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Articles

**Between an erratic IWRM and multifaceted water
insecurities: The transboundary Hondo river basin in
Mexican policy**

**Entre una GIRH inconsistente e inseguridades hídricas
multiformes: la cuenca transfronteriza del río Hondo en
la política mexicana**

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Abstract

Integrated Water Resources Management (IWRM) and Water Security (WS) are two components, defined at the international scale, that Mexico has imported as essential pillars of its water policy. Social and political research proposes to analyze relevant local case studies, especially when IWRM institutions have been created for the purpose of its

implementation. Located in southern Mexico, the Hondo river basin, which is a transboundary basin shared with Belize and Guatemala, is an instructive case study. This paper analyzes how both international water principles (IWRM and WS) are implemented, from local stakeholders' perspectives, in the Mexican part of the Hondo river basin, through Mexico's recently created Basin Commission. The paper is based upon extensive fieldwork, over the several years, that consisted of interviews, IWRM-policy ethnography, and examination of written sources on Mexican water policy. The article deals first with theoretical and current debates in international literature regarding IWRM, WS, and their Mexican versions. Next, the article reveals the existence of an erratic IWRM in the Mexican part of the Hondo river basin, as well as a lack of knowledge about the water-security concept. That lack coexists in parallel with the emergence of a variety of multifaceted water insecurities that are nevertheless prone to generate local actions to resolve acute problems through WS.

Keywords: Hondo river basin, IWRM, water security, basin commission, water policy.

Resumen

La gestión integrada de recursos hídricos (GIRH) y la seguridad hídrica (SH) constituyen dos componentes definidos en el ámbito internacional y están aceptados como pilares de la política hídrica mexicana. Resulta pertinente para la investigación socio-política analizar su concreción en estudios de caso locales, en particular, en aquellos donde existen estructuras de gestión creadas explícitamente en el marco de la GIRH. Es el caso de la cuenca del río Hondo, localizada al extremo sur de la república mexicana, compartida con Belice y Guatemala. En dicho

escenario, este artículo busca analizar la implementación de estos dos principios internacionales, a partir de las perspectivas de los actores involucrados en la Comisión de Cuenca del Río Hondo (CCRH), formada en la parte mexicana. Se fundamenta en un trabajo de campo que duró varios años en la cuenca y consistió en la realización de entrevistas con distintos actores en la observación de procesos vinculados con las instituciones creadas en materia de GIRH, y en documentos de la política hídrica mexicana. Después de presentar los acercamientos teóricos y los debates en materia de GIRH y SH a escala internacional y su traducción en la política hídrica mexicana, este texto evidencia una GIRH inconsistente en la porción mexicana de la cuenca del río Hondo, un gran desconocimiento de la noción de seguridad hídrica, en paralelo con el surgimiento de una serie de inseguridades hídricas multiformes susceptibles de generar acciones locales de SH, encaminadas hacia la resolución de problemas agudos.

Palabras clave: cuenca del río Hondo, GIRH, seguridad hídrica, comisión de cuenca, política hídrica.

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Introduction

Along one portion of Mexico's southern border lies the transboundary Hondo river basin: a trinational feature whose upper reaches lie in Guatemala. Its middle portion and lower portions are shared with another of Mexico's neighbors: Belize.

Sources do not agree on the number of transboundary river basins along Mexico's southern border (Conagua, 2016; García & Kauffer, 2011) because delimitations have not been established by and among the nation states that are involved. Like those of the Suchiate (Kauffer, 2017) and Usumacinta rivers (Benítez, 2010; CCGSS, 2015); the given delimitations of the Hondo river basin are not consistent within the literature (Benítez, 2010; Olvera, Kauffer, Schmook, & Huicochea, 2011) or among the stakeholders involved in managing the river basin (Conagua, 2007).

Based upon several years of work in the preparation of maps of the region's transboundary basins, our delimitation of the Hondo river basin finds that it contains 14.859 km² of land, which are distributed evenly among the three countries: 33.4% in Guatemala, 33.4% in Belize, and 32.8% in Mexico.

According to 2010 data, the Guatemalan portion of the basin occupies the northeast portion of the Petén, which is the source of Arroyo Azul—one of the Hondo river tributaries. The river basin includes parts of the Guatemalan municipalities of San José, Flores, and Melchor de Mencos. The Belizean part of the basin is in that country's districts of Corozal and Orange Walk. In Mexico, it covers the southern parts of the states of Campeche (municipality of Calakmul) and Quintana Roo (municipality of Othón P. Blanco).

In 2010, 88 145 people inhabited the river basin: 48 020 in Belize, only 4 350 in Guatemala, and 35 775 in Mexico. Among 213 communities, 115 were Mexican, 78 were in Belize, and 20 lay within Guatemala. The average population density was 6 persons/km², but the distribution was quite uneven: the Guatemalan part was sparsely inhabited, with scattered, small communities. Belize's part had larger communities. The Mexican part was by far the most densely populated, and contained communities of various sizes, including the city of Chetumal—the basin's most dynamic locality. According to 2010 data, vegetation coverage, like population density, varied greatly among the three countries' respective portions of the river basin. Sixty-six percent of the Hondo basin as a whole was covered by jungles, but 78.8% of the Guatemalan portion was jungle, versus 73.8% of Mexico's, and only 45.3% of Belize's. However, Belize's District of Corozal, located downstream, was extremely deforested: only 4.87% of the District was still covered with jungles because large tracts of land were dedicated to sugar-cane production (Figure 1).



Figure 1. Vegetation in the Hondo transboundary river basin.

The vegetative cover—or lack thereof—is related directly to the presence of 15 protected areas (PAs). They are referred to as “Natural Protected Areas” (NPAs) only in Mexico: Guatemala and Belize use the term “Protected Area” (PA). Guatemala has ten of them, within which we found distinct zones of the Maya Biosphere Reserve. That is, of an area initially uninhabited, but in which the advance of human settlements and the agricultural frontier has been important since the year 2010. However, no recent, accurate data about those phenomena are available because the Population Census of Guatemala 2019 has not published yet data with the necessary geographical detail. Moreover, the Census has been questioned by academic institutions. Mexico, for its part, has three natural protected areas (NPAs) in the Hondo river basin. All are in the state of Campeche, most notably the Calakmul Biosphere Reserve. The presence of those areas explains why the vegetative coverage has been preserved to some extent. Belize, in its small portion of the upper part of the basin, has two APs that are quite limited, compared to the extensive APs of its neighbors.

