Analyzing the Dynamics of Inter-state water peace: A study of the Huitzilapan-Xalapa Water Transfers

Analizando las dinámicas de la paz hídrica interestatal: un estudio de las tranferencias del Huitzilapan a Xalapa

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Abstract

This article examines the political conflict surrounding the interstate transfer of water in the Huitzilapan-Xalapa Aqueduct, from which about 60% of the water resources for the city of Xalapa, state capital of Veracruz, come. This interstate water transfer has eventually lead to political and social conflict based on misinformation about perceived water shortages to Xalapa. The article examines a case in which water officials from Xalapa have apparently complied with guidelines related to procedural, distributive, and ecological justice. Therefore, the article proposes a focus on «justice as responsible (and informed) dialogue» as a central element of procedural justice. The analysis is based on a review of official documents, such as Mexican water laws and the water concession under which this water transfer has occurred, press reviews published in regional newspapers, a field visit and interviews with key stakeholders and researchers mostly in Veracruz state.

Keywords: interstate water distribution, Huitzilapan river Basin, water conflicts, water governance, water justice, Xalapa.

Resumen:

Este artículo examina el conflicto politico en torno a la transferencia de agua interestatal que se da a través del acueducto Huitzilapan-Xalapa, el cual provee aproximadamente el 60% del agua que requiere la ciudad de Xalapa, capital del estado de Veracruz. Esta transferencia de agua interestatal, en algunas ocasiones, ha originado conflictos políticos y sociales con base en información

aparentemente errónea y percepciones de escasez de agua en Xalapa. Este artículo examina un caso en el que los funcionarios del agua de Xalapa parecen haber cumplido con los lineamientos establecidos desde el punto de vista de la justicia ecológica, distributiva y procesual. Por lo que en este trabajo se propone enfocar a «la justicia como un diálogo responsable (e informado)» como elemento central de la justicia procesual. El análisis se sustenta en la revisión de documentos oficiales, tales como las leyes de aguas nacionales y la asignación de agua bajo la cual se ha dado la transferencia, así como revisión de notas de prensa publicadas en periódicos regionales, una visita de campo y entrevistas con grupos de interés clave e investigadores, la mayoría de ellos del estado de Veracruz.

Palabras clave: conflictos por el agua, Cuenca del Río Huitzilapan, distribución interestatal del agua, gobernanza del agua, justicia hídrica, Xalapa.

1. Introduction

Water justice has received renewed prominence in global affairs since the adoption of the Sustainable Development Goals (SDGs) in 2015. Whereas the Millennium Development Goals (MDGs) addressed access to water through an indicator-based approach focusing on meeting the daily water needs of people, the SDGs have adopted a «transformative development» approach that includes analysis of power imbalances and the need for transparent and inclusive governance in all development arenas, including water. This has shifted the development paradigm from «water security,» defined as the provision of enough water to enable the livelihoods of the world's population to «water justice» focusing more on power imbalances and the relationships between regions. This shift highlights two important points related to water conflict. First, most of the world's water is shared as it flows across domestic or international borders. According to Rocha Lures and Rieu-Clarke (2013), the 276 international river basins shared by 145 countries, cover half of the terrestrial world surface. Forty per cent of world's population and 60% of global surface water are located in these basins. Unless the riparian states cooperate for competing water uses, conflicts are likely to arise. This obliges communities to erect shared governance mechanisms. Second, the aforementioned power imbalances have traditionally led to conflict over water distribution as economic, political and military power has been utilized to gain advantage in negotiations over shared resources. As a result, «cross-border water justice» defined as the fair distribution of water resources across domestic or international political boundaries, is a major theme in contemporary debates and academic concepts such as «hydro-power,» «hydro-hegemony,» etc. have been proposed to examine political relationships in which the inequitable distribution of power permits institutions to distribute water resources in a manner that hurts either marginalized citizens or other communities, usually leading to social conflict. Within this approach, institutions are generally viewed as the perpetrators of injustices and citizens, especially marginalized communities, are framed as their victims.

What significance would a different narrative have for our understanding of water justice? This article discusses the distribution of water from the Huitzilapan Basin in Puebla

State in Mexico to Xalapa, the state capital of Veracruz. This cross-border (domestically defined in interstate terms) relationship is significant because it has been characterized by conflict since 2002. In most interstate conflicts of this type, justice is defined either procedurally, through analysis of institutional transparency and pubic information, distributively, through examination of the equitable distribution of water resources, or ecologically through discussion of depletion of water resources in interstate basins. The Huitzilapan-Xalapa relationship can be considered a critical case because Xalapa water officials have acted fairly according to these approaches. This article will show how water officials have made concessions beyond their obligations under the Mexican water law. Similarly, even though almost 60% of Xalapa's water comes from the Huitzilapan Basin, experts agree that this volume does not jeopardize the water supply for the inhabitants of the upper basin of the Huitzilapan river. Nonetheless, conflict persists.

This article analyzes this situation by responding to the following research question: «What characterizes «responsible water citizenship» and how is it operationalized in water justice debates between citizens and government agencies?» The article will respond to this question by discussing the causes and dynamics of the Huitzilapan-Xalapa water conflicts, comparing the overarching political narrative to the water distribution reality, thus making a contribution to the literature on water conflict/justice by providing a new perspective on procedural water justice as responsible dialogue between citizens and government officials.

The text will be organized around five sections. Following this introduction, part two will present a review of the literatures on cross-border water conflict and water justice. Part three will then present «justice as responsible dialogue» as the article's conceptual framework. Part four discusses the Huitzilapan-Xalapa water conflict through the lens of «justice as responsible dialogue.» Finally, the article's conclusions are presented in part five.

2. Research Design and Methods

The study analyzes justice in terms of citizen demands and institutional responsiveness in interstate water management. This case study focuses on an interstate border water debate between Puebla and Veracruz, which can be considered sensitive because of prolonged political tension that has caused the periodic closure of the Huitzilapan aqueduct due to virulent social protests. This situation led to important water shortages to Xalapa (Veracuz's capital city) in 2012. The case can be considered critical because it presents a governance scenario in which political institutions (especially CMAS, Xalapa's water agency) have negotiated in a fair way with protesters, beyond the terms stipulated in the National Water Law, yet social actors have expressed demands for infrastructure and services that legally surpass the terms of an interstate water concession, and thus, the Mexican water law. For this reason, the case diverges significantly from the majority of the research on water justice. Moreover, the inflated demands from citizens and the manner in which they

are expressed, through periodic threats and social protest, make this case study relevant for broader discussions of citizenship, democracy and justice.

The empirical analysis is based on a review of official documents such as the Puebla-Veracruz water concession, a field visit to the Huitzilapan Basin, interviews with key stakeholders and researchers in Veracruz and Puebla, plus academic literature reviews on water justice, water conflicts and water management in Mexico. The article also includes analysis of media coverage to address the issue of the water transfer from the Quimixtlan dam to the city of Xalapa, in order to identify the predominant media narrative concerning the water supply to an urban area which has maintained a high population rate and has exhausted its local water sources due to urban growth. Newspapers were selected on the basis of how their information was disseminated through electronic platforms. Online newspapers permit for retrospective research and they also provide more coverage. Therefore, locally, regionally and nationally circulated newspapers were reviewed in order to diversify sources. Among the most cited newspapers were: *Diario de Xalapa, Periódico La Opinión Puebla, Reforma, El Universal, El Heraldo* and *Al calor político*. As a result, 74 articles that appeared on the front pages of these newspapers and alluded to the transfer of water from 2005 until 2015 were selected. The articles were analyzed by keyword, according to the type of actor who formulated the statement and if the language was oriented towards «conflict» or «cooperation». This indicates the extent to which water has been the source of intense contention, or the hub of cooperation in the interstate region of study.

In addition to the aforementioned site visit and media analysis, empirical research included interviews with key informants. These interviews were conducted between May 2015 and January 2016. The informants interviewed include four current or former government officials, three representatives of civil society and four open interviews with workers at the «Presa Los Colibries» water reservoir.

