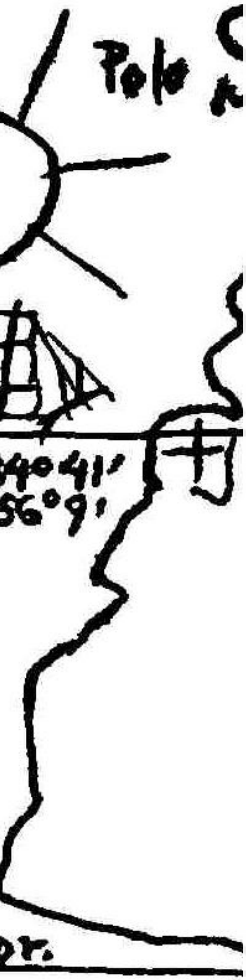
Alternautas

(Re)Searching Development: The Abya Yala Chapter



Alternautas – Vol.3 – Issue 2 – December 2016

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Virgin Forest? The long human past of the Tapajós Valley - *Bruna Cigaran da Rocha & Vinícius Honorato de Oliveira*

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Book Review: Water security, justice and the politics of water rights in Peru and Bolivia - *Laura Tejada*

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Alternautas is a peer reviewed academic blog that publishes content related to Latin American Critical Development thinking.

It intends to serve as a platform for testing, circulating, and debating new ideas and reflections on these topics, expanding beyond the geographical, cultural and linguistic boundaries of Latin America - Abya Yala. We hope to contribute to connecting ideas, and to provide a space for intellectual exchange and discussion for a nascent academic community of scholars, devoted to counter-balancing mainstream understandings of development.

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EMILIE DUPUITS[1] & MARIA MANCILLA GARCIA[2]

Introduction to the Special Issue: "Water and (neo)extractivism in Latin America"

This is the first time Alternautas devotes an entire issue to the theme of water, a natural resource which is at the core of the debates on the kind of development model Latin American countries engage into. Indeed, water resources are at the core of numerous conflicts in which antagonist visions of development are revealed. To name just a few among those that have received extensive international scholarly attention are the 'Water War' against the privatization of drinking water in Bolivia (Olivera & Lewis, 2004; Perreault, 2005), the mobilizations against the mega-projects of hydro-electricity in Brazil (Fearnside, 2006, 2013, 2014) and those against the pollution of the Cajamarca water basin by the mining company Minera Yanacocha in Peru (Bebbington & Bury, 2009).

Historically and up until today, the different perspectives on water adopted in national public policies have often echoed international trends (Gentes, this issue). The "technical" understanding of water management promoted through dam construction in the 1980s (Biswas & Tortajada, 2001) was complemented with a trend towards economic liberalization of water rights in the 1990s (McKenzie & al. 2003; Conca, 2005). In parallel, these trends often disregarded the livelihoods of local populations (Delmotte, this issue), who in many occasions organized opposition movements and associated with environmental and human rights activist groups (Castro, 2008), although such coalitions were not always possible (Travieso; Nicolas Artero, this issue). Some of these movements are claiming water as a common good

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associated with collective management, and as a human right (Bakker, 2007; Boelens, 2008). They are also defending the plural natures of water resources beyond its biophysical characteristics (Roca-Servat, Bonelli & Bueno de Mesquita, this issue). Tensions from the past have crossed with contemporary struggles against the consolidation of water as part of the 'commodities consensus' (Svampa, 2015).

Indeed, in the last years, the Latin-American region has experienced rising pressures from nation-states in a (neo)extractivist tendency on water resources (Ávila-García, 2015). This tendency reconnects and deepens patterns of extractivism from the past. We understand here (neo)extractivism as referring to the Latin American states' justification of the exploitation of natural resources on the need to finance social development programs (Acosta, 2013; Andrade, 2015). This tendency consolidates natural resources marketization implemented by states beyond the private sector (Swyngedouw, 2005), turning the perspective into a quasi-consensual one, as Svampa (2015) points out. However, some authors point to "the end of the progressive cycle" in Latin America (see the Dossier in Alternautas), partly due to the failures most left-wing governments faced to implement sustainable development policies, and to go beyond extractivist models from the past.

At the same time, several countries in the region now count with participatory instances for water management that open up new opportunities of inclusion for populations traditionally excluded from water policies. Additionally, various governments have recognized customary rights, giving more space to traditional uses over water, as Seemann (2016) discusses (Tejada, this issue). Moreover, the up-scaling of water community networks has contributed to generate legal reforms in the water sector and to increase autonomy for local populations (Romano, 2016; Hoogesteger & al. 2016). These institutional reforms have been influenced through multi-scale mobilizations led by water activist movements, conducting to victories over extractivist mega-projects, for example in Brazil (Da Rocha & Oliveira, this issue).

We are happy to share with our readers a series of seven articles from diverse disciplinary perspectives – including anthropology, archaeology, political science,

development studies and critical sociology and geography – showing the diversity of existing approaches to study water (neo)extractivism. Moreover, the special issue covers a large geographic area, with two cases from Central America – Honduras and Guatemala – and five cases from South American countries – Chile, Peru, Bolivia, Brazil and Colombia.