Like the other member countries of the Organisation for Economic Co-operation and Development (OCED), Mexico has adopted the international principles of water policy that are in effect on the international scale. Among those principles are Integrated Water Resources Management (IWRM), which has oriented a policy model since the 1990s, and Water Security (WS), which appeared more recently on the international scale, and was coined in the year 2000.

In the context described above, this article proposes to answer the following questions: From the perspectives of the stakeholders involved

in the Hondo River Basin Commission (*Comisión de Cuenca del Río Hondo*, CCRH in Spanish), how are the international principles of IWRM and WS translated in the Hondo transboundary river basin? And what relationships are detected between IWRM and WS in the basin, by approaching the scenario from the Mexican side?

The case study refers to the Hondo river basin described above. Although the basin is considered in its entirety, the perspective of the paper is centered on IWRM and WS in Mexico. As the water policies within the basin are anchored in political boundaries, those policies are defined by national governments. Therefore, the policies differ substantially among the three countries (Kauffer, 2018; Kauffer & Mejía, 2020), and have their own, distinct histories and institutional frameworks. For these reasons, an analysis that goes beyond Mexico is not possible within this work. In effect, this paper deals with the only nation state (Mexico) that has an institution related to IWRM in the basin under discussion.

Other publications about the region's transboundary river basins (Kauffer, 2018; Kauffer & Mejía, 2020) give several reasons for deciding to focus the analysis upon the Mexican part of the Hondo river basin. First, although the physical extension of the basin corresponds to three nation states that cite IWRM as a core principle for their policies, the institutional realities of each nation are markedly different. Moreover, as of this time Mexico does not collaborate with Guatemala in any way on transboundary matters, and has only limited, informal relations with Belize (other than informal intentions to cooperate, which are not reflected in the activities of the CCRH).

Therefore, after analyzing the Mexican institutional context of transboundary matters as reported in previous publications (Kauffer,

2018), and the historical and current problem of Belize regarding water policy and IWRM (Kauffer & Mejía, 2020), the paper centers on a specific transboundary case study as seen in its relations between IWRM and WS. Thus, the decision to focus the analysis exclusively on the Mexican part does not exclude the possibility of contributing academically to a transboundary viewpoint in a territory that (1) was not constructed as such by the stakeholders involved in the water policies, and (2) requires, necessarily, an understanding of how the principles of IWRM and WS take concrete form, and of the relations between these principles at distinct scales in each national political context.

The article addresses, in succession, the theoretical approaches to IWRM and WS, then presents the materials and methods that determine the context of a medium-term investigation, with the further purpose of presenting results that are organized around two major analytical axes proposed for the discussion. The first axis is the inconsistencies in the IWRM in the Mexican portion of the Hondo river basin, starting from an analysis of its principal instrument. The second one evokes the relations between both pillars of Mexican water policy, as expressed in three modalities: (1) an "IWRM" characterized by a series of inconsistencies, and unrelated to WS; but which (2) coexists with multiform water insecurities; and (3) the emergence of actions, generated in the context of IWRM, which tend toward WS under critical conditions.

Integrated Water Resources Management (IWRM) and Water Security (WS): theoretical approaches

What do we mean by the terms IWRM and WS? The section that follows addresses the two notions; the distinct visions regarding each; and how these notions have been questioned in the most recent international literature.

IWRM and its criticisms

Nowadays, IWRM is the principal axis of water policy worldwide and in México. According to the *Global Water Partnership* (GWP, 2000a), Integrated Water Resources Management (IWRM) can be defined as “a process that enables the coordinated management of water, land and related resources within the limits of a basin so as to optimize and equitably share the resulting socioeconomic well-being without compromising the long-term health of vital ecosystems”.

At the heart of this statement we see the integration of different phenomena and stakeholders that come into play in the management of

water (GWP, 2000a). Nowadays, it is commonly accepted in the political and academic spheres that IWRM constitutes a key step on the way to sustainability of water, and that it offers “a comprehensive and holistic approach” (Biswas, 2004), in addition to promising a better future in the management of water.

Recently, the *Handbook for Integrated Water Resources Management in Transboundary Basins of Rivers, Lakes and Aquifers* (INBO *et al.*, 2012) presented a synthesis of IWRM, and established that its implementation rests upon three pillars: (1) the instruments for management, which include evaluation of hydric resources, exchange of information, regulatory and socio-economic instruments, and the plans for IWRM; (2) a supportive environment that incorporates public policy, a legal framework, financial structures, and structures for incentives; and (3) institutional roles—at the river basin level and in the construction of capacities—that are centered on public-private relationships and those between the central government and local stakeholders.

A central element in the proposal for IWRM is that of the river basin as the unit of management and the scene of concrete actions. That approach, at present, constitutes the principal international line of interventions in water policy. However, the notion of “basin” carries with it two large, fundamental approximations: physical-technical, and sociopolitical. The first of these is the one that predominates in the scientific literature as well as in the implementation of Mexican water policy.

Despite its adoption by Mexico, IWRM has brought no real changes in the country’s hydraulic policy; only a change in the language that is used in the discourse surrounding that policy, as a range of case studies

have evidenced (Kauffer, 2014; Kauffer & Gallardo, 2019a; Maganda, 2019; Mejía & Pliego, 2019).

To date, IWRM has adopted two modalities: integral management of river basins, and the integrated management of hydric resources. The first of these modalities has historically been centered on technical hydraulic aspects. Later, its focus expanded to include (principally) management of soils and forest resources. The second modality, which corresponds to the definition proposed in this article, gives center place to social and political aspects. Thus, taking account of political, institutional, and economic aspects is essential: IWRM cannot be reduced to technical, hydraulic, engineering, and environmental components. Hence, we are speaking of a broad perspective on IWRM.

Worldwide, and particularly in Mexico, policies implemented at the basin level have followed the predominant technical (principally hydraulic) vision. This perspective, which is related to the anchoring of IWRM to the definition of river basins as natural features, tends to minimize their socio-political dimension, thereby making the “natural” dimension of a basin untouchable. The same vision impedes critical debate about IWRM and the concept of a river basin. During recent years, internationally recognized social scientists (Biswas, 2004; Biswas, 2008; Molle, 2006; Warner, Wester, & Bolding, 2008) have indeed attempted to open such a debate. From this technical, hydraulic vision is derived the traditional definition of the river basin as an area of the Earth’s surface, delimited by a divide (the line through the surrounding points of highest elevation), within which all precipitation tends to be drained via a network of currents that flow toward a principal current, which then flows to a common exit point. This definition is centered on physical and hydrographic aspects.