3. Literature Review: The Normative Dimension of Cross-border Water Conflict, Water Justice and Social Responsibility

As stated above, this case study engages the bodies of literature on cross-border water conflict and water justice. The study focuses first and foremost on water justice defined as the transparent procedural distribution of water and related resources (including infrastructure) across borders. However, water conflicts also relevant to this study because conflict is viewed as an indicator of «injustice.» The argument presented in this study states that justice can be viewed as water politics characterized by a responsible dialogue between citizens and government agencies, leading to a fair distribution of resources. Consequently, conflict such as that which characterizes the Huitzilapan Basin, indicates an absence of justice. These terms, «water conflict» and «water justice» figure prominently in the literature on cross-border water politics.

a) *Cross-Border Water Conflict*: *Who gets what, when and how?*

The topic of water governance in transboundary basins, including interstate basins, is receiving more attention not only from politicians and officials responsible for water planning, but also from academics interested in the management of water resources and environmental organizations. According to a recent and comprehensive assessment of 286 transboundary river basins, research interests on transboundary river basins have been abundant, partly because they are found in 151 countries and they include 40% of both the Earth's population and its land area. Most attention has focused on potential tensions related to the governance capacity of actors in such shared Basins (UNEP, 2016). In fact, basins with inadequate governance capacities pose a challenge for the sustainable development in these geographic areas. The US-Mexico border, despite being considered a highly stressed water basin characterized by high levels of exposure to drought is regarded as low risk of hydropolitical tension, mostly because governance frameworks are in place to mitigate water stress. The increasing pressure on the availability and accessibility of water can lead to tensions and conflicts at various scales, from the local to the international. The sharing of basins between two or more states necessitates interactions that are affected by economic asymmetries, diverse relationships with the federal government, and different political landscapes in terms of decision-making procedures and social participation. In short, cross-border water policy is implemented in contexts where harmonization is difficult to achieve. For this reason, the basic question in contemporary cross-border water debates is: «Who gets, what when and how?» (Laswell, 1936)

The scholarship on cross-border water conflict responds to this question in different ways. Competition for diminishing water resources is highlighted as the main cause of serious interstate conflicts in parts of the world already facing acute scarcity (Kaniaru, 2015). There is a widely accepted assumption stating that most rivers do not coincide with political and administrative frontiers and for this reason, water resources are often contested outside the legal and administrative frameworks of water-sharing agreements. For example, Carmen Maganda's work on the US-Mexico border (2005) illustrates how local officials in San Diego were able to pave the All-American Canal, despite this project's destructive impacts on the Mexican side of the border because such actions were not foreseen by the 1944 US-Mexico water agreement governing transborder waters. Maganda's follow-up study (2007) compared the US-Mexico border to water governance in the Mexican Lerma Chapala Basin, and she discovered that local water officials in both cases determined water distribution through their daily actions because the institutional frameworks governing cross-border waters were incomplete.

In fact, even though water governance plays a crucial role in conflict resolution, both within nations and between states (Araral and Wang, 2013), the history of water conflicts has shown that such conflicts tend to be manifested at the local scale (Hileman *et al.,* 2015) rather than at the global scale and for this reason there are few mechanisms for solving such conflicts (Ruelas, Chavez and Shaw, 2009). In fact, most of the literature on cross-border water management highlights inter-state boundaries because intra-state borders are often ignored in cross-border debates. Mexico illustrates this situation. Its 1.964 million square kilometers are inhabited by 119.7 million people (according to the

Population National Council projections for 2014) who are distributed into 731 river basins (CONAGUA, 2016). However, water is considered to be a national resource that is owned by the federal government. For this reason, intrastate divisions are not recognized in official water debates. Consequently, it was only at the beginning of the 21st century, that governance mechanisms for managing inter-state river basins were implemented. So far, there exists 26 river basin councils, 35 basin commissions, 47 basin committees and 87 committees for aquifer management Mexico (CONAGUA, 2016).

Scholars have noted that different factors affect the size and intensity of localized water conflicts. Ruelas (2004), for example, notes that the scale of water debates significantly affects the effectiveness of conflict management as well as the relationships between stakeholders in conflicts. The history of water conflicts has shown that they tend to appear at the local scale (Hileman *et al.,* 2015) and people are more likely to mobilize (sometimes violently) for the right to access a water hole than to protest when water is part of broader national or international agenda (Stewart, 2014).

Other factors, such as institutional stability, are widely studied in the literature on cross-border water conflicts. Many authors argue that conflicts are more likely to occur in developing countries where common property resources, like water, may be both more critical to survival and less easily replaced or supplemented (see Adano *et al.,* 2012). Also, citizen outrage can eventually generate violence when agreements or treaties are violated or ignored by government officials (Kuzdas *et al.,* 2015). Authors such as Söderbaum and Tortajada (2011) and Glenn and Gordon (2000, cited in Seppala, 2002) point out that many water institutions contribute to conflict through lack of decision-making skills, the inability to understand the complex and holistic nature of decisions and policies, the lack of accurate, reliable and sufficient data, and conflicting information.

Another problem related to the implementation of cross-border water cooperation regards the emergence of «water security» as a policy paradigm. While this term was utilized in the framework of the MDGs to refer to the access to water resources for all people, a different «securitization» of environmental resources, including water, has been noted by authors such as Fischhendler (2015) and Mehta *et al.* (2013), which includes formulations of water security as a policy response to 'national threats' as states risk losing access to cross-border water resources to other countries or sub-national regions through devolution or decentralization. Lankford *et al.* (2013) have noted that securitization defined in this way aims 'to safeguard the source in volumetric terms from others (generally neighbor states)' (Lankford *et al.,* 2013:3). Access to cross-border water resources is framed as a zero-sum game.

In response to such challenges, new policy approaches have been proposed to establish frameworks for cooperative cross-border basin governance, the most important of which is Transboundary Water Management (TWM). In general, TWM prioritizes inclusive governance structures and social participation. However, Zeitoun, Goulden and Tickner (2013) recently pointed to four interesting and specific challenges facing transboundary river basin management: 1) the expanding pressure on governance from competing water uses and users, 2) the different stages of management methods and policy that

have not kept pace with evolving governance, 3) the direct and indirect influence of climate change, and 4) the politics of reconciling international political borders and basin boundaries.

Facing such a multifaceted scenario, it is easy to understand why many different approaches to the application of transboundary water management exist. Scholars have analyzed the role of water in cross-border regions as a source of dispute/conflict or cooperation (Blatter and Ingram, 2001; Phillips *et al.,* 2006), legal frameworks and the intersection of governance, rights and economic interests (see Daibes-Murad, 2005; Ghiotti, 2011; Gopalakrishnan *et al.,* 2005), and challenges related to the establishment of a participatory process that fosters stakeholder participation (Kranz and Mostert, 2010). Such participation is relevant for the water justice paradigm which is the second body of literature which this article engages.

b) *Water Justice: The Emergence of a Paradigm*

The term water justice is rooted in the «environmental justice» paradigm that emerged in the US in the 1990s. This literature focused on patterns that suggested that people of color and low income are often disproportionately affected by the asymmetrical distribution of natural resources and the toxic outputs of industrial society (Gauna, 2002). In the specific case of water resources, the (in)justice spectrum includes vertical and undemocratic land grabbing for water development projects such as hydroelectric plants, dams, aqueducts to transfer water from one place to another leaving «marginalized water user families and networks» at the bottom of a «hydro-social order» (Boelens, 2015). In this context of water accumulation and dispossession with clear and drastic socio-economic effects, water justice advocates for fairer socio-economic distribution of resources and for better cultural-political recognition of vulnerable communities (Zwarteveen and Boelens, 2014).