In addition to their common focus on water related topics, several parallelisms can be drawn between the different articles. On the one hand, the works of Gentes, Nicolas Artero, and Tejada's review of Seemann, discuss the distinct effects of legal reforms on water movements and organizations' inclusion in decision-making policies as well as on the movements' internal cohesion. While Seemann explores the issue of legal pluralism in Peru, Gentes focuses on "political extractivism" in Honduras, and Nicolas Artero analyses the new spaces for political participation created by water reforms in Chile. On the other hand, the works of Roca-Servat, Bonelli & Bueno de Mesquita, Delmotte, Travieso, and Da Rocha & De Oliveira, explore the existence of diverging imaginaries on water resources and the resulting conflicts in a context of (neo)extractivism. While Roca-Servat, Bonelli and Bueno de Mesquita analyse the diverse natures of water in environmental conflicts, Delmotte focuses on the conflictive uses on water for artisanal gold mining or forest conservation in the Peruvian Amazon, Travieso explores the opposed visions of environmental protection and development on the Lake Atitlan in Guatemala, and finally, Rocha and Oliveira go beyond the myth of the virgin Amazon forest used to justify mega-infrastructure building in Brazil. In general, all the authors highlight both the attempts to establish durable alternatives in water management, and the difficulty to profoundly change the (neo)extractivist structures.

We open this special issue with a translation from Portuguese by Louise Cardoso de Mello of Bruna Cigaran da Rocha and Vinicius Honorato de Oliveira's work (2016), *Virgin Forest? The Long Human Past of the Tapajós Valley*. From an anthropological and archaeological perspective, the authors explore the long pre-colonial history of the Tapajós River and its legacies in the Amazon region of Brazil, which are understudied. Instead, the government reproduces the myth of a virgin forest without history to justify the building of a hydroelectric complex without previous

consultation. To give the full context of this case it is important to highlight the recent victory of the indigenous communities Munduruku over the Brazilian government, leading to the cancelation of the project[3]. The authors finally call for the official recognition of the archaeological heritage in the region.

The paper by Chloé Nicolas Artero, *Chilean Water Conflicts Making New Water Territories: The End of Extractivist Modes of Accumulation?*, focuses on the case study of the Elqui River watershed in Chile, and the system of water rights distribution, which is paradigmatic of the commoditization and privatization of water resources in Latin America. The author analyses the process of "accumulation by dispossession" of small farmers and shows how the neoliberal water management framework leads to the concentration of water rights in extractive industries. Using an analysis inspired in Simmel (2010) and his positive view of conflicts, the author explores how water community organizations in rural areas have tried to generate new spaces for collective action. However, the author also mentions the difficulties faced by community organizations to bridge their social struggles and impulse a significant change in the dominant development paradigm in Chile.

Focusing also on water rights, Laura Tejada offers an insightful review of the book of Miriam Seemann (2016), *Water Security, Justice and the Politics of Water Rights in Peru and Bolivia*. Based on the comparison between two countries with radically different institutional frameworks, Peru and Bolivia, Seemann highlights the inequalities and potential conflicts associated with water rights formalization processes, from which peasant and indigenous communities have traditionally been excluded. The reader might expect a better inclusion of water customary rights in the Bolivian institutional framework, due to the implementation of intercultural reforms in the country; yet, both Peru and Bolivia are confronted with the limited integration of water rights and the resulting loss of local diversity. The formalization of water rights is often associated with (neo)extractivist policies on water resources, with states seeking to increase their control on the rural sector. Laura Tejada goes along with the

3 http://amazonwatch.org/news/2016/0804-brazilian-government-cancels-mega-dam-on-the-amazons-tapajos-river

conclusion of the book stating that the legal recognition of water rights doesn't automatically lead to the reduction of water conflicts and instead, reproduces the status quo in development models.

With the paper by Céline Delmotte, *Small-scale gold mining, mercury exposure and the Struggle for the Right to Water in the Peruvian Amazon*, we focus on the particular Amazonian region of Madre de Dios in Peru. This work takes an original approach by focusing on artisanal gold mining – as opposed to the traditional focus on large-scale mining companies. The study uncovers the conflicts between several interest groups: the miners on the one hand, and a consortium of forest, ecotourism and conversation concessionaries on the other. The author uses the concept of "livelihood-based environmentalism" introduced by Bebbington (2009) to go beyond the traditional divide between development and conservation. Indeed, in this case study, there is no organized resistance of communities, who prefer dealing directly with miners to obtain financial compensations.

In the next article, *Lake Atitlán, Guatemala: "The Possibility of a Shared World"*, Emilio Travieso explores the conflicts around the options for the treatment of sewerage in Lake Atitlán in Guatemala, where around 300.000 people from different ethnic groups live. The lake has suffered from eutrophication problems in 2009 and 2015, as the settlements around it possess no sewerage treatment. The territory is divided among different actors defending conflictive views on the solutions to provide for the preservation of the lake. A few wealthy, non-indigenous populations, as well as vacation homeowners, control the hillsides and develop monocultures based on fertilizers. They take advantage of their links with the government to impose a technical solution in the form of a wastewater plant. Yet, indigenous peoples and social movements are suspicious of this project, in a context where the government is highly corrupted. These groups demand decentralized – although different – models. The author discusses the power dynamics and struggles involved in the reproduction of dominant structures for profit and power in the case of large-scale infrastructures, and the emergence of counter-alternatives by "hope movements".

