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Governance challenges of the wastewater treatment policy in Mexico and Latin America; the role of subnational governments

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FOCUS ARTICLE

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Toward a contextualized research agenda: Governance challenges of the wastewater treatment policy in Mexico and the role of subnational governments

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Abstract

Wastewater treatment is failing worldwide. Like many parts of the world, Mexico and Latin America continue to face significant challenges associated with the implementation of wastewater treatment plant (WTP) policy. Research has identified that wastewater treatment challenges are related to governance failures. To address these challenges, international organizations have proposed approaches such as Integrated Water Resources Management (IWRM) and decentralization. However, these governance approaches have not achieved the intended outcomes and from a scholarly perspective, new frameworks have been developed to understand the context of governance challenges. Yet, an analysis based on Scopus and Web of Science shows that academic research employing such contextual approaches to the WTP policy in Mexico is still scarce. Against this background, the objective of this focus article is to reflect on the current governance challenges of the WTP policy in Mexico and to propose some areas of research that can provide new insights that support the development of a policy tailored to the Mexican context. The few research that has used contextual approaches demonstrated that subnational governments have a key role in the WTP policy in Mexico. Building upon this finding, I encourage the employment of contextual frameworks and the development of interdisciplinary research analyzing the role of subnational governments in the WTP policy. This type of research can provide relevant insights that could help to improve wastewater treatment not only in Mexico but also in other countries with similar governance structures and challenges, as is the case in Latin America.

This article is categorized under:
Human Water > Water Governance

KEYWORDS
governance, IWRM, Mexico, subnational government, wastewater treatment

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What is the percentage of wastewater treated worldwide?