The so called «political ecology of water» extended this class-based approach to Latin America by empirically showing that disadvantaged communities have been significantly displaced for water development projects, linking water conflict to water-related rights abuses. This led to a regional movement supporting the Human Right to Water and Sanitation (see various publications of the Water Justice Alliance;[1] Koff and Maganda, 2016).

Within this framework of exclusion, the prevailing narrative depicts specific groups of citizens as victims of unjust governments, urban centers and economic powers. This follows the prevailing narrative in «environmental justice» which documents how marginalized groups are often mistreated in order to assure natural resources for powerful actors (see Puerta Silva, 2013). This has led to calls for action such as the inclusive «Principles of Environmental Justice» (from the First National People of Color Environmental Leadership Summit, Washington D.C. 1991), which refer to the «right to participate as equal partners at every level of decision-making» on environmental matters. More recent works have built on this basis by addressing procedural justice (rights of participation, inclusion, voice, space and representation) and distributive justice (defined as the fair, rightful or equitable distribution of environmental resources) (Kallhoff, 2014; Joshi, 2015). While

1. http://justiciahidrica.org/

these approaches detail the presumptive rights of citizens, they do not highlight their responsibilities.

3.1. Social Responsibility and the Politics of Water

As stated above, this article examines water politics within the frameworks of social responsibility. The previous section outlining the literature on water justice illustrates how water debates generally focus on the rights of citizens and the responsibilities of government institutions. In fact, the literature on water and responsibility generally focuses on collective organizations. One strand of the literature addresses the emergence of corporate social responsibility in water distribution debates (especially those related to privatization) (see Brei and Böhm, 2013). Another strand of this literature discusses civil society groups within the context of global water governance (see Pahl-Wostl *et al.,* 2013). These literatures, however, do not address the procedural need for citizens to contribute to constructive water policy debates through responsible behavior. Instead, they discuss the emergence of new forms of collective action and social leadership in water justice discussions.

One originality of this article is its focus on the need for citizen responsibility in water justice discussions. Already, authors contributing to broader environmental justice debates have recognized this need. Petrovic (2012) identifies the development of responsible citizens and the foundation for «ecological citizenship.» Richardson, *et al.,* (2014) analyze the perspective partnership between responsible citizens and accountable service providers as the basis for renegotiated social contracts linking citizens to states in environmental affairs. This article builds on these approaches as it identifies responsible dialogue as a key component of procedural justice in contemporary water debates.

4. Justice as Responsible Dialogue: A Conceptual Approach

Water justice is a complex concept with different facets. Kalhoff (2014) organizes a classification of prevailing definitions of water justice into four categories: 1) distributive justice which focuses on obtaining fair shares of common goods and resources; 2) ecological justice which aims to protect the integrity of environmental resources, such as water; 3) cultural justice which addresses values attached to environmental resources and 4) procedural justice which outlines procedures for negotiating water conflicts (Kallhoff, 2014: 367).

Koff's article in this special issue details the different contributions to this field through a presentation of major works in each category. These works have contributed to an impressive body of scholarship that examines (and sometimes promotes) water justice through different lenses. However, there is a common thread that this literature review does not account for: the role of citizens in the establishment of water justice. Each of

the above-mentioned categories focuses on political or social institutions and how they interact with power relations at the expense of vulnerable individuals or communities. Even the notion of «ethics» is introduced into water justice debates at the collective level through paradigms, such as «hydrosolidarity» (Gerlak *et al.,* 2009).

One question that is not explicitly discussed in this literature is: «What responsibilities must citizens adopt for the establishment of water justice?» Building on Richardson *et al.,* (2014), this article contends that justice begins through the establishment of clear responsibilities amongst citizens and government agencies in water governance systems. Whether justice is discussed in distributive, ecological, cultural or procedural terms, citizens must engage institutions in responsible dialogue in order to ensure just distribution of water resources. This has been recognized in the literature by authors such as Sabet (2008) who highlight the importance of non-governmental organization participation in policy oversight processes aimed at ensuring just distribution of water resources across borders.

Nonetheless, there is an inherent assumption at the base of this literature: Civil society play a positive policy role in water justice. However, is this necessarily the case? The notion of oversight in democratic processes assumes that governments need to be controlled either procedurally or substantively. This theme underlies much of the literature on cross-border water conflict described above.

While accountability is a defining characteristic of good quality democracies (see Diamond and Morlino, 2004), can it be taken too far? In a 2007 study of social integration politics in the United States, France and Italy, Koff asked. «Can there be too much democracy in integration politics?» (Koff, 2007) His research illustrated how the orthodox implementation of democratic ideologies in three political systems contributed to significant political conflict and local opposition to social integration projects. The empirical case discussed below presents a similar scenario. Through analysis of the Huitzilapan-Xalapa water transfer conflicts, this article contends that water justice must be based on respectful dialogue between citizens and government officials characterized by respect for water contracts, public information, honest negotiation and shared costs and benefits. When citizens do not engage water officials with the same transparency that they demand from institutions, conflict can emerge to the detriment of justice and as a result, civil society can undermine participative democracy if it acts unchecked in local debates and promotes increasingly exaggerated demands that may only reflect the interests of movement leaders or certain factions. Similarly, media can facilitate conflict when it diffuses false information that generates social fear. The Huitzilapan-Xalapa case shows how easily this can occur in countries, such as Mexico, where governments historically lack transparency and where public officials are often accused of corruption. Protest movements and media can utilize these perceptions to their advantage, sometimes distorting political realities that are characterized by just practices and presenting them unfavorably.

5. Analyzing the Huitzilapan-Xalapa Water Transfer through the Lens of Water Justice

The history of Xalapa's water supply is the history of many Mexican cities which grow disregarding secure access to water resources. Briefly reviewing the city's history, we found out that the first 50 years of the twentieth century represented the beginning of population growth and urban sprawl that gave rise to the current development model of the city of Xalapa. In 1921, the population was 27 623 inhabitants; a decade later, it had 36 812 people. In 1930, the population increased at an annual rate of 3.6 %. However, in 1970 the annual growth rate doubled, reaching 6.7 % per annum, with a population of 130 380 (Villanueva, 2011). In more recent times, this pattern has continued. For example, Acosta (2015) documented how urban sprawl increased 45% in the period 1980-2013. The urban city area of Xalapa went from 24.44 km2 to 54.25 km2, and its population displayed similar growth changing from approximately 200 000 inhabitants in 1980 to 424 755 in 2010 (Acosta, 2015, based on INEGI, 1980, 2010).

However, urban sprawl engulfed the springs. According to Contreras, Ledezma and Tobón (2007) in 1980, there were nine springs, with a capacity of 959,401.50 liters per day. This volume would be enough to supply water to 7 381 users. Unfortunately, by 2013, five of these springs had disappeared. This situation occurred in parallel to an increment in water demand that the city of Xalapa began to experience in 1980 (González Hernández, 2001). According to Alle-Ando (2005), two key drivers can explain such increase in water demand: population growth, and a change in water yield and quality due to land use changes in the water catchment sources. In order to cope with the water demand, additional water sources were sought. The most important water flow was granted from the State of Puebla, in the Huitzilapan river (Table 1).

Table 1. Surface and underground water sources to Xalapa City

Surface water	Liters/second
Huitzilapan River	1.000
Medio Pixquiac River	250
Xocoyolapan River	100
Cinco Palos River	100
Undergroundwater	Lps
Cofre de Perote Springs	250
El Castillo Spring	60
Total flow	1.760

Source: CMAS-Xalapa, 2015

As this table shows, more than half of the water volume supplied to the city of Xalapa comes from the Huitzilapan River, located at the upper part of La Antigua river basin. The dependence of water from another state contrasts with the amount of annual rainfall in the municipality, which is twice the national average, 1402 mm and 772 mm, respectively. At the same time, the Golfo Centro region where the city of Xalapa is located, is one of the four regions nationwide, whose operating pressure[2] on the natural availability (5.5) is below the national average.[3] Also, this is the region with the lowest percentage of water pressure for public service, (0.3 %), which indicates underexploited surface and groundwater basins (CONAGUA, 2015).