We continue with an article by Denisse Roca-Servat, Cristóbal Bonelli and Mourik Bueno de Mesquita, *The many natures of water in Latin-American neo-extractivist conflicts*. The authors start their reflection with the illustration of the Standing Rock movement led by the Sioux in United States against a pipeline project, in which some leaders consider natural resources as "relatives". The authors bring to the discussion the important ontological debate on "nature" as one and singular, and "culture" as plural. Inspired by the works of Annemarie Mol (1999), they argue for the plural natures of water, as an object playing a central role in environmental conflicts. They defend a "multi-natural" framework that goes beyond the "multicultural" approach often adopted. Additionally, they bring an important contribution to research practice: during the venue of a workshop in Colombia, they asked students to enact different roles, including the lake affected by potential oil exploitation in the case of the U'wa conflict. The authors conclude on the importance of participatory action research to enhance dialogue at the encounter of different worlds, which often constitutes the core of water conflicts.

Finally, we close the special issue with an article by Ingo Gentes, *Fields of "Political Extractivism" of Human Rights to Water and Sanitation: the Case of Honduras, 2014-2015*. In this study, Gentes analyses the impacts of an institutional reform to implement the National Plan for Water and Sanitation (PLANASA), inspired by the New Public Management framework, on local communities and within the Honduran government. The author uses a Bourdieusian approach, to delimitate political and social champs in the building process of the reform. He analyses the limits of the process in terms of disarticulation between the central government and local governments, and the lack of effective inclusion of local populations, illustrated by the concept of "political extractivism". Finally, the author highlights that the law is a collective construction that requires deliberation to be accepted.

We take the opportunity of this special issue to encourage our readers to enter into a dialogue with the authors and make comments on the blog. Alternautas seeks to be a space for dialogue and exchange of ideas, and we believe this special issue presents a good opportunity to do so.

We wish you a very happy reading!

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BRUNA CIGARAN DA ROCHA& VINÍCIUS HONORATO DE OLIVEIRA[1]

Virgin Forest? The long human past of the Tapajós Valley[2]

Archaeology is by its nature one of the most productive research fields for studying the past, especially of societies without writing systems. In Brazil, archaeology also allows us both to observe a number of forms of interactions amongst Amerindian societies and to contemplate how these peoples have altered the landscape, embedding it with meaning and rending the environment more productive. The idea that Amazonia has been modified by human action for millennia –and that the notion of a virgin forest is nothing but a myth –has prevailed in debates on the matter, to such a degree that experts have already accepted this assumption as a starting point (e.g. Balée, 1989; Denevan, 1992a; Heckenberger et al., 1999, 2003).

This article looks at the archaeological heritage along the rapids of the Tapajós River and its tributaries, such as the Juruena and Teles Pires Rivers, based on the existing

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[2] This article was translated by Louise Cardoso de Mello and originally published in http://www.alternautas.net/blog/2016/10/19/virgin-forest-the-long-human-past-of-the-tapajs-valley on October 19th, 2016.

record.[3] Apart from archaeology, historical sources as well as oral history may also shed some light on the (often turbulent) past of the Tapajós Valley after the Portuguese conquest (Menéndez, 1981/1982, 2006 [1992]). They also point at the possible location of archaeological sites; stemming from the review of historical and archaeological sources, Alexandre Robazzini (2013) has compiled a comprehensive table containing 423 archaeological sites in the Tapajós Valley. Notwithstanding the limited amount of archaeological fieldwork carried out in the region where the government intends to build the Tapajós Hydroelectric Complex (CHT) –and in contrast to the idea promoted by the official discourse that the area in question is empty and has no history[4]- we present some evidence here that points to the richness and singularity of the existing archaeological heritage. Far from being located in a virgin forest, the Tapajós and its tributaries irrigate an area that has been anthropized, or in other words, altered by humans for thousands of years.

Archaeological surveys in the Tapajós River have been concentrated in its lower course (e.g. Gomes, 2001; Guapindaia, 1993; Kroeber, 1942; MacDonald, 1972; Palmatary, 1960; Roosevelt et al., 1991); today typical ceramic artefacts from the area may be found scattered across museums both in Brazil and around the world.[5] This is due, in part, to the greater accessibility to the lower Tapajós, which is easily navigable. However, it is important to recall Almeida's note, according to which:

'The rapids are key areas for understanding the pre-colonial period in Amazonia. These spaces have been persistently inhabited by indigenous groups, who have

[3] E.N.: See also in this volume 'Sobre sítios arqueológicos e lugares significativos: impactos socioambientais e violações dos direitos culturais dos povos indígenas e tradicionais pelos projetos de usinas hidrelétricas (UHEs) na bacia do rio Tapajós', by Francisco Antonio Pugliese Jr. and Raoni Bernardo Maranhão Valle.

[4] See also Abdala (2012), where Maurício Tolmasquin, CEO of the Company for Energetic Research (EPE), supports the concept of platform-plants for the Tapajós River as a green alternative for the area, 'where there is no human occupation. There is practically no environmental impact because all of it will be reforested and the hydroelectric power plant will sit in the middle of the forest. The idea is not to have any cities in the surroundings. We shall develop these innovations so as to be able to use our resources,' he says.

[5] The ethnologist, linguist, and archaeologist, Curt Nimuendajú (1953, 2004) was the first to understand the magnitude of the archaeological sites locally and adjacently deposited, and to relate them to the Tapajó, who used to dominate a large part of the region.

transformed them (and elsewhere) into intersections of contact networks' (2013: 354).