10-20

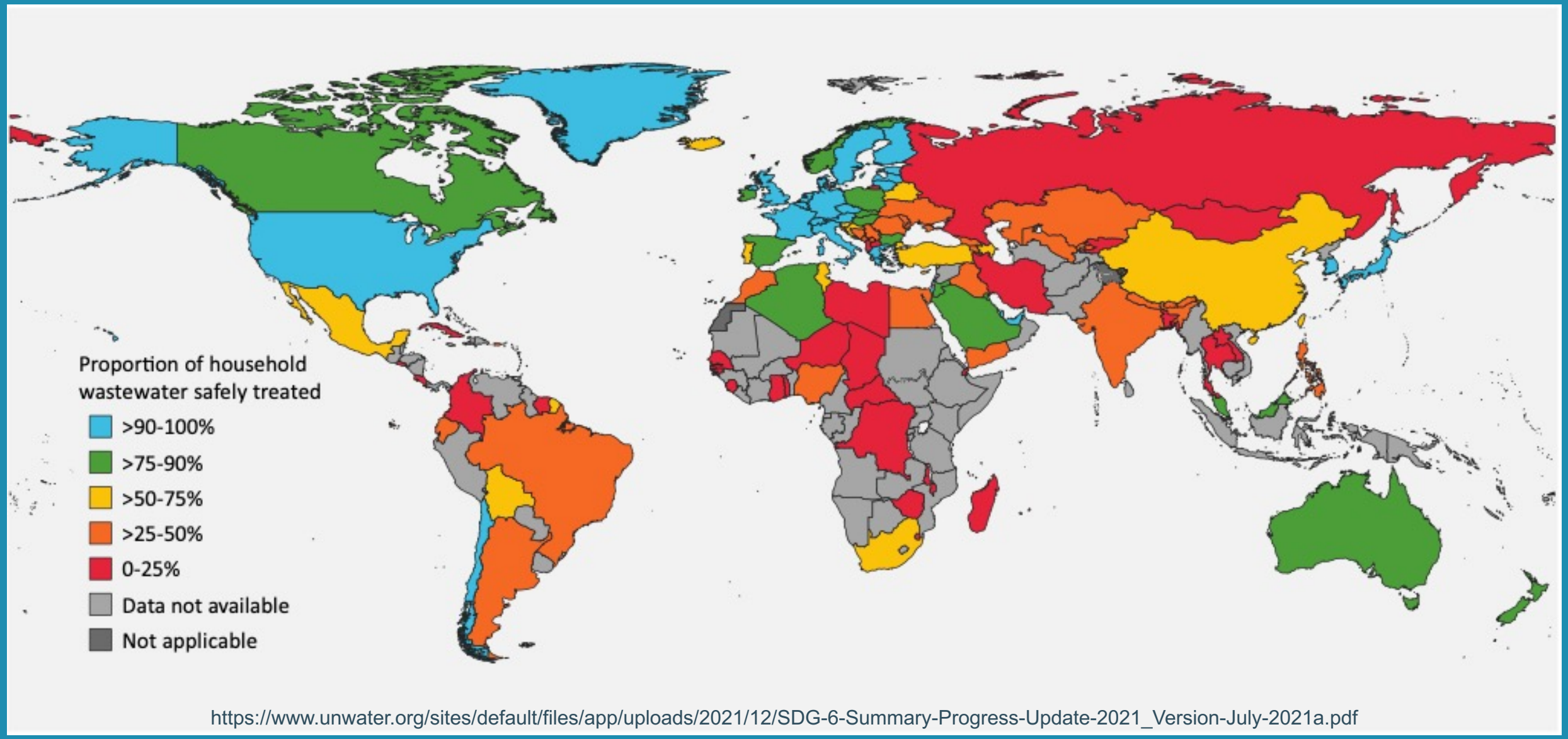
20-40

40-60

60-80

Context

- Wastewater treatment is failing worldwide
- An estimated 80% of industrial and municipal wastewater is untreated (United Nations, 2021a)
- In Latin America, 22% in Argentina, Colombia 23%, Brazil 34%, Peru 39%, Ecuador 43% and Chile 72% (UNDESA, n.d.b cited in United Nations, 2021a, p. 114)
- In Mexico, municipal wastewater was 65.7% (CONAGUA, 2021)
- Many challenges to reaching this percentage



https://www.unwater.org/sites/default/files/app/uploads/2021/12/SDG-6-Summary-Progress-Update-2021_Version-July-2021a.pdf

Context

- Solutions are well known, but inequality, lack of access and poor management are still present.
- The real challenge is the implementation of the solutions and the governance of those solutions (Casiano Flores et al., 2017).
- Water challenges involve governance failures (Gupta, 2011; Jacobson et al., 2013; OECD, 2011; Pahl-Wostl et al., 2021).
- Implementation is context-dependent (Allaoui et al., 2015; Casiano Flores, 2017).
  - Collaborative Governance Framework (Ansell & Gash, 2008),
  - Management and Transition Framework (Pahl-Wostl, 2009; Pahl-Wostl et al., 2010)
  - Governance Assessment Tool (Bressers & Kuks, 2013)
  - The heuristic framework based on the distributive theory of institutional change (Thiel & Egerton, 2011)
  - 10 building blocks for sustainable water governance (Van Rijswick et al., 2014).

Context

- Most influential research and approaches in water are from international organizations
  - OECD (OECD, 2013),
  - Inter-American Development Bank (Inter-American Development Bank, 2021; Rogers, 2002),
  - United Nations (United Nations, 2021a, 2021b).

Context

- United Nations and the OECD (Pacheco-Vega, 2021) have promoted integrated water resources management (IWRM) for decades (Biswas, 2008) to address water challenges.
- Water policymakers and other stakeholders often see IWRM as a panacea (Mukhtarov & Daniell, 2016), and several millions of dollars have been spent implementing it (Tortajada, 2014).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Edit
Respond at PollEv.com/irs
Text IRS to +32 460 20 00 56 once to join, then A or B
Are you familiar with the IWRM concept?
Yes A
No B
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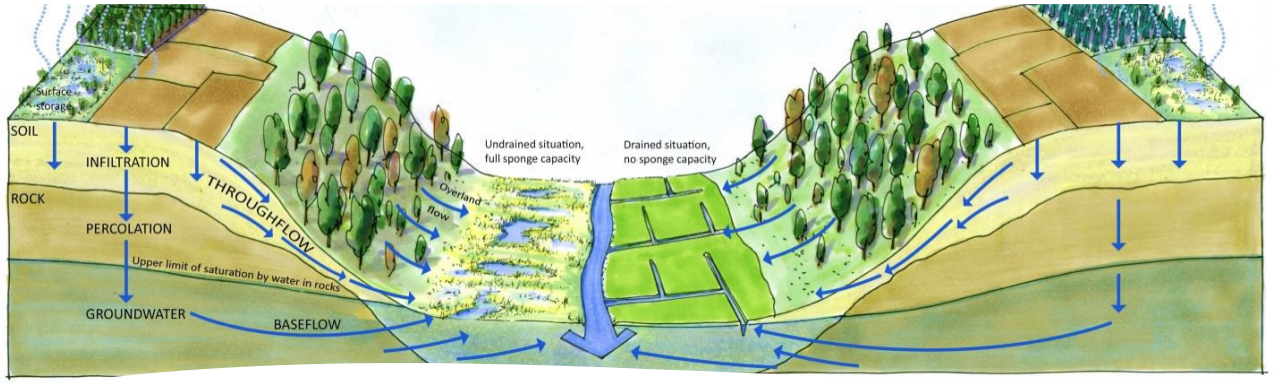
Context