This scenario shows that the City of Xalapa is facing an interesting challenge as it imports a high percentage of the water it needs from a neighboring state (Puebla), while simultaneously attempting to establish and maintain a healthy political and environmental relationship with the leaders and the ecosystems in the region from which the water comes. This difficult political balance has been the source of significant political tension and social conflict.

As stated above, political tension over the Huitzilapan-Xalapa concession has existed since 2002 with periodic protests and blockades against water transfers including, according to personal interviews, dam invasions in 2002, 2005, 2006 and 2008. However, the conflict reached a boiling point in May 2012 when 300 farmers and workers led by 44 municipal officials forcefully closed water valves at the Los Colibríes dam in Quimixtlan, Puebla. This protest movement demanded that Xalapa transfer funding to the town in order to pave roads and build a church. The mayor of Quimixtlan filed legal petitions calling for Xalapa to provide payments for municipal services. In response, the Governor of Veracruz and the Mayor of Xalapa claimed that the water transfers are a right because according to Mexican Water Law, water is a national good that is owned by the state and only CONAGUA. The conflict was only resolved through the mediation of the Governors of the States of Puebla and Veracruz, which resulted in investments by the city of Xalapa in reforestation in the upper Huitzilapan and a tourism agreement between Quimixtlan and Xalapa. The negotiations lasted three months.[4]

5.1. Analysis of the Water Concession

The municipality of Xalapa is hydrologically located between La Antigua and Actopan river basins. As mentioned, its urban sprawl without a proper sewage system polluted the surrounding rivers and springs. This situation forced CMAS (The Municipal Water

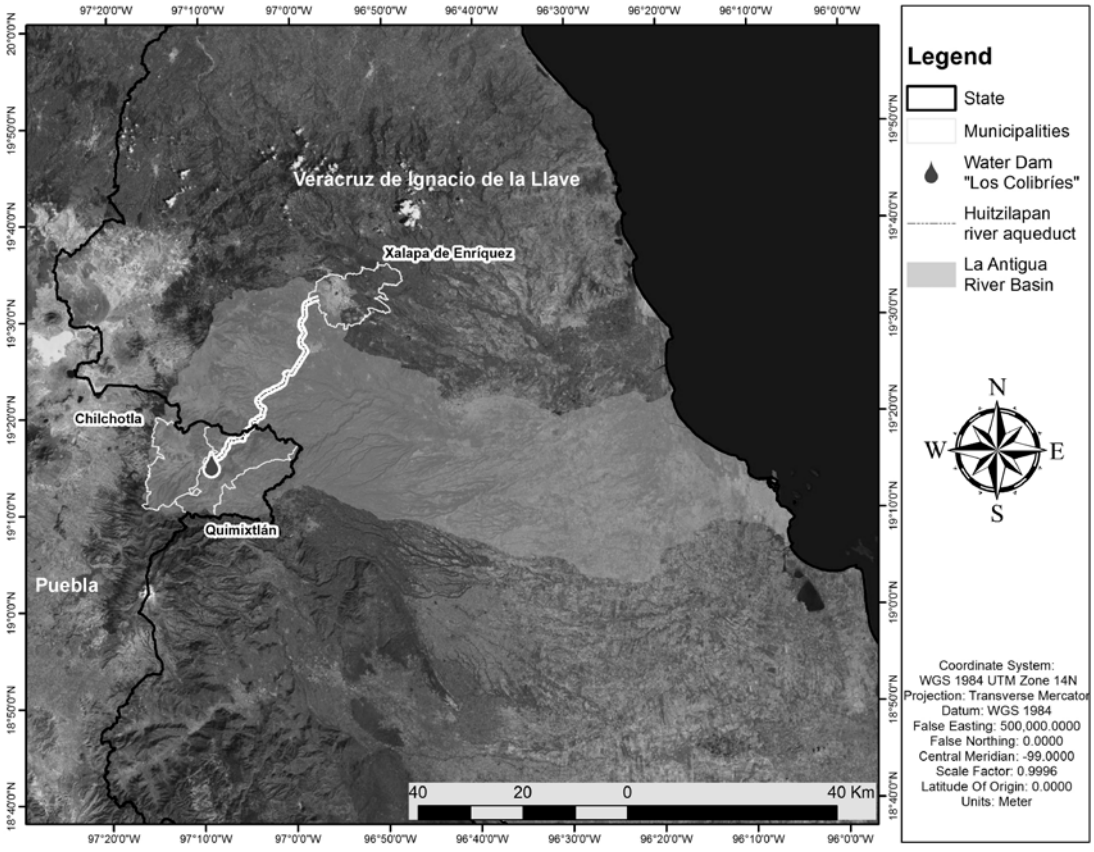
2. The percentage of water used in consumptive uses in relation to renewable water is an indicator of the degree of pressure (or operating pressure) exerted on the water resource of a country, basin or region. The degree of pressure can be very high, high, medium, low and without stress. It is considered that if the percentage is greater than 40%, a high or very high degree of pressure is exerted. (CONAGUA, 2015)

3. In 2014, Mexico experienced a pressure level of 19%, which was considered to be low; However, the central, northern and northwestern areas of the country experience a high degree of pressure. (CONAGUA, 2015)

4. http://www.lajornadadeoriente.com.mx/noticia/puebla/el-conflicto-por-el-agua-entre-xalapa-y-puebla-esta-resuelto-morales-garcia_id_11538.html

and Sanitation Commission) to look for water supplies in neighboring municipalities and states. The most important water source came from the Huitzilapan river, located in the upper part of La Antigua river basin, in the state of Puebla. Two water transfers were carried out by signing a concession agreement, between CMAS and the National Water Commission (CONAGUA). The concession or assignment is the title given by the Commission or river basin agency to municipalities and states for the use or exploitation of national waters for the provision of urban-domestic water services. In 1985 the first assignment was agreed between both parties in order to bring 500 l/second of water from the Huitzilapan river to Xalapa. Some years later, in 1992, a second assignment was negotiated, which scaled up the water volume to 1000 l/second. This quantity represents 57% of the total water the city receives for satisfying the different needs. It is supplied through an aqueduct on which construction began in 1989 (Figure 1).

Figure 1. Aqueduct Quimixtlan-Xalapa



Source: Map designed by Ing. Andres de la Rosa based on cartography from INEGI 2014-2015 scales 1:50,000 and 1:20,000

According to a former director of CMAS, the commission pays CONAGUA about 78 000 USD annually for water usage rights. This volume is constant, unless there is a situation of abundance or scarcity. Should this happen, CONAGUA is obliged to inform CMAS in advance so that temporary adjustments can be carried out in withdrawals for urban public use, in order to achieve a more rational and efficient use of the resource, and minimize possible negative effects of floods and droughts. However, so far CONAGUA

has recognized that no adjustment has been made to the stated water volume that has been transferred. This means that CMAS has fulfilled the requirements of the agreement terms established in the concession.

Moreover, there is a professional study on Xalapa´s water availability completed by a social consulting firm named DECOTUX, with financial support from the UN-MDG program for Xalapa City, which mentions that one of the water assignments from CONAGUA to Xalapa on the use of the Huitzilapan´s waters, is about to expire on 2018. This means that because the concession has to be renewed, then there will be an interesting forthcoming context related to the aforementioned conflicts in which all actors party to the agreement (CMAS, CONAGUA, and the municipalities from Puebla) must define a new set of commitment terms for the contract renewal.

This context is vital to understanding water negotiations related to the assignment. Because CMAS has largely respected the water concession, it is important to understand the socio-economic framework in which the assignment was negotiated in order to understand the conflict surrounding it.