In this line of reasoning, there are further data that indicate the antiquity of the Amerindian populating of the interfluvial areas of the valley. Previous ceramist occupations have been identified in Parauá, a dryland area west of the left margin of the lower course of the river (Gomes, 2008). This calls attention to the fact that, in addition to the occupations' vestiges along the rivers' lengths, there are hundreds of archaeological sites in dryland areas, which has also been confirmed east of the Tapajós River (Martins, 2012; Stenborg et al. 2012; Perota, 1979, 1982).

First inhabitants

The first human groups in the region dwelled in an environment that was more similar to the current savanna-like *cerrado* vegetation than to the Amazon forest (Rossetti et al., 2004). These small-sized nomad groups initiated processes of environmental modification with the use of fire and created 'resource islands', which consist of phytogeographical traits resulting from vegetal remains and concentrations of seeds in their camps and trails, as identified amongst the Nukak hunter-gatherers in Colombian Amazonia (Politis, 1996).

It is possible that the rock art heritage found in the Tapajós River, its tributaries, and interfluvial areas might be attributed to these first inhabitants. Originating in the Brazilian Central Plateau, the Tapajós River is geologically old, with crystal-clear water and sandy soil created by erosive processes (Morais, 2008). Said geological features result in an abundance of sites and media for rock art. In addition to its scientific and artistic value to Brazilian society in general, this heritage has symbolic meanings that are highly relevant to the Amerindian peoples that currently live in the region, thus being inseparably related to the landscape in which they are found. This is the case of the rock art at the Cantagalo cliffs, located on the left margin of the upper Tapajós River, eight meters over the maximum river level during the flood season (Tocantins, 1877), where anthropomorphic and zoomorphic figures as well as

other forms are depicted in shades of ochre red.[6] The Cantagalo rock art is referred to as 'Muraycoko writing' by the Munduruku.[7] On the Juruena River, other examples of rock art with apparently abstract figures also painted in ochre red have been recently photographed.[8]

Furthermore, rock art engravings are also known to be found in the region: in the Caldeirão Island on the Teles Pires River, approximately 30 rock walls present two different techniques of manufacturing (long-trace pecking and thin-channel scratching), with depictions of geometric, anthropometric, and zoometric figures (Pardi, 1995-1996: 3). In the São Luiz do Tapajós community, threatened by the hydroelectric power plant (UHE) of the same name, both anthropomorphic and zoomorphic figures have been registered on rocky boulders (Camargo Corrêa et al., 2008, v. 19-22: 354, 355). Despite that, much is yet to be known about the set of rock art representations along the upper Tapajós and its tributaries.

Another problem to be faced is that the area the Federal Government intends to reach with the construction of the CHT is among the most promising ones for the study of the first millennia of occupation in Amazonia.[9] The geological features mentioned above result in an abundance of raw materials for the manufacture of lithic artefacts; sophisticated and beautiful, these artefacts are amongst the most ancient non-perishable tools made by humans on the American continent. Several projectile points and other lithic flake artefacts have been found at different points of the Tapajós River. These instruments are not so common in Amazonia; therefore, they

[6] In 2009, Fábio Mozzer passed by the Cantagalo rock art, registered it and made it available online at the following URL: <http://www.panoramio.com/photo/25481247> (Accessed on Feb, 4th 2014). Edithe Pereira noticed that the photo depicts the same registry made by Tocantins (personal communication, Jan 22nd 2013).

[7] See letter written by the Munduruku addressed to the Government in June 2013. Considered the 'father of writing', Muraycoko is believed to have left his history registered for future Munduruku generations.

[8] The paintings may be seen online in the following URL: (see photos No 29 and 31): <http://www.forestcom.com.br/blog/juruenalivre/?fb_action_ids=430743910387797&fb_action_types=og.likes> (Accessed on Feb 4th 2014).

[9] It is interesting to highlight that from the 13 projectile points cited as being from the Brazilian Amazonia by Klaus Hilbert at the II International Symposium about the Peopling of the Americas, eight were originally found in the Tapajós valley (Hilbert, 2008).

are essential for the study of the most ancient processes of occupation in the region. In the 19th century, an agate projectile point was found in front of the headquarters of the municipality of Itaituba (Rodrigues, 1876). Another projectile point made out of rock crystal was found near the Chacorão rapids (Simões, 1976), where the construction of the third dike in the Tapajós River, the Chacorão hydroelectric power plant, took place. In the interfluvial and headwater areas of the Curuá and Jamanxim Rivers, eight projectile points are known to have been located, one of which is under custody of the Aracy-Paraguaçu Museum in Itaituba (Roosevelt et al., 2009; Honorato de Oliveira & Rocha, 2013). Artisanal mining often leads to fortunate findings. A flint projectile point, which currently is held at the Emilio Goeldi Museum of Pará, was recovered from a cassiterite mine called Grota do Caçaba, in the headwaters of the Tucano stream (*igarapé*), a tributary of the Mutum stream, which flows into the Tapajós River on its right margin (Simões, 1976). Recently, a lithic spear point splintered out of silicate argillite was discovered by the son of Geizy Ribeiro do Azevedo while playing with pebbles at the harbour of the community of Pimental, which is also threatened by the construction of the São Luiz do Tapajós dam. At that site, we further managed to identify other lithic artefacts (Rocha, 2012).