From a critical viewpoint, the notion of river basin must take social aspects into account, and consider that basins are not spaces defined on the basis of natural criteria. That is, river basins are not spaces that are defined a priori by nature (Wester & Warner, 2002). Instead, they are appropriated territories. Therefore, the denaturalizing of basins is a necessity, and without doubt a first step toward making true IWRM a reality. Thus the denaturalizing of basins invites us to see them in their totality—an essential prerequisite for designing actions that are integral and integrative.

The approach adopted by Mexican government toward river basins throughout the 20th Century is inseparable from the contributions of research carried out on an international scale, and adopted by Mexico's own scientific community. It should be emphasized that the predominance of hydraulics throughout the development of the vision of basins was a great advance in its time, as was the implementation of that vision through interventions by the State. However, that vision now faces the challenge of incorporating other disciplines, principally social sciences, in IWRM.

By means of the 1992 National Water Law, Mexico adopted IWRM as the axis of its water policy when the notion became an international principle. The Law was strengthened by reforms in 2004, and implemented via a two-part structure. One part consisted of the basin organizations that had been created since the mid 1990s, and especially since the beginning of the 21st century. These organizations consisted of councils, commissions, and committees that were apt to integrate the social stakeholders present in basins of different scales. One example was the Yucatan Peninsula Basin Council (*Consejo de Cuenca de la Península de Yucatán* CCPY in Spanish), which was formed in 1999. The other part

of the structure consisted of basin agencies that had been part of the government structure since 2004.

WS from international perspectives and in Mexico

In the international literature, the concept of WS appears in water-policy guidelines, and is the subject of debate among international organizations and funding agencies. The use of the term WS has become more common in the academic literature, in which the definitions and scales of application vary among scientific disciplines (Cook & Bakker, 2012). In a review article, Cook and Bakker (2012) highlight four important themes that intersect in debates about water policy: (1) the water security associated with traditional indicators of scarcity and hydric stress; (2) the vulnerability related to droughts and floods; (3) the security focused on human dimensions, particularly regarding food security in recent years; and (4) the WS associated with sustainability.

According to the Global Water Partnership (GWP, 2000b), "Water security, at any level from the household to the global, means that every person has access to enough safe water at affordable cost to lead a clean, healthy and productive life, while ensuring that the natural environment is protected and enhanced". In the opinion of Cook and Bakker (2012), this definition constitutes the example of a broad vision that integrates different components. Regarding WS, these authors, who mention distinct

approaches that range from the most limited to the very broadest, argue that an integrative perspective is needed. In effect, the diversity of factors involved in the management of hydric resources certainly implies the need for a perspective that reconciles different methods, and which works on an integrative notion of this still-emerging concept (Cook & Bakker, 2012).

In discussing the debate over WS, Cook and Bakker (2012) mention the relation between WS and IWRM. On the one hand, WS has some components in common with IWRM, and others that are in parallel. WS even faces the same challenges of theoretical generalities and lack of precision. For those same reasons, WS has become “attractive”. In the opinion of these authors, the two concepts must be considered complementary. Consequently, the actions through which WS and IWRM are implemented should be complementary as well.

At present, the debate is oriented toward the quantitative definition of WS and some of the broader proposals that underline the limited character of an approach that is centered on indicators. Indeed, in many of the various proposals, such as that of the Mexican Academy of Engineers (Martínez, Díaz-Delgado, & Moeller, 2017) and in part of the international literature (Norman, Dunn, Bakker, Allen, & De Albuquerque, 2013), the authors use traditional indicators of availability, water quality, degree of pressure upon the resource, and coverage of the networks of sewerage and piped water. These indicators are then converted into measures of WS. Thus, these proposals consist only of reusing traditional indicators to evoke WS.

In Mexico, the definition of WS is based upon the UN’s proposal, as “the capacity of the populace to safeguard sustainable access to adequate

quantities of water, of acceptable quality, for sustaining means of maintaining human wellbeing and socioeconomic development, to guarantee protection against water pollution and disasters related to water, and to preserve ecosystems in an climate of peace and political stability” (Conagua, 2014). That definition expresses a vision that is close to the four components mentioned previously by Cook and Bakker (2012) and the Global Water Partnership (GWP, 2000b).

However, that notion is not found in the Mexican National Water Law because it is a concept that appeared in the year 2000—after the IWRM and the law itself. The concept that has predominated historically in Mexico, regarding security associated with water, makes use of distinct adjectives. Of the 19 official documents that Kauffer and Gallardo (2019) reviewed, corresponding to the period 1992-2016, the notion of *hydraulic* security can be found in 11. Nine of the 19 speak of the security of *supply*, and eight refer to *national* security. The term hydraulic security appeared first (in 1992), with reference to hydraulic works such as dams, and remains in use. The notions of security of supply and (water-related) national security were coined in 2002 and 2003, respectively. The first refers to provision of water services to the populace. The second was very much present in Mexico’s political discourse between 2003 and 2007, after which it disappeared, only to reappear in the Water National Program of 2014-2018. In relation to water, official documents also mention *social* security (but only twice) and *public* security (only three times). Finally, alongside the term water security, we find the notions of *food* security and *legal* security, which reveal the insertion of the WS concept in current international discussions.

Thus, we see that the concept of water security appeared late in Mexico's discourse surrounding water policy, and under the modality of different types of securities linked to water. Predominant among them were those that referred to hydraulic dimensions and engineering projects; to national security; and (more recently) to different "adjectivized" securities that tend to incorporate some aspects that are related to the needs of the populace. For example, inequality.

Not until the National Water Program of 2014-2018 was the notion of water security specified and associated with 21 indicators and an index called the Water Security Global Index (*Índice Global de Seguridad Hídrica*, IGSH in Spanish) (Conagua, 2014). This index has a series of deficiencies and contradictions, and only limited possibilities for application to basins at different scales (Kauffer & Gallardo, 2019). Thus, the index is difficult to articulate with the other pillar of water policy: the IWRM.

Quantitative indicators—whether they be the traditional ones used for evaluating different aspects of hydric resources, or the new ones purpose-built for WS, like the IGSH proposed by the Water National Plan (*Plan Nacional Hídrico*, PNH in Spanish) of 2014-2018—present the viability of this predominant perspective in international debates on water policy, and in the literature that focuses on measuring this principle. Those same venues discuss the novelty of this perspective when we take into account the recurrent use of traditional indicators.

Finally, from the social and political science, comes an alternative approach that proposes the following perspective on WS: "water security for one group of stakeholders commonly entails water insecurity for others. Water security in this sense is both a historical reflection and an

important force constituting prevailing social power relations. With today's increasing pressure on water resources, water insecurity is therefore a socio-political relationship that is felt hardest by socio-economically and politically less powerful societal groups" (Hidalgo, Boelens, & Vos, 2017).