As stated above, the municipalities participating in this concession include Xalapa and two towns located in the upper part of the Huizilapan river basin, in the state of Puebla, named Chilchotla and Quimixtlan, both of which face high degrees of marginalization. According to INEGI (2010), in both cases, a third of their population are illiterate; the wages of about 80% of the economically active population represent only two times Mexico's low minimum wage (which is 73 pesos (just over three US dollars) per day). Population is scattered in very small localities, which makes access to many basic services very difficult. In the case of Quimixtlan, 30% of the population do not have access to a water supply system. Conversely, the municipality of Xalapa holds a very low degree of marginalization. Virtually the entire population is literate and has access to basic water services. However, in economic terms, a third of its economically active population only earns twice the minimum wage as referenced above. The population is highly concentrated. Since it is the capital of the state of Veracruz, it is not only the center of political power, but also concentrates the most important schools and university centers. To what extent do these socio-political differences affect the perception of fair water distribution? This is the focus of the following sub-section based on a press review and interviews with key actors.

5.2. Press review and presentation of the narrative of water theft

The previous section illustrates the prevailing asymmetric socio-economic conditions between the inhabitants of Chilchotla and Quimixtlan and those of the municipality of Xalapa. This context to some extent has influenced the perception of water justice and consequently the predisposition toward cooperation or conflict, which is defined here as the construction of a political narrative in local communities that is not consistent or compatible with existing legal mechanisms, like the Mexican water law or water assignments, thus, undermining the collective interest (Ching and Mukherjee, 2015). In this

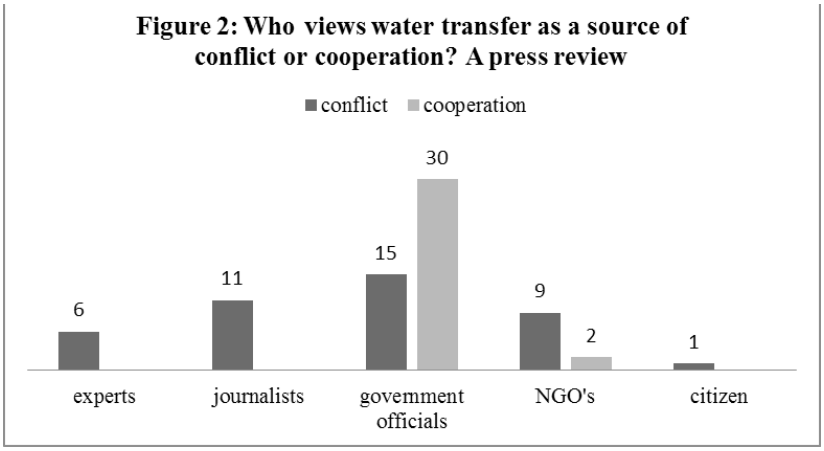
case, the local media has exacerbated an apparent perception of injustice through the different narratives presented in local newspapers overemphasizing the disadvantaged communities in Puebla as being significantly injured by water transfers towards Xalapa. For example, one representative article about the 2012 blockades at Los Colibries dam begins as follows:

> The unfulfilled promises from the City of Xalapa and Veracruz governments consisting of pavement of roads in the municipality in Puebla, social infrastructure and economic support for the completion of a church in the Puebla mountains, resources that have not arrived, caused the anger of municipal authorities and community leaders, who since six o'clock on Saturday closed the valves of Los Colibries dam located in Puebla territory, but which supplies the vital liquid [water] to the capital of Veracruz state at a rate of one thousand liters per second.[5]

Such views have contributed significantly to the inevitable water conflict based on perceived water-related rights abuses. The press review conducted for this article (see research methods section above for more detailed information) included examination of 74 articles published in the 2005-2015 period which were arranged chronologically by type of actor and by type of discourse oriented towards either conflict or cooperation. The results of this analysis are presented in Figure 2 below.

These analytical categories were designed in response to the aforementioned definition of «conflict.» When stakeholders contributed to local political narratives that are not consistent with existing legal mechanisms, then these articles were classified under «conflict.» Conversely, when actors appealed to formal frameworks established under Mexico's institutional arrangements and water assignments and they demonstrated willingness to engage in face to face dialogue, then the articles were classified as «cooperation.» In terms of the professions presented in the table, the press review organized stakeholders according to the titles utilized in specific articles. In this regard, the interviewees for articles spoke according to specific roles assigned to one of the categories presented in the table.

Figure 2: Who views water transfer as a source of conflict or cooperation? A press review



Source: compiled by Laura Ruelas

5. (http://www.proceso.com.mx/307361/conflicto-dejara-sin-agua-a-miles-en-xalapa)

This figure reveals that water officials consider the water transfer to be more a source of cooperation than conflict, indicating effective interstate water governance. This is especially relevant because officials are the key actors who make the majority of press statements. It is interesting to note that water officials from Puebla and Veracruz both view the transfer in terms of cooperation, thus indicating that this is not an interstate problem within the context of government institutions. Their view might certainly be based on procedural justice, in the sense that the assignment (procedure) used to get access to the water coming from the Huitzilapan river is a legal mechanism.

The problem indicated by this press review, which seems to underline the social conflict described above, lies in the different opinions held by government officials and non-governmental stakeholders. In fact, outside of government, only 2 out of 27 actors in both Puebla and Veracruz cited by local newspapers in their coverage of the water transfer viewed the interstate concession within the context of cooperation, thus emphasizing a negative/conflictual view of this arrangement among civil society in general. Specifically, the press review presents the conflict to be inevitable through narratives provided by non-governmental experts arguing that land use change induced by deforestation in the area of Xalapa has caused moisture «migration» to the state of Puebla. Consequently, the inhabitants of the capital of Veracruz increasingly depend on the natural resources from the Puebla communities in the basin to ensure adequate water supply as their own resources are being depleted. According to newspapers, this group of actors (the non-governmental experts) claim that the water transfer is a matter of ecological justice, because if the integrity of environmental resources, such as water is not protected, the inhabitants of Xalapa will continue depending on water resources from Puebla. This narrative is then emphasized in the press through sensational titles such as «Xalapa Check-mated for Water,» «Conflict will Leave Thousands without Water in Xalapa,» or «Bringing Water Home by the Bucket».

The press review also provided different narratives related to the water transfer which were more nuanced. For many political leaders, the severity of the conflict depends on the negotiating capacities of politicians. For example, according to one media narrative provided by a former Mayor of Xalapa, the residents of Quimixtlan used complaints over water resources as a measure to pressure Veracruz State authorities to build a hydraulic concrete road and a rural school in the community. This use of water as a measure to bring political pressure was similarly recognized in the press by a high ranking official from the state of Puebla. He declared that should the government of Veracruz pave a road which will benefit more than ten thousand inhabitants of Quimixtlán and Chilchotla then the city of Xalapa would have a guaranteed supply of drinking water. For him, fulfilling the demand for building facilities/infrastructure would be the necessary path for the resolution of social conflict. However, this position no longer focuses on water justice but instead it reflects rational choice politics aimed at maximizing gains for interest groups. In fact, the Governor of Veracruz State intervened in water negotiations in 2012 in order to «resolve the conflict once and for all» realizing that local officials from Quimixtlán

and Chilchotla were periodically utilizing water access as a tool for negotiation of public investments. (http://www.imagendelgolfo.com.mx/resumen.php?id=314280)

The press has also highlighted other factors that have contributed to conflict over the water transfer. For example, the media has focused on the high economic fee CMAS must pay to CONAGUA in addition to providing services to the City of Quimixtlán. Another explanation according to a former CMAS trade union leader, the problem is that the municipal administration changes every three years and thus, there is no authority capable of negotiating with communities before its mandate ends and conflict explodes. This happened at the beginning of 2006 when CMAS workers went on strike, their peers in Puebla threatened to close the dam valves through protest if a settlement to this conflict was not negotiated. Due to the lack of negotiating capacity of municipal authorities of Xalapa, the Veracruz state government had to intervene and settle the strike.