- IWRM
  - 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,' and emphasized that water should be **managed in a basin-wide** context, under the principles of good governance and public participation (Rahaman & Varis, 2005, p. 15)



https://europe.wetlands.org/wp-content/uploads/sites/3/2016/10/slopes.png

Context

- Key problem
  - IWRM policy approach needs an institutional arrangement to support its implementation (Pacheco-Vega, 2021).
  - “IWRM needs an institutional framework and knowledge base that is often not available” (Gupta et al., 2013).
  - Requires integration across different fields is difficult to achieve (Ingold et al., 2016).
  - The implementation of this approach has become the goal instead of the solution to a water issue (Giordano & Shah, 2014).
  - Following the advice from international organizations, the Mexican government promoted IWRM and decentralization.

Context in Mexico

- Failure of the transfer to IWRM and decentralisation in Mexico is the dismissing of the multi-level governance system.
- **Coercive policy transfer**, given the national government imposed the policy to lower levels (Mukhtarov & Daniell, 2016) via a national reform.
- The IWRM and decentralization have had poor results (Casiano Flores et al., 2017, 2019; Wilder, 2010; Wilder & Romero, 2006).
- Implementation has been hierarchical (Casiano Flores, 2017; Casiano Flores et al., 2019).
- Decision-making power is still centralized and CONAGUA is still the main actor (Casiano Flores et al., 2016; OECD, 2013; Tortajada, 2004).

CONAGUA
Comisión Nacional del Agua

Context

- River basin organizations tend to be a mere symbolic decentralization of offices (Casiano Flores et al., 2019; Jardines Moreno, 2008).
- Water utilities do not have the independence to set the water tariffs because this tends to be the responsibility of State Congresses (Casiano Flores, 2017).

Context

- The transferring to IWRM and decentralization, created an incoherent or contradicting governance structure.
  - Lack of municipal capacity kept capacities and resources centralized, and on the other, it increased policy fragmentation and brought vertical and horizontal coordination challenges (Tortajada, 1998), and symbolic basin institutions.
  - The municipal governments did not have the capacity for implementation, depending on higher levels or other governmental powers (Casiano Flores, 2017; Casiano Flores et al., 2019)

Context


PLANTA DE TRATAMIENTO
DE AGUAS RESIDUALES
"SAN LUCAS EL GRAND"
Puebla
CONAGUA

Context

- The holistic perspective of the IWRM (Suhardimana et al., 2015) concept can be financially costly or politically difficult to implement (Giordano & Shah, 2014) in very diverse contexts.
- Similar challenges in the **United States** (Ingram, 2008), **Israel** (Fischhendler, 2008), **Ghana** (Agyenim & Gupta, 2012), **Zambia** (Uhlendahl et al., 2011), Indonesia (Fulazzaky, 2014), **Nepal** (Suhardimana et al., 2015), **Mongolia** (Karthe et al., 2015) and **South Africa** (Pahl-Wostl et al., 2021).

https://www.gwp.org/es/GWP-Centroamerica/PRENSA/GIRH/

Context

- In the 4th World Water Forum in Mexico showed that three-quarters of 95 countries used the IWRM terminology in at least one policy or law (Giordano & Shah, 2014).
- Institutional complexity and interdependence among different actors can be found in different regions of the world.