Although the dates of this occupation are not available yet, it is fairly reasonable to assume that they occurred between the end of the Pleistocene and the beginning of the Holocene, especially if we take into account the cave sites of Gruta do Gavião at the Serra dos Carajás (Carajás Mountain Range), or the Abrigo do Sol, at the Parecis Mountain Range – both located in southern Amazonia. At the Abrigo do Sol site, the earliest human occupation was dated to 14,700 ± 195 BP (Miller, 1987: 61), while the earliest date for the Gruta do Gavião site goes back 8,140 BP ± 130 BP (Silveira, 1995). The occupation of yet another cave site, the Caverna da Pedra Pintada in Monte Alegre, located north of the Amazon River, was traced back to between 11,200 BP and 10,000 BP (Roosevelt et al., 1996, 380). These early dates in the surroundings of the Tapajós River, combined with the technologic features of the artefacts that were found in the upper Tapajós area, strengthen the likelihood of the region having already been occupied in the late Pleistocene. The earliest pottery sherds known in the Americas are dated in approximately 8,000 BP and they come

from the Taperinha shell midden (*sambaqui*), located east of Santarém in the lower Amazon River (Roosevelt et al., 1991).

Intensification indicators

Around 4,600 BP, the region's humidity was higher and the vegetation much more similar to what it looks like nowadays (Rossetti et al., 2004). In the following, we have selected some of the registered archaeological evidence that indicates processes of population growth and environmental domestication. Testaments to said processes may include Indian black earth (*terra preta de índio*), polished stone axes, and pottery sherds.

Archaeological sites that contain Indian black earth are well known throughout Amazonia (Neves et al., 2003); the Tapajós Valley is not an exception (e.g. Kern et al., 2003; Smith, 1879; Woods & McCann, 1999). By definition, black earth areas consist of archaeological sites *per se*. Nowadays, archaeologists and pedologists have agreed that black earth are derived from processes of intensive occupation, showcasing a higher degree of sedentarization, in addition to indicating substantial alteration of the environment by humans (e.g. Arroyo-Kalin, 2010; Petersen et al., 2001). To this day, black earth remains an important agricultural resource and constitutes a valuable legacy left behind by the Amerindian peoples of the past (*Idem*). There are several places near Itaituba that display stretches of black earth on the western margin of the Tapajós River, both downstream (e.g. Hartt, 1885: 14; Perota, 1979: 5; Simões, 1983) and upstream, such as in the Amazonia National Park (Parna) (Oliveira et al., 2010) and the localities of Montanha and Mangabal – where amongst the 24 registered archaeological sites, six that are located in more extensive plains and flood-free areas have revealed the existence of black earth (Rocha & Honorato de Oliveira, 2011). Although not much archaeological prospection has been carried out, the eastern part of the river is known for having other sites: the Pajaú in the vicinity of the Pimental community (Rocha, 2012); the archaeological site of Sawre Muybu situated below the Munduruku village of the same name, near the mouth of the Jamanxim river; and the Piririma site (PA-IT-28) – whose 'stretch of black earth

spreads across several acres' (Lisboa & Coirolo, 1995: 9)-[10] located two kilometres from the confluence of the Rato stream and the Tapajós River. It is also important to recall the archaeological sites with black earth in the interfluvial area (e.g. Gomes, 2008; Martins, 2012; Stenborg et al., 2012),[11] and in the Mission of São Francisco do Cururu (Hilbert, 1957). By heading up towards the rivers that form the Tapajós, we come across the same picture, both on the Teles Pires and the Juruena Rivers (Pardi, 1995-1996; Perota, 1982; Stuchi, 2010).

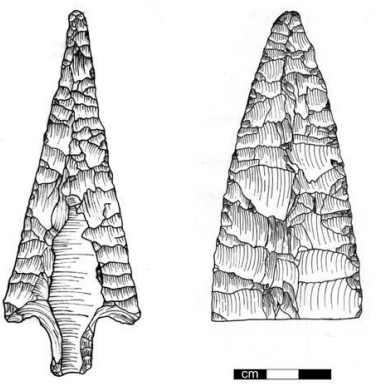


Image 1: On the left, a channelled flint projectile point found by mining prospectors and currently held at the Aracy Paraguaçu Museum in Itaituba. Drawing by Vinícius Honorato de Oliveira. On the right, a lithic spear point (its proximal extremity is broken) found by Geizy Ribeiro Azevedo's sun in the Pimental community's harbour, on the right margin of the Tapajós River, next to the São Luiz do Tapajós rapids. The point was donated to the authors, who have forwarded it to the Curt Nimuendajú Archaeology Laboratory at the Federal University of the West of Pará (UFOPA). Drawing by Claide de Paula Moraes.

Stone axes were used before the introduction of metal tools, for instance to clear areas designated for cultivation or to manage areas reserved for horticulture. Even today, stone axes may be found throughout the Tapajós Valley. They were manufactured by means of a polishing process that took place in the gravel pits on the margins of the river, as may be observed in the proximities of the Buburé harbour (Oliveira et

[10] In addition to the pottery and lithic material, the authors have found wooden artefacts at the site: a propeller, a club, a spear and an anthropomorphic piece.

[11] Dating from 3,800-3,600 BP, the Parauá pottery may be correlated to the period of adoption of agriculture in Amazonia (Gomes, 2008).

al., 2010; Rodrigues, 1875).

Image 2: Example of a lozenge motif found on the pottery of the Terra Preta do Mangabal site. Artistic edition by Marcos Brito de Castro.