In general, the media has focused on conflict surrounding the transfer. According to some journalists, leaders of political organizations based in Xalapa have utilized the threat of dam closure to obtain economic benefits for their members living in Xalapa city. A remarkable case covered in the press is the *Organisación Progresa Puebla* , whose leader was an official of the municipality of Xalapa, but his organization closed the gates of the dam in 2010, which supplies water to the capital, through the Huitzilapan - Xalapa aqueduct. Their objective was to pressure the Veracruz state government to provide some lands, electricity and other services for the organization's members. The media covered the dispute but did not highlight the fact that the Federal Law on Water Rights states that the municipal agencies must only pay a fee to CONAGUA for the assignment of water use. Consequently, any additional payments directly to the municipal governments of Quimixtlán and Chilchotla or other organizations explicitly fall outside the context of the law. It is interesting to note that CONAGUA was not invited to participate in these discussions because the claims at the basis of the protest fall outside the framework of the Mexican water law. Yet, in most articles, the media focused on the presence of conflict as an indicator of injustice without mentioning the legal bases of the local political claims. The press generally fails to bring attention to the fact that water resources not only become a bargaining tool for the inhabitants of the upper basin of the Huitzilapan river, but also for political union organizations in all of the municipalities involved, including Xalapa. Paradoxically, the political divisions over this issue do not represent geographic divides (Puebla vs. Veracruz) but they reflect antagonistic behavior within civil society against government agencies. This is addressed in the following sub-section.

5.3. Water Transfer Realities in the Huitzilapan-Xalapa Aqueduct

If justice begins through the acceptance of certain responsibilities amongst citizens, then it is important to understand what happens in the City of Xalapa in terms of citizen demands and institutional responsiveness in interstate water management. As we have seen, the media does not help to develop the responsible engagement of citizens in a positive-constructive discourse with CMAS in order to ensure the fair distribution of water

resources because it highlights water conflict and exaggerates conflictual situations. On the contrary, the media has been developing a mistaken/confused idea of water abuse/extraction from the Quimixtlan and Chilcholtla communities, and Xalapan citizens may rather feel they are part of these abuses because they read these narratives.

The reality of the Huitzilapan-Xalapa water transfer is quite different from this perspective. According to an expert interview, «Xalapa is blamed for (water) dispossession when in reality it is not dispossessing anybody of any resources» (personal interview). This sub-section is based on empirical study of the Huitzilapan Basin and interviews with governmental and non-governmental experts who are participating in water transfer discussions. A recent study about Xalapa's sustainable future by the Inter-American Development Bank (BID) in 2014 indicates that water quality and water treatment are amongst the most sensitive environmental issues for Xalapa. This study states that the three concessions from which Xalapa gets its water (Huitzilapan, Pixquiac, and El Castillo) are very important and mechanisms must be identified through which the communities surrounding these Basins can be reactivated socio-economically and environmentally. It seems that CMAS is acting in accordance with this study.

Another study completed by DECOTUX (cited above) on the availability of water resources in the region has shown that there is strong deforestation in the high part of the micro-watershed, in the area where the Huitzilapan river originates in the municipality of Chilcholtla. In response, CMAS recently has begun trying to implement the National Commission of Forestation's (CONAFOR) micro-watershed program in Chilcholtla, which would spend economic resources on the maintenance of the forest resources in that municipality. This has been complicated due to some technical limitations from CONAFOR's conceptual scope such as the priority focus on pine forest and not necessarily the mixed diversity such as the mesophyll mountain forest which is characteristic of the region surrounding the Huitzilapan. Nevertheless, some financial resources came from this program through the support of CMAS, despite the fact that the municipality of Chilchotla was having problems reaching and maintaining the goals established by CONAFOR. It is worthwhile to highlight this action as an effort from CMAS Xalapa to restore the ecosystem in Chilchotla, Puebla, in order to maintain the environmental health of the area surrounding its main water source.

It is clearly the strong interest of CMAS Xalapa to dedicate attention and efforts to maintaining and restoring the origins of the Huitzilapan River, but it should also be of the interest of the municipality of Chilchotla as this community also gets its water supply from the same source. However, this is where the perception of the water conflict and reality begin to diverge. The waters from the Huitzilapan could beofficially shared according to the Mexican water law which frames the CONAGUA concession, and CMAS seems to be positively acting in the interstate region that needs economic support. Nonetheless, financial responsibility for the region cannot be pushed onto Xalapa. A non-governmental expert has clearly stated in an interview that «It is not Xalapa's responsibility to be the economic trigger for that area» (personal interview). Nevertheless, the media has shown that the perception from the surrounding communities to the Huitzilapan Aqueduct is

that Xalapa «owes them» for the water that is transferred. If Xalapa is not legally bound to these claims, from where does this perception come?

One of the experts interviewed for this project stated that there are historical links between these two municipalities and Xalapa. According to this expert: there are very old documents saying that part of the four groups that established Xalapa came from Quimixtlán and Chilchotla. Cultural and economic relationships have gone through these municipalities for years, but the fact is that there is now an administrative border that divides the relationship, despite the daily mobility of people between these communities. This distance has impacted water management specifically after the concession was signed. The relationship between CONAGUA and CMAS is very clear, but there is no clear relationship between CMAS or any other municipal authority from Xalapa with the people directly living in the Puebla communities of the micro-basin. According to this expert, this is the main source of misinterpretations around the water transfer and therefore the basis for eventual conflicts.

Consequently, the populations in these communities, which are not well-informed about the water concession, are vulnerable to being misled by local or external leaders who publicly claim that «Xalapa is taking our resources.» There is an imaginary dispossession that is established stating that they «taking away» our resources, even though it is not clear «from where they are taking» and «what and how much they are taking» A thousand liters per second may sound like a lot but it is important to observe the ecological flow of the river Huitzilapan and according to one expert interviewed for this article, no such study has been completed to date.

The Mexican standard of ecological flows has little effect three years in a row and apparently only the Mexican Institute of Water Technology (IMTA) has the methodology to apply it. But apart from this study of water flow, other quality information is lacking. In a recent survey by the NGO SENDAS only about 50% of Xalapa's population demonstrated knowledge of the real sources of the city's water supply. Therefore, there is also a lack of accurate information on Xalapa's relationship with its water sources. Because this relationship is not clear, people are surprised or negatively impacted by news stories that speak of water «dispossession» and «valves closing in Quimixtlán,» and the dimension of these conflicts is not clear. It would be necessary to explain the assignment and related flows to the general population. It is important to publicize how much water Xalapa takes in relation to how much water flows in the river in order to accurately inform citizens of the responsible behavior demonstrated by local water officials. CMAS should disseminate more publicly what it has done for the communities around the Huitzilapan. According to one interview:

> «There is no injustice around the transfer of this water» […] «It is Xalapa's responsibility to implement watershed management programs in three areas supplying and supporting the restoration of systems that provide water resources in what the CMAS calls 'integrated water resource management'» […] «and promote the relationships with those areas/communities on water resource management»

These expert interviews have demonstrated that CMAS officials are acting lawfully and responsibly in their relations with Quimixtlán and Chilchotla, Puebla. For this reason, this case provides an unusual perspective on water justice debates.

6. Conclusions

The previous section has shown that CMAS has respected its economic concession commitments to CONAGUA, and voluntarily promoted and managed reforestation initiatives in the municipality of Chilchotla. Moreover, the agency is trying to develop a collaborative political relationship with the heads of the municipalities of Quimixtlán and Chilchotla where no corresponding water agencies exist.

CMAS has demonstrated strong interest in developing a better relationship with the upstream municipalities where Xalapa's water supply originates. This is especially significant because the city has to deal with a number of other water-related issues. As the aforementioned study from the Inter-American Development Bank (2014) documented, Xalapa only treats 60% of its urban water so improving water treatment is a priority. Also, the city is losing 40% of its water supplies through leaks resulting from outdated pipes.[6] These issues will require important investments from CMAS in addition to the current investments included in the CONAGUA concessions.