From this point of view, WS reflects and translates a given scenario's power relations into water issues. Water is not neutral, and cannot be reduced to flows, or to climatic and environmental phenomena. Instead, it has political dimensions, and is anchored to social scenarios located in a specific space, at a definite time (Kauffer, 2019). Consequently, although one might indeed merely measure WS in the same way as attempted according to the first perspective—that is, by using quantitative indicators—it is recommended, following the proposed definition, that one promotes the identification of water-insecurity nodes. Water securities and insecurities are closely linked to each other in this comprehensive perspective. This perspective leads one to include in the analysis the existence of conflicts that stem from diverse origins, such as those related to the locating and operation of oil wells, the construction of hydroelectric dams, and the extraction of sediments from rivers. All of these conflicts are the result of power relations among distinct stakeholders. In the same way, tensions and disputes surrounding water can arise from conflicts between use of water for domestic use, for agriculture (particular monocultures for agro-exportation), for ecotourism, and for cattle-raising. Construction of water projects and flood-control works is another scene of tensions and disputes, as is the question of water pollution. In all of these venues, we find elements that tend to express distinct power relations. Those elements turn into water securities and insecurities, accordingly as they are experienced and lived

out by the various social actors with their respective activities and socio-political positions. This vision turns out to be very pertinent for a deeper understanding of the water-related aspects of the situation in the Hondo river basin, and enables one to go beyond the quantitative data, which in any case are not available on the basin level for Mexico, or for Belize and Guatemala.

Materials and methods

This work is the result of more than a decade (starting in 2003) of following the question of the Hondo river basin. From that work, we arrived at different analyses and perspectives that are presented in this article. However, the earlier work drew upon that same decade of experience.

During the last ten years, the research mentioned above covered three main periods. In March of 2014, fieldwork was conducted along the Mexican and Belizean parts of the Hondo river basin. Then, in November 2014, we worked in the capital city of Belize (Belmopan) to identify the different social actors related to the basin and its problems. Semi-structured interviews were conducted with key informants in both countries (15 in Mexico, and 11 in Belize).

Specifically, the research developed here was produced as part of a project financed by the National problems call 2014 of the Mexican National Council of Science and Technology. That project consisted of eight case studies, distributed throughout Mexico, and proposed to analyze two pillars of Mexico's water policy—IWRM and WS—based upon local experiences. The Hondo river basin and its Basin Commission formed part of one of the eight case studies.

The fieldwork in this specific case consisted of following the activities and work of the Hondo River Basin Commission (*Comisión de Cuenca del Río Hondo*, CCRH in Spanish), because it is the principle mechanism through which IWRM is expressed within the river basin. In this third period of studying the basin, semi-structured interviews were conducted with 13 of the key stakeholders who were involved in the CCRH's work. Those stakeholders were (variously) from the federal authorities and the federated State's government, the academic world, and the grassroots organizations that are part of the CCRH, and are related to the activities carried out in this scenario. The above-described nature of the third period was decided upon after analyzing (during the first two periods) the networks and relations of social stakeholders that exist within the basin. In addition, the funding source mandated that the investigation be centered in the Mexican part of the basin. Therefore, the transboundary aspect was not worked upon directly in this third part, nor did we work on the Belizean aspect during this period (unlike in previous projects). However, we consider that both of these aspects are undoubtedly relevant to IWRM, and must be considered in future analyses. The work also drew upon ethnographic observations of events that were held in the region

since 2003, in which participated the different stakeholders (particularly the CCRH) related to the basin and to water policies of the three countries.

Results and discussion

The results of the study of the Hondo River Basin reveal an IWRM that is marked by a series of inconsistencies, if we observe the work of the Hondo River Basin Commission (CCRH, in Spanish). Relations between IWRM and WS present distinct combinations stemming from the absence, in practice, of any relation between these two pillars.

The Hondo River Basin: Scene of an inconsistent IWRM

A series of historical realities that have marked the makeup and functioning of the Hondo River Basin Commission (CCRH), plus a process that results from the transformation of Mexican policy, together reveal an inconsistent IWRM in the basin throughout recent years.

Foundational inconsistencies of the IWRM: The CCRH

As part of a nationwide IWRM structure that the federal government organized in a top-down fashion (that is, based upon a model designed from Mexico City for the whole country, and then replicated initially in 25—later 26—major *Consejos de Cuenca*- River Basin Councils), the Yucatan Peninsula Basin Council (*Consejo de Cuenca de la Península de Yucatán*, CCPY in Spanish) was inaugurated by the National Water Commission (Conagua, in Spanish) in 1999. The 26 basin councils were formed between 1993 and 2009. However, if we exclude the first council (formed in the Lerma-Chapala river basin, in 1993) and the last (*Costa Pacífico Centro*, 2009), the period of councils' creation lasted five years: from 1996 to 2000. The two most-active years were 1999-2000, during which 22 river basin councils were formed—among them the CCPY.

Initially, many of the river basin councils operated through working groups related to different problems raised within a large basin. Several of those groups originated within the Conagua itself, that is, the federal authority regarding water issues. However, in some cases the groups were replaced gradually by the so-called auxiliary agencies: commissions on the scale of sub-basins, as well as by basin committees formed to carry out IWRM actions in micro-basins. One example of a working group that was replaced in this way is the Oaxaca Coast Basin Council, which inaugurated the nation's first river basin committee for Los Perros River in 1999. Other examples are Grijalva-Usumacinta Rivers' Council and the

Chiapas Coast Basin Council, both of which have created various committees since 2003.

The CCPY continued to organize meetings around the specialized working groups (GTES, in Spanish). In contrast, other water councils organized their meetings around the auxiliary agencies. In that context, the first auxiliary agency to be created was none other than the Hondo River Basin Commission (CCRH), in 2009—ten years after its inauguration as a river basin council. In the CCPY, the river commissions and committees continued to work in parallel with the GTES. Thus, this spatial organization of the CCPY around river basins came later than its thematic structure of working groups. Both continue in existence at this writing.