Finally, the practice of burials in pottery urns is also associated to this moment of intensification of environmental usage. These burials are common in the region, and they are found in different locations by both laypeople and experts. In the 1920s, in the city of Itaituba itself -which much like Santarém is located above an archaeological site-, urns were found in front of the city's quartermaster (Nimuendajú, 2004).[12] As a matter of fact, urns have already been identified and excavated both downstream (Hartt, 1885) and upstream of Itaituba (Hilbert, 1957; Martins et al., 2010).

So, what happened to these Amerindian occupations, which used to densely populate the region?

The Portuguese colonisation and its impacts

The first Europeans to navigate past the mouth of the Tapajós in 1542 saw 'three leagues inland from the river… large populations that stood out' (Carvajal [1546] in Porro, 2007: 92). The contemporary city of Santarém was a large Amerindian centre,

[12] Nevertheless, a great number of these artefacts have been destroyed, especially with the opening of the local landing strip (Perota, 1979: 8).

connected with distant areas by exchange networks. The existence of these routes in the region may be corroborated by the similarity of some decorative patterns observed in the pottery found at several points along the Tapajós River (Gomes, 2008; Martins, 2012; Rocha, 2012; Stenborg et al., 2012) and in the Nhamundá-Trombetas Valley (Guapindaia, 2008; Hilbert, 1955; Hilbert & Hilbert, 1980), which further allows us to infer the existence of interaction networks between the groups that had produced them.[13] On the Orinoco River, in modern-day Venezuela, ceramics of this same tradition, known in Brazil as Incised-Punctuated pottery (Meggers & Evans, 1961), have been associated with speakers of the Cariban linguistic branch (Cruxent & Rouse, 1958; Lathrap, 1970; Zucchi, 1985). However, we believe that, in contrast to what Eriksen's (2011: 72) map portrays, in the 16th century there was a great deal of linguistic and cultural diversity along the Tapajós River valley. The different Amerindian groups encountered by travellers in the 19th century were speakers of the Aruakan, Cariban, Tupian and Jean languages, which points to a quite varied linguistic mosaic.[14]

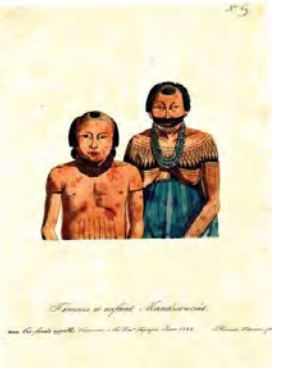
Although the Tapajó fiercely resisted Europeans in their initial encounters, the effect of European presence and colonization proved disastrous for the indigenous peoples of Amazonia. It is estimated that 90% of Amazonia's indigenous population were decimated following the contact (Denevan, 1992b: xxix). Such a massacre, which is unprecedented in human history, would have been caused primarily by contagious diseases (Crosby, 1976; Denevan, 1992a). Missionary chronicles repeatedly mention the desolation brought on by smallpox, influenza, measles, and tuberculosis.[15] The

[13] The discovery of *muiraquitãs* in Guarantã do Norte led Méndes (2003) to suggest that these interaction networks would have extended much more towards the south.

[14] The predominance of Tupi-Guaranian and the Munduruku languages along the Tapajós River seems to have taken root after the conquest, between the 16th and 18th centuries. Similarly, the arrival of Jê groups is associated to territorial changes resulting directly or indirectly from the arrival of the Portuguese from the 17th century on (Francisco Noelli, personal communication, April 16th 2014).

[15] See Betendorff (1910 [1693-1699]). In the past, the Portuguese referred to the different types of smallpox as 'pockmarks' (*bexigas*), because of the pocks that erupted on the skin. Those who survived the less severe types of this condition would have a 'pockmarked face' due to the scars; however, more often than not it was a lethal disease.

lack of immunity against infectious diseases was further aggravated by a series of factors, such as the unawareness of forms of treatment and the death of the productive members of their societies, leading to starvation (Crosby, 1976). The spread of diseases did not even require interpersonal contact, for artefacts (such as feathers left behind in rods that were sealed with bee wax in pre-arranged spots, for instance) could easily host disease vectors, such as lice, bacteria or viruses, as is thought to have happened with the Amazonian Gorotire Kayapó in the post-conquest period (Posey, 1987). Diseases were easily propagated through the ancient indigenous commercial routes (Myers, 1988).



Images 3 and 4: Watercolours by French painter Hércules Florence, portraying Munduruku Indians in 1828. Source: Centro Cultural Banco do Brasil (2010).

Located close to the right margin of the Amazon River, between the Madeira and Tapajós Rivers, the Tupinambá –who until then had been in the process of expansion –stopped being referred to as an ethnic group as soon as in 1690 (Menéndez, 1981/1982). The Tapajó were to face a similar destiny in the following decades. In the 17th century, Santarém became the centre of Jesuit operations in Amazonia. Other missions were established in the lower Tapajós and in the region between the Madeira and Tapajós Rivers (Leite, 1943). The displacement of Amerindians into the missions, which was carried out by the Jesuits, brought about new processes of deterritorialisation, which resulted in the demographic shrinking and the political weakening of the Amerindian societies that lived in the region. This process is reflected in the rapid modification of ethnonyms registered by clerics from that

period (Menéndez, 1981/1982; Robazzini, 2013).