The aforementioned analysis has shown that CMAS can still introduce programs to improve its relationships with communities in the Huitzilapan Basin. For example, the agency does need to better publicize its activities and infrastructure-related investments in the basin. CMAS should also continue its efforts to develop a clearer relationship with the communities living around the Huitzilapan dam and aqueduct through proactive provision of accurate policy information. Also, there are a lack of professional studies exploring how much water is left in the basin after the 1000 liters/second included in the CONAGUA concession has been transferred to Xalapa and there is a dearth of studies on socio-economic impacts in the area.

Despite CMAS' need to more effectively publicize accurate information about its activities in the Huitzilapan basin, the analysis provided above has shown that the agency, and the city of Xalapa, have acted fairly and transparently within the framework of water transfers. In fact, this study has shown that protests against CMAS actually extend beyond water justice issues. The conflict that characterizes this case has actually been caused by inaccurate or exaggerated media coverage and local upstream investment claims that extend beyond the framework of the water concession. Why does conflict persist then given CMAS' significant efforts to respect communities where the Huitzilapan River originates?

This article has approached procedural water justice as an expression of «responsible dialogue.» As stated above, the principal frameworks through which water justice is stud-

6. http://www.buzonxalapa.com/noticias/xalapa-pierde-60-de-agua-potable-en-fugas-y-tomas-clandestinas-uv-17120.html.

ied include 1) adversarial relationships between the state and vulnerable communities and 2) expressions of government where institutions mistreat citizens. Neither of these conditions are present in this case. For this reason, this article contends that the missing element of water justice and the factor that most contributes to water conflict in the Huitzilapan basin is the absence of responsible dialogue between upstream communities and water officials. In part, this dialogue is undermined by the activities of local media. Moreover, political entrepreneurs have introduced claims that seek material benefits for local organizations and communities more than water rights.

This situation can be considered emblematic of many of the citizenship discussions in contemporary Mexico.According to scholars such as Luis Reyes García (2013), Mexico as a country displays «passive citizenship» defined as apathy for public affairs, general distrust of government officials and the expectation that the state is responsible for social problems. For example, in order to support his arguments, Reyes García cites the National Surveys on Political Culture and Citizenship Practices (Encuesta Nacional sobre Cultura Política y Prácticas Ciudadanas) that were conducted in 2001, 2003, 2005, 2008 and 2012. Among other findings, he reports that:

- Almost three quarters of the interviewed citizens show little interest in politics.
- 8 out of 10 citizens view politics as something complicated.
- Many citizens distrust representatives, parties and the police.
- Citizens perceive high levels of corruption in practically all levels of governance (Reyes, 2013).

As a result of such views, Reyes García contends that one of the defining characteristics of Mexican citizenship is «believing that the government is responsible for promoting justice and resolving social problems». (Reyes, 2013)

This passive approach to the establishment of justice is especially problematic in a state like Mexico where institutions are often inefficient and policy can be considered ineffective (see Schedler, 2014). Moreover, intermediary organizations, such as political parties and social movements often pursue self-serving agendas. (see Holzner, 2010)

This last characteristic is present in the Huitzilapan-Xalapa water conflict where political movements have forwarded material claims aimed at benefiting their own members or communities. Combined with the passivity described above and sensationalist media coverage, water debates have become unnecessarily conflictive. Consequently, this case indicates that water justice should be viewed within the framework of responsible dialogue between citizens and government agencies. In order for this dialogue to function properly, citizens must take an active role in establishing it, overseeing government policy, but also monitoring their own movements. In exchange, government must respond through the implementation of legal mechanisms guaranteeing transparency and accountability. Water justice must not be considered a commodity or good which citizens receive from government. It is a socially constructed phenomenon in which, above all, they are active participants.

7. References

Acosta-Rosado, Israel (2015) *El impacto del cambio de uso del suelo en la regulación de los servicios ambientales del bosque: el caso de la Cd. De Xalapa*, México, [Tesis de Maestría en Desarrollo Regional Sustentable, Colegio de Veracruz, Xalapa, México].

Adano, Wario; Dietz, Ton; Witsenburg, Karen; and Zaal, Fred (2012) Climate change, violent conflict and local institutions in Kenya's dryland. *J. Peace Res.*, nº 49, pp. 65-80.

Alle-Ando, Yapo (2005) *An integrated water resources management approach to mitigating water quality and quantity degradation in Xalapa, Mexico*, Vancouver, British Columbia, M.A.Sc. Thesis, University of British Columbia.

Araral Eduardo and Wang Yahua (2013) Water Governance 2.0: A Review and Second Generation Research Agenda, *Water Resource Management,* nº 27, pp. 3945-3957.

Blatter, Joachim and Ingram, Helen (eds.) (2001) *Reflections on water: new approaches to transboundary conflicts and cooperation. American and comparative environmental policy*, The MIT Press.

Boelens, Rutgerd (2015) Water Justice in Latin America. The Politics of Difference, Equality, and Indifference, Amsterdam, Inaugural Lecture/Rede. Center for Latin American Research and Documentation (CEDLA)/University of Amsterdam.

Brei, Vinicius and Böhm, Steffen (2013) '1L=10L for Africa': Corporate social responsibility and the transformation of bottled water into a 'consumer activist' commodity, *Discourse & Society,* nº 25 (1), pp. 3-31.

CONAGUA (2015) *Estadísticas del agua en México*, México, Comisión Nacional del Agua.

CONAGUA (2016) Estadísticas del agua en México. Comisión Nacional del Agua, México.

Contreras-Gutiérrez, Efren; Ledezma-Santos, Alejandra and Tobón-Osorio, Aurelio (2007) *Análisis de los manantiales de Xalapa, para su posible uso público urbano,* Veracruz, Universidad Veracruzana [Tesis profesional, Especialidad en Diagnostico y Gestión Ambiental].

Daibes-Murad, Fadia (2005) *A new legal framework for managing the world's shared groundwaters*, London, International Water Association, Water Law and Policy series.

Decotux (2010) *Estudios de Disponibilidad y Calidad del Agua en Xalapa-Enríquez., Veracruz.* Local report financed by UN-MDG funds, Hayuntamiento de Xalapa, and Gobierno del Estado de Veracruz. Desarrollo Comunitario de los Tuxtlas, A.C. (Decotux). http://www.cinu.mx/minisitio/Programa_Conjunto_Agua/Estudio_xalapa_Agua_FAO.pdf

Diamond, Larry and Morlino, Leonardo (2004) The quality of democracy: an overview, *Journal of Democracy*, Vol. 15(4), pp. 20-31.

Fischhendler, Itay (2015) *The securitization of water discourse: theoretical foundations, research gaps and objectives of the Special*, Issue: International Environmental Agreements. Available from: http://www.researchgate.net/publication/274456724_The_securitization_of_water_discourse_theoretical_foundations_research_gaps_and_objectives_of_the_special_issue [Accessed 30 September 2015]

Gauna, Eileen (2002) Essay on environmental justice: the past, the present, and back to the future, *An. Nat. Resources J.*, nº 42, p. 701-722.

Gerlak, Andrea; Varady, Robert and Haverland, Arin (2009) Hydrosolidarity and international water governance, *International Negotiation*, nº 14, pp. 311-328.

Ghiotti, Stéphane (2011) La directive cadre sur l'eau (DCE) et les pays méditerranéens de l'union européenne. Une simple question de ressources en eau ? *Pôle Sud*, Vol. 2 (35), pp. 21-42.

González Hernández, Z.G. (2001) *Análisis económico estructural de la Comisión Municipal de Agua Potable y Saneamiento (CMAS): Caso de estudio-Xalapa Enríquez, Veracruz (1994-1998)*, Xalapa, Veracruz, [Monografía para la obtención de licenciatura].

Gopalakrishnan, Chennat; Tortajada, Cecilia and Biswas, Asit (eds.) (2005) *Water institutions: policies, performance and prospects*, Springer, Water Resources Development and Management Series.