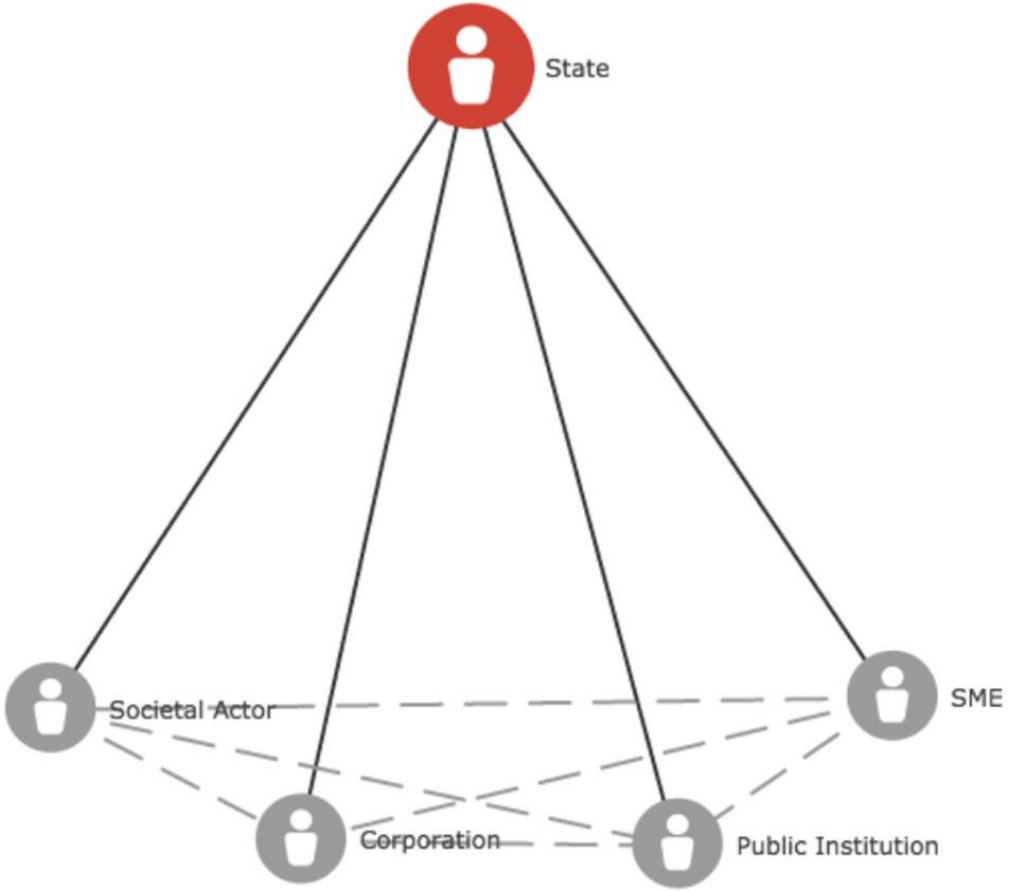
9TH WORLD WATER FORUM | DAKAR 2022

A governance approach

- Governance Assessment Tool (GAT).
- Hierarchy, network, and market modes of governance.
  - The modes of governance are also known as coordination mechanisms (Bouckaert et al., 2010).
  - They refer to the decision-making and implementation process and how involved organizations relate to each other (Meuleman, 2008).
  - The three modes of governance are ideal types (Pahl-Wostl, 2019) and are often mixed (Whelan, 2015).

A governance approach

- Pahl-Wostl (2019), the **hierarchy** mode mainly focuses on regulatory processes based on formal rules and sanctions. Steering derives from authority, power, and the formal hierarchical position.
- The **market** governance mode is based on both formal and informal institutions, where steering has its foundation in the process and economic incentives.
- The **network** mode is governed by informal institutions. Steering derives from trust and voluntary agreement and power comes from the role in the network.



https://www.frontiersin.org/articles/10.3389/fbloc.2020.00012/full

Classification of governance challenges

TABLE 1 Classification of the governance challenges of a WTP policy considering the hierarchy, network, and market modes of governance

	Governance challenges of the wastewater treatment plant policy in Mexico																
Modes of governance	Lack of monitoring capacity	Lack of operation capacity of wastewater treatment plants	Joint funding problems	Policy fragmentation	Lack of flexibility in the policy	Inter-ministerial rivalries or differences	Bureaucratic infighting	Lack of trust in the vertical and horizontal governmental relations	Lack of resources and capacity at the local levels	Limited social and local involvement in the policy planning	Water tariffs sensitive to political games	Frequent turnover of civil servants	River basin councils and wastewater programs do not support each other	Collaborative institutions exist on paper	Lack of capacity within the river basin councils	Inadequate legislation	Lack of social participation
Hierarchy	x			x	x	x	x	x	x			x		x	x	x	
Network			x							x			x				x
Market		x									x						

Source: Adapted from Casiano Flores et al. (2017, 2019).