The CCRH was inaugurated in 2009, after completion of the Basin Diagnostic in 2007. The document entitled “*Diagnóstico para el Manejo Sustentable de la Cuenca Internacional del Río Hondo al 2025*” (“Diagnostic for the Sustainable Management of the International Hondo River Basin by 2025”) was financed exclusively by the Mexican Conagua (2007) as a result of an accord reached in 2003 by the International Boundary and Water Commission [IBWC] (*Comisión Internacional de Límites y Aguas México-Belize (sic)* – (CILA, in Spanish). Hence, the document was a bilateral collaboration, although under Mexican leadership—an arrangement that was not without tensions:

“Why don’t we approve the agreement now? At the time when we approved it in January of 2005 [in IBWC], they approved it in the same month, the same month, January of 2005, at the same time as a high level meeting of the Binational Commission México-Belize that was held in Belmopan, Belize in January of

2005. The Mexican Secretary of External Relations—Secretary Derbez—along with the Prime Minister of Belize, signed the Minute, in which it is said that the governments announced their formal approval of Minute 12 of the International Boundary and Water Commission so that [the two countries could do] the study entitled “Diagnóstico para el Manejo Sustentable del Agua en la Cuenca Internacional del Río Hondo México-Belice al año 2025”—that’s what the study was called—which will begin in 2005 and be financed by the Mexican government through the Mexican National water Commission, in coordination with the National Meteorological Service of Belize. Even the chancellors were named. That reflects how important it was to Belize and Mexico to carry out this study.” From an official of the Mexican Federal Government, during the second meeting of the Yucatan Peninsula Basin Council, Special Working Group on Water Treatment in Quintana Roo (GTESQROO), August 24, 2006.

The diagnostic excluded Guatemala from the beginning. Fieldwork conducted in the region since 2003 revealed two diametrically opposed historical situations that explain how this trinational river basin became converted into a binational one from the political viewpoint. In the first place—and as is highlighted by the following excerpt from an interview—Guatemala was markedly uninterested in a basin at the fringe of its territory, in an almost unpopulated area with difficult access:

“First, it’s that the Hondo river basin, these are almost unexplored areas of the country, here you will not find much

institutional collaboration.” (Member of an NGO, Guatemala City, May 29, 2007).

The second historical situation is the conflict that surrounds the so-called “line of adjacency” between Belize and Guatemala. Disagreeing about the delimitation, and recognizing the impossibility of resolving their boundary dispute by other means, the two countries took that dispute to the International Court of Justice at The Hague (Alija, 2019). The following excerpt from an email received by Guatemala’s *Vice-Minister of Exterior Relations* is abundantly clear on that matter:

“Thank you for including me in the distribution of this email and I wish to make clear that Guatemala still has NO borders defined with Belize, the which will be submitted to the International Court of Justice, for which reason I will appreciate it if the language used is clarified and in any case that (the wording) refer to the ‘*Line of adjacency between Guatemala and Belize*’, the language agreed upon by both countries.” (sic). Email received March 19, 2012.

The *Vice-Minister’s* statement signifies that the combination of (1) disinterest in water policy regarding the river basin and (2) its condition as a disputed section of border have kept Guatemala from becoming very interested in the area. Nor are that country’s water-policy stakeholders at all interested, as evidenced by the interviews conducted by our project. Absent, too, in Guatemala is any trinational-scale vision of the river basin.

Thus, although the diagnostic financed by the Mexican National water Commission (Conagua, 2007) mentions that the river basin is trinational, and that Guatemala occupies the highest part of it, all of the information presented in the document is centered on Mexico and Belize, and the credits to government structures are restricted to these two countries. No data on any subject come from Guatemala. It should also be noted that regarding IWRM and water policies, the Mexican part of the diagnostic is the most developed—a fact that demonstrates an imbalance with respect to Belize. Similarly, the recommendations derived from the document tend to ignore the basin's Belizean problems.

Therefore, a historical imbalance exists in this trinational area, whose dynamic has been essentially binational. As a result, the IWRM of the river basin is highly contradictory because the upstream waters are excluded from any transboundary management—a situation totally contradictory to the idea of river basins as the favored territorial units for the expression of this pillar of Mexico's water policy. This situation is thus a key element of the inconsistent IWRM.

Finally, with the installation of the Hondo River Basin Commission (CCRH) in 2009, the favored status of river basins in IWRM (at least in the case of the Hondo basin) was further eroded by the growing awareness that the Mexican part of the Hondo river basin was affected by phenomena outside its limits. That recognition led to impulse a subsequent initiative attending transboundary problems like the invasive suckermouth catfish (*Hypostomus plecostomus*), a pest that, according to experts interviewed, has an undeniable transboundary background, given that it had crossed several borders before arriving at the Mexican

part of the Hondo basin. Clearly, the solution to the threat posed by this fish must be transboundary.

Consequently, we have a Mexican basin commission that has had, since a decade ago, a certain interest in binational actions for/in a trinational basin—a situation that contravenes the basic principles of IWRM and its preferred space of action: the river basin in its full territorial extent.

In general terms -and here we find another inconsistency regarding IWRM- the interviews with stakeholders who are linked to the CCRH reveal an essentially binational vision of the basin, with unclear limits. In addition to frequently ignoring distant Guatemala, it is completely forgotten, too, that a significant portion of the Hondo river basin lies within the Mexican state of Campeche (Map 1). Both entities (Guatemala and Campeche) are fundamental to understanding the dynamics of the river basin in their totality, because the upstream waters extend within those territories. Campeche is so completely overlooked that it is conspicuous by its absence in the CCRH: the Commission does not include stakeholders from this part of the basin, who represent the downstream Hondo exclusively. That is, they are from the Mexican state of Quintana Roo.

Additionally, it is essential to highlight that in the majority of the interviews, the discourse tended to separate three related environmental media (the Hondo river; Chetumal Bay into which the Hondo empties; and the marine part): even though those media are connected environmentally in the basin. The stakeholders express a narrow view of the relations among these three connected parts of the Hondo river basin. More specifically, that view is neither well integrated nor integrating. In

addition, it restricts the basin to the main stream of the Hondo River and does not look at the territory beyond it.

These elements of the CCRH representatives' vision contradict the precepts of IWRM, and pose a series of historical limitations that do not facilitate a broad vision of the Hondo river basin. Instead, those elements help propagate a fragmented perspective determined by international politico-administrative limits and those of Mexico. That perspective is also limited to the immediate sphere of action of the interviewed stakeholders. That is, a completely truncated vision of the Basin, as evidenced by the membership of the CCRH itself. This fragmented, constricted vision constitutes an enduring inconsistency that has existed since the CCRH was formed.

A sum of inconsistencies: water policy with IWRM or *versus* IWRM?

In the Mexican part of the Hondo river basin, the CCRH represents the formal expression of IWRM, in which it constitutes the structure proposed by the Conagua to implement IWRM in the area. It should be noted that when the study of the basin was engaged during the years 2014-2016, the CCRH was mentioned as central to this territory, and as being an articulator for various stakeholders (Kauffer, manuscript accepted, n.d.). Thus, the CCRH is a space for collaboration, with a strong academic

component that is recognized for its role in providing information and making known the problems of the basin as a space where different stakeholders converge.