Historical sources

Due to the navigation embargo of the Tapajós River by the Portuguese Crown up until the middle of the 18th century (according to the Treaty of Tordesilhas, a large part of the river's course still belonged to Spain), there is little written registry for the region prior to the Treaty of Madrid, which was signed in 1750, moving the Spanish-Portuguese frontier towards the west. This resulted in an almost complete ignorance about the indigenous peoples that until then had lived in the region.[16] With the implementation of Pombal's Directory of Indians, the administration and military personnel started producing textual sources (Porro, 2006); even the secular and regular clerics found themselves subordinated to the colonial administration. This period saw increased – yet intermittent – river traffic propelled by members of colonial society in search of gold as well as the opening of a commercial route between Belém and Cuiabá (Menéndez, 1981/1982).

[16] A noticeable exception is the 'Relação' by Jacinto de Carvalho, from 1719 (in Porro, 2012).

In 1768, José Monteiro de Noronha (2006 [1768]), the general vicar of the province of Rio Negro, registered that in the rapids' stretch of the Tapajós River:

> 'Its lands are still peopled with many nations of unfaithful Indians, of which the most well-known are: the Tapakurá, Cararí, Maué, Jacaretapiya, Sapupé, Hiauahim, Urupá, Suarirana, Piriquita, Uarapiranga.'

Noronha further refers to the 'Maturucu', in the vicinities of the Maués river (*Ibid.*: 40); Horton (1948: 272) interprets this as the first written reference of the Munduruku.

Upon the decree by John VI to open the harbours in 1808, accounts became more numerous because of the advent of organized naturalist expeditions. Nevertheless, these scientists did not recognize that the Amerindian societies they encountered had

survived profound transformations – deriving from processes of conquest and colonization – and had ventured deeper inland in face of the pressures exerted by expansionary fronts that were approaching with the discovery of gold mines in Mato Grosso in the 1740s (Menéndez, 1981/1982) and by means of 'rescue operations', a euphemism to describe the raiding expeditions led by backland dwellers, known as *bandeirantes* in search of Indians to enslave. Influenced by evolutionist ideas (Noelli & Ferreira, 2007), the recently arrived nineteenth-century observers would often depict the Amerindian societies with which they came into contact in a pejorative way, as if they were frozen in time, creating stereotypes that persist to this day.[17] At the same time, they sentenced the inevitable disappearance of these societies (e.g. Coudreau, 1977 [1897]), thus providing an academic excuse for their extermination (Cunha, 2006 [1992]: 134).

Despite these reservations, these sources provide us with numerous accounts of indigenous villages from the post-conquest period that still require investigation in order to study the indigenous history of the region, which is directly linked to its contemporary occupants. For instance, Barbosa Rodrigues observed that:

> 'Within the [Munduruku]… the following malocas18 may be counted by alphabetic order: Cury, Santa Cruz, Uxituba (in this one the Indians are semi-civilized), Boburé, two in the Montanha rapid, Igapó, in the head of the Mangabal rapid, Bacabal, Boa-Vista (below Pacú), Chacorão, Capoeiras and the Iri ones. The most populated one is that of Baccabal, although some are extinct, such as the one on the mouth of the Juanxim and the one in the middle of the Magabal rapid. There, few malocas may be attributed to the Maués, who have taken refuge deep inland for being persecuted by the Munduruku, however, apart from a few disperse families, the following malocas may be found: Boia-açú, Urubutu and Acará. The population in the former may be calculated in 1,200 souls and the second in 500 [sic].'19 (1875: 124)

Archaeological excavations in Mangabal brought to light some pottery that we have

[17] See also Agassiz & Agassiz (1869); Bates (2005 [1864]); Martius (1907 [1832]); Spix & Martius (1981 [1831]).

[18] T.N.: *Maloca* is a type of indigenous communal housing.

[19] There are accounts of non-contacted Maués in the vicinities of Mangabal in the present day.

associated to the Munduruku (Rocha, 2012: 49-50), due to its decorative lozenge, or diamond pattern, which is very similar to the body paintings they use. This interpretation is further sustained by the observation made by Hércules Florence, watercolour painter at the Langsdorff expedition, on their way through the Tapajós River in 1828:

> 'In this journey an inquisitive or scientific mind may observe notable changes in the ceramic ornaments used by the Indians. Those of the Apiacás are constantly made in a right angle; those of the Mundurucus in lozenges, whereas elsewhere their design is irregular, although always of better or worse taste. They are displayed on bowls, vessels and smoking pipes'. (Florence, 2007 [1876]: 272)

As for the Jamanxim River, referred to by Barbosa Rodrigues as 'Juanxim', Father João Daniel (2004 [1722-1766]: 364) mentioned an attack perpetrated by the Jaguaim Indians against the Gurupá, after the latter had fled from the mission of São José dos Maitapus. According to Porro (2007: 54), the Jaguaim have also been referred to as Iaguain and Yauain. Bishop João de São José once mentioned the 'Javains River' (1847 [1763]: 97). We believe that the name 'Jamanxim' may be a corrupted version of this ethnonym. Therefore, although there are no archaeological sites registered in the National Institute of Historic and Artistic Heritage (IPHAN) in the region of the Jamanxim River, any allegations that the area is devoid of archaeological relevance is highly questionable, considering the abovementioned remarks and the name of the river itself.