State of the art WTP policy research

- Federal government acknowledged decentralization had limited improvements in water utility outcomes (CONAGUA, 2015). Hence, it is valid to question such a process.

Toward a contextualized research agenda, the role of subnational governments

- Chile provides an interesting example in the region of Latin America. 99% has access to drinking water, and the share of wastewater treated is 91%, which is exceptional for the Latin America region.
- Yet, when looking at the degree of IWRM implementation, the level reached is only 32%.
- This contrast makes us question how effective an IWRM policy is regarding WTP.

Toward a contextualized research agenda, the role of subnational governments

- International organizations are key in spreading ideas, programs, and institutions worldwide (Dolowitz & Marsh, 2000; Pacheco-Vega, 2021).
- The research focus on IWRM has resulted to the detriment of other equally important topics (Pacheco-Vega, 2021).
- IWRM limits alternative thinking and the identification of pragmatic solutions to water problems.
- The development of such alternatives could favor the plurality and co-existence of different paradigms beyond the conventional ones (Tortajada, 2014).

Toward a contextualized research agenda, the role of subnational governments

- Mexican research based on contextualized approaches could also contribute to a better understanding of alternatives in the Latin American region, where countries face similar challenges.
- Recent research has identified that subnational governments play a key coordination role in implementing Mexican WTP policy.
- Coordination and policy coherence can be increased by recentralization at the subnational level, regionalization or inter-municipal coordination policy at the subnational level (Casiano Flores, 2017; Casiano Flores et al., 2019).

Toward a contextualized research agenda, the role of subnational governments

- Subnational governments coordinate policies and increase collaboration among different actors (Casiano Flores et al., 2019; Casiano Flores & Crompvoets, 2020; Jörgensen et al., 2015) and scale-up policies in a more concerted manner (Jörgensen et al., 2015).
- Despite their increasingly apparent role, there is a lack of research on subnational governments (Jänicke & Wurzel, 2019; Kern, 2019).

Toward a contextualized research agenda, the role of subnational governments

- Subnational governments can provide a more integral vision at the basin level than local governments (Casiano Flores & Crompvoets, 2020).
- In the case of Mexico, subnational governments tend to have more financial and human resources than local governments. They also have more political stability as their mandate is twice as long as the 3-year mandate of the local governments.
- However, these changes within the governance arrangement require the will of the subnational governments.

Toward a contextualized research agenda, the role of subnational governments

- Among hundreds of water utilities that operate at the state level and have good wastewater treatment results (IMCO, 2014).
- Nuevo Leon (Aguilar-Barajas et al., 2015; Herrera, 2014) and Aguascalientes (Pacheco-Vega, 2015a).
- The state-level involvement is different in each case. In Nuevo Leon the water utility works at the subnational level. In Aguascalientes the subnational government is not in charge of all the water services.

Toward a contextualized research agenda, the role of subnational governments

- Despite the ample evidence that shows that subnational governments are a key influential actor in Mexico, their involvement should not be seen as a panacea for wastewater treatment.
- This research echos the previous calls for further research on the role of the subnational governments in implementing WTP policy (Casiano Flores, 2017; Casiano Flores et al., 2019; Pacheco-Vega, 2015b).

Conclusion

- There is a need in Latin America for an in-depth subnational analysis along with a better understanding of the existing governance structures (Pacheco-Vega, 2015b).
- Latin America shares challenges derived from poor accountability and the lack of the rule of law: There is also a lack of interest and low relevance attributed to the topic in political agendas, meaning that infrastructure development is used as a political weapon (Pacheco-Vega, 2015b).

Conclusion

- Recent studies have identified that South American countries, as well as Mexico, have power concentration at the central level and limited stability and flexibility in the water policy (Trimble et al., 2022).
- There are various cases in the Latin American region where subnational governments also play a key role in water management. Some examples are Argentina, Peru, and Brazil.

Recomendations

- I propose an alternative agenda that looks beyond the IWRM or decentralization approaches and frameworks developed by international organizations.
- I recommend a research agenda that employs frameworks that consider contextual factors.
- Invitation to research on the role of subnational governments to build a new body of knowledge on governance challenges and policy alternatives.
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