However, in parallel with the recognition of the presence of a body in charge of the river basin, there persists a lack of clarity regarding what type of body that is: A council? A commission? A committee? The stakeholders who were interviewed—principally participants in the very CCRH—do not know the CCRH’s scale of action, and express confusion regarding the CCRH’s role as an “auxiliary body”, sometimes calling it a council or even a committee.

This situation may be explained by the CCPY’s (Yucatan Peninsula Council) own ignorance, for a long time, of the Hondo river issues, and by insufficient interaction between the Commission (the CCRH) and its “elder brother”, the council. Or, at least, by the lack of clarity and direction regarding how local stakeholders were to interact with the CCPY. Moreover, this situation is the direct consequence of an IWRM that is detached from local realities, and organized around a verticality driven by Center of the Republic—a verticality controlled via two mechanisms: the basin organizations’ lack of status as legal entities, as a result of the National Water Law, and the difficulty (for the river basin organizations) of becoming decision-making bodies for their respective basins. This situation is a consequence, as well, of the terms under which the Water Law established the river basin organizations (council, commission, committee): despite the reforms of 2004, which expanded the participation of local stakeholders, these participative bodies have had difficulty in becoming real spaces for negotiation and decision-making about basins. Exceptions are those organizations that, in the course of

time, have achieved a certain legal or financial autonomy. Such exceptions are rare in Mexico, and their condition usually owes itself to the presence of certain non-governmental leaders or politico-economic elites present within such river basins.

The legacy of a centralized policy is expressed strongly by the interviewed stakeholders, who mentioned that the role of the CCRH consists essentially of providing information to certain sectors—a viewpoint that can be seen in other cases as well (Kauffer, 2005). Therefore, according to its participants, the CCRH does not make decisions, nor does it act. In sum, it does not truly constitute a body for water management. However, the thing that is widely recognized by the local stakeholders is the CCRH's role for making alliances, and for establishing coordination among different actors when acute problems arrive. For example, the alliance made with the business sector when the suckermouth catfish problem arose -a situation that will be discussed later:

“The CCRH's strengths are the number of sectors...sometimes I think the businessmen are a bit over-represented, but okay (...) and the great limitation, we said, is the lack of international cooperative activities. There needs to be someone from Belize, if I were forced to be frank, even someone from Guatemala”. Interview with a researcher on the Hondo river basin, Chetumal, September 21, 2016.

The second element (related to Mexican water policy) that has brought on a dynamic of inconsistency within the CCRH has been the crisis of insufficient resources. Between 2009 and 2015, through a slow, gradual process of consolidation, the CCRH seemed to offer promise not only as a vehicle for IWRM for a large part of the region, but also for the possibility of thinking of a certain cross-boundary dimension where cooperation is almost nonexistent (García & Kauffer, 2011; Kauffer, 2017; Kauffer, 2018). However, the CCRH's lack of short-term sustainability has been made evident since 2016, when the decrease in funding from the Conagua not only made continuation of research projects impossible, although almost caused CCRH to disappear entirely, as it could not hold meetings because the Operating Manager was not replaced for several months:

“We’ve arrived at this unfortunate situation, I tell you that the river basin organizations [as the CCRH] had functioned because there were federal funds to maintain them, but once they are gone, I believe that the organizations will not work...that will be the part...Probably the economic problem will be...but this...the main drama (...)

The last meeting was on 19 April 2019, and XXX [the Operating Manager, name omitted here] was no longer coming, in fact I believe that XXX was about to leave because he was no longer going to have any possibilities, it was the last meeting in April, and now we have no Operating Manager.

(...) And so those of us who could did meet because there were no resources for meeting physically, and since then we have been at a standstill, and I think we were also waiting for

the change of government”. Interview with an academic who was a member of CCRH, Chetumal, September 20, 2016.

Thus, a third problem is the CCRH’s dependence upon a few persons—a reality all too evident at the local scale. Those persons may be the manager, or some researchers from academic institutions, but in any case the result is a personalized type of IWRM that is far from the paradigmatic participative space that the IWRM vision was intended to build in Mexico. Or, at least, the CCRH’s IWRM is far from being the sort that is presented in various documents.

To that problem, it is necessary to add the vulnerability to changes of government that derives from the model established by the Mexican Federal Government. In the south of Mexico, that level of the government first took direct control of basin organizations through the Conagua, then delegated certain functions to the local level (municipal or state). As a result, any structures that had not consolidated their IWRM became fragile in the face of successive triennial and sexennial changes in government.

A fourth problem is that the inconsistent IWRM principle in the CCRH is rooted in the stakeholders’ perspectives about the river basin. That perspective is reflected in the makeup of the Commission itself: it is exclusively Mexican. Various aspects come into play to explain this situation. The main aspect is the selfsame erratic condition of the IWRM, although it is assumed as an axis of a sectorial and fragmented water policy in Belize (Kauffer & Mejía, 2020):

“So far no one has covered it, in the country of Belize we need something like a Commission that has to do with river basins, but it isn’t established, everyone works on what belongs to them”. Interview with an official of the Government of Belize, Belmopan, March 26, 2007.

The difficulty of thinking of the transboundary dimension of the basin is a reality in both countries, even though transboundary cooperation exists in other areas:

“Unfortunately no activity on the Hondo River, like the pollution, is contemplated by the Mexican government or that of Belize. Activities of all types are contemplated regarding construction, crossing of the bridge is contemplated in the proposals in order to give recommendations or others... At this level nothing has been done to avoid conflicts, it has not contributed in this sense, but something should be done”. Interview with an official of the Government of Belize, Belmopan, March 28, 2007.

Finally, the economic and political asymmetries (between the two countries) that lead Mexico to assume the full financial costs as well as the leadership of administering the river basin are a complex subject insofar as transboundary water issues are not of great interest to the Mexican Government in the South (Kauffer, 2018). This situation causes tensions among the Federal government’s own institutions:

“What agreement did we make with the situation of Belize? How is the resource? We knew this before, for a long time, that it is a country that does not have resources, that has no assistance, that is why we offered, as the Government of Mexico, to make, the initiative was from us, from Mexico, the terms of reference of the study, came from us and we offered to do it in both countries in order to have this information, conscious as we were that they had no resources, it was not a study that was going to be done, our part and the Belizean counterpart, no, let us not confuse that, please. The study was to be done by us, both parts. We agreed on that, it was the formal agreement that we made, they never asked us, we offered it to the Belizeans and we offered it in those terms, that is the reality. That is how simple the costs were, if we made a mistake in 2003 by offering that when we could not do it, then it was a big mistake that we made at that time. But it was our offer to the Belizeans, and I am not defending it at the request of the Belizeans, I am defending the *international commitment* that we assumed and that our Mexican government made”. An official of the Mexican Federal Government, during the Second Meeting of the Yucatan Peninsula Basin Council, Specialized Working Group on Sanitation in Quintana Roo (GTESQROO), Chetumal, August 24, 2006.