Hileman, Jacob; Hicks, Paul and Jones, Rich (2015) An Alternative Framework for Analysing and Managing Conflicts in Water Resources Management (IWRM): Linking Theory and Practice, *International Journal of Water Resources Development*, Volume 32 (5), pp. 675-691.

Holzner, Claudio (2010) *Poverty of democracy: The Institutional roots of political participation in Mexico*, Pittsburgh, University of Pittsburgh Press.

INEGI (2010) *Censo de población y vivienda 2010*, México.

Inter-American Development Bank (2014) *Plan de Acción Xalapa Sostenible. Visión para un futuro con servicios eficientes, un territorio resiliente y cuentas transparentes*, Hayuntamiento de Xalapa, Banobras.
https://issuu.com/ciudadesemergentesysostenibles/docs/xalapa_sostenible

Joshi, Deepa (2015) Like water for justice, *Geoforum*, nº 61, pp. 111-121.

Kallhoff, Angela (2014) Water justice: A multilayer term and its role in cooperation, *Analyse & Kritik*, nº 2, pp. 367-382.

Kaniaru, Wanjiku (2015) From scarcity to security: Water as a potential factor for conflict and cooperation in Southern Africa, *South African Journal of International Affairs*, Vol. 22 (3), pp. 381-396.

Koff, Harlan (2007) Decentralization, democratic participation and authoritarian dogma: Local opposition to minority integration in France, Italy and the United States, *Ethnopolitics*, Vol. 6 (2), pp. 315-336.

Koff, Harlan (2017) «Cross-border Environmental Peace» as the Interaction of Regional Norms and Local Power, *Revista de Paz y Conflictos,* Vol. 9 (2), pp. [19-42].

Koff, Harlan and Maganda, Carmen (2016) The EU and the human right to water: normative coherence as the key to transformative development, *European Journal of Development Research*, Vol. 28, (1), pp. 91-110.

Kranz, Nicole and Mostert, Erik (2010) Governance in transboundary basins–the roles of stakeholders; concepts and approaches in international river basins. *In*: Earle, Anton; Jägerskog, Anders and Öjendal, Joakim (eds.) *Transboundary water management. principles and practice*, London, Washington, D.C., Earthscan.

Kuzdas, Christopher; Warner, Benjamin; Wiek, Arnim; Yglesias, Mariel; Vignola, Raffaele and Ramírez-Cover, Alonso (2015) Identifying the potential of governance regimes to aggravate or mitigate local water conflicts in regions threatened by climate change, *Local Environment*, Vol. 21 (11), pp. 1387-1408.

Lankford, Bruce; Bakker, Karen; Zeitoun, Mark and Conway, Declan (2013) *Water security: principles, perspectives and practices*, Earthscan Water Text, New York, Routledge.

Laswell, Harold (1936) *Who gets what, when and how,* New York, Whittlesey House.

Ching, Leong and Mukherjee, Maitreyee (2015) Managing the socio-ecology of very large rivers: Collective choice rules in IWRM narratives, *Global Environmental Change,* Volume 34, pp. 172-184.

Maganda, Carmen (2005) Collateral damage: how the San Diego-Imperial Valley water agreement affects the Mexican side of the border, *The Journal of Environment & Development*, Vol. 14 (4), pp. 486-506.

Maganda, Carmen (2007) The need for new water management structures in North America. *In:* Koff, Harlan (ed.) *Deceiving (Dis) appearances: Analyzing current developments in Europe and North America's Border Regions*, Brussels, P.I.E.-Peter Lang, pp. 93-118.

Mehta, Lyla; Allouche, Jeremy; Nicol, Alan and Walnycki, Anna (2013) Global environmental justice and the right to water: The case of peri-urban Cochabamba and Delhi, *Geoforum*, nº 54, pp. 158-166.

Pahl-Wostl, Claudia; Conca, Ken, Kramer, Annika; Maestu, Josefina and Schmidt, Falk (2013) Missing links in global water governance: a processes-oriented analysis, *Ecology and Society,* Vol. 18 (2), Issue: http://dx.doi.org/10.5751/ES-05554-180233 [Accessed 27 December 2016].

Petrovic, Mina (2014) Developing Responsible Citizens in Serbia: The Case of Ecological Citizenship, *European Quarterly of Political Attitudes and Mentalities (EQPAM),* Vol. 1 (1), pp. 48-61.

Phillips, David; Daoudy, Marwa; McCaffrey, Stephen; Öjendal, Joakim and Turton, Anthony, (2006) *Trans-boundary Water Co-operation as a Tool for Conflict Prevention and Broader Benefit Sharing*, Stockholm, Ministry of Foreign Affairs Sweden

Puerta Silva, Claudia, 2013. *Stratégies et politiques de reconnaissance et d'identité Les Indiens wayuu et le projet minier du Cerrejón en Colombie*. Brussels: PIE-Peter Lang.

Reyes García, Luis (2013) La ciudadanía en México. Un breve recuento histórico, *Polis,* nº 9 (2). Issue: http://www.scielo.org.mx/scielo.php?pid=S1870-233320130 00200005&script=sci_arttext [Accessed 30 March 2016]

Richardson, Liz; Purdam, Kingsley; Cotterill, Sarah; Rees, James; Squires, Graham and Askew Rebecca (2014) Responsible Citizens and Accountable Service Providers? Renegotiating the Contract between Citizen and State, *Environment and Planning A*, Vol. 46 (7), pp. 1716-1731.

Ruelas-Monjardin, Laura Celina; Chavez-Cortes, Juan Manuel and Shaw, David (2009) Scarcity and conflict, key problems in water management: A Mexican case study, *Local Environment*, Vol. 14 (8), pp. 765-782.

Ruelas-Monjardin, Laura Celina (2004) *A collaborative approach to water allocation in a coastal zone of Mexico,* Liverpool, The University of Liverpool, [PhD Thesis].

Rocha Loures, Flavia and Rieu-Clarke, Alastair (eds.) (2013) *The UN water courses convention in force: Strengthening international law for transboundary water management*, London, Routledge-Earthscan.

Sabet, Daniel (2008) *Cleaning the waters: Nonprofits and their networks along Mexico's Northern Borders*, Tucson, University of Arizona Press.

Schedler, Andreas (2014) The criminal subversion of mexican democracy, *Journal of Democracy*, Vol. 25 (1), Issue: http://muse.jhu.edu/journals/journal_of_democraa cy/v025/25.1.schedler.html [Accessed 6 April 2016]

Seppala, Osmo (2002) Effective water and sanitation policy reform implementation: need for systemic approach and stakeholder participation, *Water Policy*, Vol. 4 (4), pp. 367-388.

Söderbaum, Peter and Tortajada, Cecilia (2011) Perspectives for water management within the context of sustainable development, *Water International*, Vol. 36 (7), pp. 812-827.

Stewart, David I. (2014) Water conflict in Central Asia–Is there potential for the desiccation of the Aral Sea or competition for the waters of Kazakhstan's cross-border Ili and Irtysh Rivers to bring about conflict; and should the UK be concerned? *Defence Studies*, Vol. 14(1), pp. 76-109.

UNEP-DHI and UNEP (2016) *Transboundary River Basins: Status and Trends. United Nations Environment Programme (UNEP)*, Nairobi.

Villanueva Olmedo, Minerva (2011) La expansión urbana de Xalapa en la primera mitad del siglo XX. Apuntes para la historia de su urbanización, *Ulua*, nº 17, pp. 127-158.

Zeitoun, Mark; Goulden, Marisa and Tickner, David (2013) Current and future challenges facing transboundary river basin management. Wiley Interdisciplinary Reviews, *Climate Change*, Vol. 4 (5), pp. 331-349.

Zwarteveen, Margaret Z. and Boelens, Rutgerd (2014) Defining, researching and struggling for water justice: some conceptual building blocks for research and action, *Water International*, Vol. 39 (2), pp. 143-158.

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