate how different stakeholders perceived water usage in the Mexican city of San Miguel de Allende in order to shed light into whether and how IWRM can be used to improve water policy design and implementation. My analysis demonstrated that we still are far behind in understanding how to operationalize IWRM beyond a simple conceptual paradigm. We lack specific procedures, techniques, strategies, and working trajectories that can effectively lead policymakers, bureaucrats, technologists, civil society, and industry folks through the painful process of integrating water management across scales, regions, jurisdictions, and countries. In this paper, I argued how the conceptual frameworks under which IWRM is predicated are inherently flawed and thus deserving of more in-depth examination.

While the river basin councils model is quite popular in Mexico [130–136], there is very little if any evidence of the suitability of the Consejos de Cuenca (river basin councils) model for polycentric water governance. Though some scholars praise the Lerma–Chapala river basin as a success story [30,32,137], my criticism of this model has been cemented by conducting this research project. There is not enough evidence to suggest that the Lerma–Chapala river basin has been successful, much less at the city level. Much to the contrary, by and large the alleged success has been derived from non-critical assessments that have taken the stated purpose of river basin councils at face value.

Firstly, CONAGUA retains major decision powers over the final usage and allocation of water within any specific river basin. Even within older, well-established councils like the Lerma–Chapala, CONAGUA will still maintain decisional control over who gets specific uses and allocation mechanisms. Secondly, subnational governments have traditionally non-cooperative agreements where their position ends up countervailing the federal view. Thirdly, selection processes for participants in the Consejos de Cuenca are traditionally opaque and non-transparent. Many a time those who sit at the table within the Consejo de Cuenca will be friends or colleagues of a governor, a city mayor, or someone associated in one way or another with other participants with decision power within the river basin council.

The case of San Miguel de Allende helps dispel the myth that IWRM is well designed to integrate with urban water governance frameworks, particularly because the system boundaries are so hard to grasp. Even though the city limits may be relatively easy to discern, particularly within a political geography context, the continuous and frequent boundary shifting (from the Río Laja basin to the Cuenca de la Independencia one, back-and-forth) makes it extremely hard to assign jurisdictional responsibilities. Who, then, is responsible for governing water and where exactly are the boundaries of their jurisdiction?

My interest in this case stemmed from the broadly perceived notion that San Miguel de Allende could not possibly have any water-related conflicts because it is a thriving tourist destination. However, a systematic media scan covering newspaper articles and websites revealed a growing tension around water usage in San Miguel de Allende, as shown in earlier sections of this article. From a policy-analytical perspective, this city's water governance issues offer an extraordinarily useful lens through which we can test the validity of broadly construed IWRM. If, as the hypothesis holds, IWRM and the "governing by river basin council" model hold value, then we should see a reduction in proclivity to water conflict. As my interviews and ethnographic data show, there is a large disconnect between the river basin council that should be engaged in governing water within the Rio Laja watershed and the actual processes of governance at the urban level. An IGT analysis of regulations and codes revealed that this chasm may in fact be by design, rather than by execution.

This paper's overall assessment is pessimistic with respect to IWRM as the correct approach to govern water in urban and peri-urban settings, based on the empirics of this case, but also on the theoretical underpinnings of IWRM and its lack of fit for subnational governance in urban settings. At the same time, this analysis has drawn on the experience of countries and regions where IWRM has been implemented and documented to operate relatively well in order to explain how individual national and regional contexts have a substantial degree of impact on how well IWRM functions. This finding implicitly demonstrates that IWRM should be treated as a contextual governance approach that should be implemented when the circumstances are ripe, rather than a global paradigm that ought to be deployed everywhere, as the OECD and some academic authors purport it should be.

In this paper, I examined national and sub-national water laws regarding implementation of IWRM and explored how these were applied in the San Miguel de Allende context. I find that at the city-level, there is little in the way of water regulation—not even a bylaw. While state-level regulations do provide some level of import into how urban water should be governed, there is almost nothing in the form of support for essential municipal public services. Therefore, and based on the analysis presented here, I conclude that a model of governance based in a watershed council has little to offer urban water governance. While my results are specific to one specific Mexican city, I suspect that

similar cities in Mexico and around the world would face the same challenges. Further research is therefore needed to achieve generalizability and yield lessons for other jurisdictions.

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