Thus, national political and economic considerations are indispensable for understanding the sum of inconsistencies that are observed, particularly in the CCRH, which—despite being the principal

instrument for IWRM in the Hondo river basin—reflects a series of national and international contradictions in the water policies of the three States that are parties to this transboundary scenario.

IWRM and WS in the Hondo river basin: A triple relation

In the context described above, which is characterized by a sum of historical and current inconsistencies regarding IWRM, three modalities of interactions between IWRM and WS are evident in the Hondo river basin from the broad perspective of water securities/insecurities that are constructed and lived out. Those modalities are the ignorance, among stakeholders who participate in the CCRH, of the current notion of water security; the persistence of old water problems that become scenarios of water insecurity for different local stakeholders; and the way in which these water insecurities, under acute conditions, contribute to WS through the existence of a platform of the CCRH and that Commission's orientation toward IWRM.

A water security ignored and detached from IWRM

In the Hondo river basin, the issue of water security is almost ignored by stakeholders, who have difficulty identifying the notion (only three of the 13 stakeholders interviewed in 2016 did so) without managing to identify the CCRH's actions regarding in the territory. In general terms, the stakeholders are not familiar with the concept. When they do bring it up, their vision of it is incomplete, insomuch as it does not include the four components mentioned previously: (1) water security through traditional indicators of scarcity and hydric stress, (2) vulnerability related to droughts and floods, (3) water security focused upon human dimensions of food security, and (4) the WS associated with sustainability.

In the eyes of the interviewed stakeholders, water security in the Hondo basin refers to three aspects: availability of water, access to drinking water, and the problem of pollution. To judge from that outlook, improving water quality is a concern (and is often mentioned by different stakeholders), but WS is not seen clearly. Moreover, the CCRH's activities are not linked to that notion, which takes no concrete form at local scales. In some cases, water security is mentioned from the standpoint of national security thanks to the river's location in a transboundary territory where border security has been strengthened along the Mexican side by two military bases and elements of the Navy. Security forces from other agencies are also present in some locations along the river.

It should be emphasized that in the water-related goals of Master Plan for environmental protection, conservation, and recovery of the Yucatan Peninsula for the period 2015-2024 (Conagua, 2015), water security is enunciated only with regard to prevention of droughts and floods, in four problem areas: reductions in quantity and quality of water; deterioration of natural resources; extreme phenomena; and climate

change. References to water security are lost among the details of the axes, objectives, and strategies of the Yucatan Peninsula Water Program 2030 Vision, just as they are lost among the Program's actions, high-priority problems, strategic objectives, and general goals. References to water security also disappear in the updated Master Plan of 2015. Those omissions signify that the mentions of water security are found only at the Federal level, and have no implementation within the Hondo River Basin.

The finding derived from the interviews and from examination of institutional documents is that while water security is unfamiliar and seldom invoked on the local scale, it is referred (when mentioned at all) to the availability, accessibility, and quality of water on the Mexican side. That is, the concept of water security that figures in the interviews and institutional documents does not cover the full range of the concept proposed on the international scale, and by the Conagua itself. For its part, the predominant theme in the institutional vision of water security is that of droughts and floods. The foregoing signifies that IWRM and WS are not clearly linked at any time, either by local stakeholders related to the CCRH—the favored space for formal IWRM—or by those stakeholders who are linked to IWRM at the regional level through the CCPY. The concept of WS is enunciated only in the national objectives of the Conagua itself.

The enduring water insecurities in the Hondo River

If we center the reflection on water insecurities as the product of power relations, it is essential to refer to the major problems of the Hondo river basin that affect the local populations and their ecosystems, and vice versa.

On the Mexican side, the major source of water insecurities in the basin, historically, has been pollution of the main current as a result of a twofold dynamic: use of agrochemicals in agricultural activities, and deficiencies in treatment of wastewater. The main triggering event reported in the Diagnostic (Conagua, 2007) and by many of the interviewees were the 2007 mass deaths of fish in Chetumal Bay. Investigations of that event identified agrochemicals whose origin was related to the strong sugarcane activity on both sides of the river, principally in the Belizean part. This situation affects fishing for self-consumption, which although it is not commercial, is one of the principal human activities—along with cross-border smuggling of merchandise—observed along the Hondo River during our fieldwork. Hence, pollution of the river creates a health issue that affects the local populace, including the emerging recreational activities, as possibilities for further development of the tourism sector along the Hondo River.

In the Diagnostic (Conagua, 2007), one of the basin's principal problems, noted as appearing in the international literature as well as in the Conagua's national documents from the perspective of a traditional vision of WS, is flooding. The floods that are caused by hurricanes are mentioned as an element that we can also consider from a broader, socio-political perspective as part of the water insecurities that affect the Hondo river's population, especially in the Belizean section. Hence, during the

interviews conducted in Belize this issue was the one that came up most often regarding the Hondo river—and for Belize as a whole. The poorest areas of that country are characterized by the long-lasting marks of floods on buildings. The presence of shelters for the protection of the public is notable in those areas, unlike on the Mexican side, where the predominant theme is the pollution of the water resource. This situation highlights that water insecurities can be perceived differently among the various stakeholders who live on the banks of the same river, and who use the water resource for diverse activities, or who carry out water-related actions within a given river basin.

One of the problems mentioned by Mexican stakeholders is the deforestation in the middle area of the basin, a process that produces erosion, loss of soil, and runoff of sediment into the main current. The Diagnostic (Conagua, 2007) evokes that problem clearly. It is also a recurrent element in the interviews that were conducted. It affects the Chetumal Bay Reserve, a Quintana Roo state's natural protected area that is a sanctuary for the manatee—a species in danger of extinction. Because the Reserve is located downstream in the basin, the place reaps the consequences of all the actions and activities carried out upstream.

Access to quality water is an outstanding issue in the Mexican side of the Hondo river basin. In the Calakmul municipality, Campeche, which is a little-known part of the basin, there is no surface water, and the subterranean waters have hardness problems—as do the waters of the Hondo river itself—that impede their use for human consumption, and therefore the population's access to water for domestic use.

Water sanitation continues to be a troublesome issue because only about 50% of the water in the Mexican part of the river basin is being

treated. That situation causes an unhealthy environment and public-health problems, in addition to endangering activities that are carried out in lagoon systems such as the Bacalar lagoons, which have surface and underground connections to the Hondo River.

Thus the old, unresolved problems of the Hondo river basin are expressed as a series of water insecurities for the basin's population. The severity of the impacts varies according to location, and also according to one's activities and level of exposure. The impact is greatest for those who live in conditions of marginalization—a situation especially evident during the recurrent floods on the Belizean bank. This signifies that water-related problems persist even with IWRM, and that new water insecurities in the basin have been added to the old problems.

Acute water insecurities: The CCRH, a platform for IWRM

Finally, in the last few years, the suckermouth catfish has been one of the most acute environmental problems in the Hondo river basin. The fish was initially detected in Guatemala, in the Usumacinta basin, and then upstream in the Hondo River, where Arroyo Azul flows. The fish was then found in Belize, and finally in the Mexican part of the basin. The presence of this fish affects the riverine ecosystem in various ways simultaneously: it nests along the banks, where it provokes erosion, and endangers other fish species by eating their eggs. In sum, it impacts the equilibrium of aquatic systems as well as the fishing activities. Another danger is that

the suckermouth catfish may arrive in the Bacalar Lagoons, where it could change ecosystem dynamics and—according the specialists who were interviewed—possibly the color of the lakes, which are the area’s principal attraction. Those changes would have large economic effects, via reduction of income from tourism. However, the impact of this invasive species has more recently been classified as stable, unlike the situation in other rivers in Mexico (Maldonado, 2019).

For the purposes of this article, the suckermouth-catfish episode was generated as a concrete, acute emergency of water insecurity, which some stakeholders in the CCRH were able to resolve without the support of the Conagua. The following excerpt from an interview makes that clear:

“X knew that I was part of that auxiliary body of the Hondo river and came and said to me: ‘Listen, Z...a researcher from Belize told me that they have now found the suckermouth catfish in a tributary that empties into the Hondo river’. Z... now I began to find out what the suckermouth catfish was and the impact that it had: ‘So why don’t we try to do something within this committee (sic)?’ Well, so I as part of this committee make an invitation and ask that a meeting be held so we can make progress on this.... When I go to the office of Conagua, which is the higher authority for this, I say ‘Listen, invite [the members] to a meeting, convoke all of the members because this situation is delicate and grave, and this and that could happen’ [...] ‘Yes, Z..., but it’s just that at the moment we’re attending to who knows what kind of urgent institutional requests from the Conagua’. So since they had their priorities, I said, ‘Okay, so it’s

grave'. So what did I do? I grabbed the distribution list of all of the members of the committee [sic] of the Hondo River and I talked to them [...]. So, surprisingly, those who started immediately to look for any way they could help, they were businesspersons, the businesspersons who were part of the basin *committee (sic)*, not the institutions". Interview with a researcher, CCRH, Chetumal, September 20, 2016.

Here we see that although situations of water insecurity in the Hondo river basin have persisted (and worsened with the appearance of the suckermouth catfish), and although the notion of water insecurity does not appear clearly in the discourse of local stakeholders, or even in documents regarding IWRM for the river basin, the example of the suckermouth catfish as an element of acute water insecurity—as was the concurrent pollution of the river—did in fact succeed in making the CCRH's various stakeholders join forces. This example indicates that water insecurities can indeed become driving forces for IWRM on this scale, even when the stakeholders are not familiar with the notion of IWRM that is proposed by international agencies and in academic discussions. Thus, when faced with a critical situation, the CCRH became a platform capable of articulating a response to the appearance of the suckermouth catfish: the CCRH functioned as a space for interaction among stakeholders, and made possible a linkage between IWRM and WS, stemming from a critical situation of water insecurity.

The relations between IWRM and WS, although characterized by a lack of articulation in the Hondo river basin, have also been presented in their unfavorable version—IWRM combined with water insecurities—but

sometimes, too, in a modality where IWRM serves as a tool (via the CCRH) for driving a concrete response to a situation of acute water insecurity.

Therefore, we have been able to identify a threefold modality of interactions between IWRM and WS in the Hondo river basin via the analysis of the stakeholders' perspectives involved in the CCRH: in addition to the predominant disconnect between IWRM and WS in the basin, and the inverse relation between them, there sometimes arises a positive interaction in which IWRM makes collaboration possible among stakeholders when an acute situation of water insecurity arises in the basin.

Conclusions

In the south of Mexico, in the particular case of the Hondo river basin, the actions regarding IWRM and WS are characterized by a temporal disconnect with respect to international approaches, and even the national ones. The IWRM that appeared on the international scale in 1992 as a principle of water policy were implemented on a national level in 1999-2000, but did not take form in the Hondo river basin until 2009, with the creation of the Hondo River Basin Commission (CCRH). WS, for its part, was coined in the year 2000, and appeared in the Conagua's

PNH by 2014, but is still not clearly visible in the basin in the view of the stakeholders associated with the CCRH.

Although the basin has had a formal IWRM instrument through the CCRH since 2009, recent reductions in Federal financial support for river basin organizations have exacerbated and added to the inconsistencies between approaches to IWRM on the national scale, derived from its legal framework, and its implementation and inadequacies for a transboundary basin that is shared physically, but not from a political-institutional perspective.

On the other hand, there exists a clear disarticulation between WS and IWRM, as evidenced on the national scale, where WS has no relation with the legal framework, or with the water policy within the institutions that were created in the context of IWRM. In the case of the Hondo basin, the concept of WS is shown to be absent, unfamiliar, and reduced to a minimum among the local stakeholders related to IWRM, against a backdrop in which for historical reasons, and due to recent transformation in national policy, the IWRM itself is full of inconsistencies.

In this scenario, the persistence of already existing problems related to IWRM, combined with the emergence of new situations linked to the state of hydric resources, poses real water insecurities for the local populace. These insecurities present diverse expressions among the stakeholders and their respective countries. Thus, the two pillars of the Mexican policy—IWRM and WS—are inversely related in reference to international goals: IWRM coexists with a series of water insecurities. However, and as shown by the suckermouth-catfish situation, the water insecurities make possible a building of bridges between WS and IWRM, and also enable stakeholders to in some way take advantage of the

existing platform of interactions within the CCRH. In consequence, the water insecurities that arise in an acute form can, through appropriate response, contribute to strengthening IWRM by facilitating collaboration among stakeholders who attend to WS without naming it as such, or proposing it clearly as an objective.

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