Further references to past Amerindian occupations on the Jamanxim river may be found in Coudreau (1977 [1897]). The traveller noted the process of territorial expropriation triggered by the rubber economy expansion, which resulted in new displacements of indigenous groups, who were increasingly forced to seek refuge in the headwaters of the rivers:

> 'The Parintintins currently do not descend beyond the Caí [rapid in the Jamanxim River, where another dike is planned for]. There, they were attacked three or four years ago; the civilized men held a veritable massacre, but the Indians fought bravely./ In the past, they used to descend further below, as far as the mouth of the river. /[…]/ The

> Mundurucus from the Crepori often ventured in the forest up until the Tocantins [a tributary of the Jamanxim], close to where their malocas are nowadays. They go there to hunt and they might have settled there already./ It seems that it is in the headwaters of the Jamanxim, the Crepori, the Rio das Tropas and the Cadariri where the Indians live. During the summer, they travel in search of game and adventures; when winter comes, they go back to their forest between the Tapajós and Xingu –it is thought, however, that they come from the former's valley'. (Ibid.: 30-31)

Palimpsests

Although these are just a few of the many examples available, they demonstrate that we are dealing with palimpsests in terms of spatial occupation – something that has already been acknowledged by Stuchi (2010) in his collaborative research among the Kayabi in the lower Teles Pires river, where a further 34 archaeological sites have been registered by the author. The humanized landscapes of the Tapajós Valley represent layers of occupation and memory.

We confirmed this recently when we visited the Munduruku of Sawre Muybu, who live above an archaeological site with Indian black earth. This strategy follows a historical occupational pattern, already referred to in the 19th century (Hartt, 1885). There are several direct and indirect accounts of the Munduruku preference for black earth areas (Frikel, 1959; Hilbert, 1957 and Melo & Villanueva, 2008). In fact, the Munduruku have a word for black earth: *katomb*. In Sawre Muybu, chieftain Juarez Saw Munduruku explained to us that the choice of that place was motivated by the presence of *katomb*, because *katomb* areas are fruitful – that is a criterion that takes into account the well-being of the next generations that will live there.[20] Therefore, the choice of location was not random; it was based on the environmental knowledge that was inherited from previous generations. Additionally, in Sawre Muybu, archaeological pottery sherds containing lozenge patterns, which were spread throughout the village extent, were shown to us, suggesting that the Munduruku had already chosen to inhabit this territory in the past; possibly, their land had been

[20] Juarez Saw Munduruku, personal communication, March 12 2014.

expropriated with the advance of the rubber economy in the region. It seems likely to us that the aforementioned citation by Barbosa Rodrigues of an abandoned Munduruku village in the proximity of the Jamanxim River may refer to this exact location, which has not yet been recognised by the State. The Munduruku of Sawre Muybu have been awaiting demarcation of this land for years, a delay that in many ways hinders the exercise of their citizenship.

Final considerations

With this brief synthesis, we hope to have demonstrated that the limited number of archaeological sites registered in the Tapajós Valley should not be interpreted as having little patrimonial relevance, but rather as lacking information.[21] It is important to highlight that it will take many years before we have an in-depth knowledge of the archaeological heritage in this vast region. In view of this, proposals that lead to the weakening of archaeological heritage protections in the environmental licensing processes are worrying, for areas of large historical value – which have not been previously registered – would be even more exposed to degradation by the dereliction of public power.

The traditional communities and indigenous peoples – among them, the Munduruku, the riverine and backland dwellers – who currently live above archaeological sites in the Tapajós Valley or next to them compose the vast palimpsest of human occupation in the valley. A reflection on the significance of the archaeological heritage for the forest peoples that inhabit the valley becomes necessary in this search for the adequate conservation of the cultural and environmental heritage of the region. If it were not for them, the value of the knowledge produced through the aforementioned archaeological registries would be significantly reduced, and the likelihood of acquiring a better archaeological knowledge of the region would be lost.

[21] The archaeological sites that are registered at IPHAN's National Registry of Archaeological Sites are still scarce in the region threatened by the CHT and the dams in the formative rivers, such as the Teles Pires and Juruena (search the URL: <http://portal.iphan.gov.br/portal/montaPaginaSGPA.do>).

The 'retrieval' of archaeological materials in 'rescue' excavations, associated with environmental licensing processes, will not solve the preservation issues of the sites. Considering that many of these vestiges are either directly related to the peoples that currently live in the region or have important meaning to them, 'rescue' archaeological surveys run the risk of becoming new forms of expropriation and looting, this time, against the cultural heritage of the forest peoples, whose rights as citizens have been historically disrespected by the State.

[*article concluded in July 2014]*

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Chloé Nicolas-Artero[1]

Water Conflicts in the Elqui River Watershed: New Water Territories Challenging Chilean Water Institutional Framework [2]

Chilean extractive development model remains on a neoliberal water-management institutional framework edified by Augusto Pinochet's dictatorship and perpetuated by the Concertation of Parties for Democracy governments (Tecklin et al. 2011). This model therefore appears as an example of new forms of extractivism in Latin America (Gudynas 2011), which can be defined as a "patrón de acumulación basado en la sobreexplotación de recursos naturales, en gran parte no renovables, así como en la expansión de las fronteras hacia territorios antes considerados como «improductivos»"[3] (Svampa, 2013:33). It was implemented during the dictatorship by means of structural reforms opposed to the Unidad Popular government policies headed by Salvador Allende. Several laws encouraged foreign investments to develop new strategic export industries such as mining, agriculture, hydroelectric energy, forestry or pisciculture (Quiroja 1994). Moreover, the current constitution, enacted in 1980, represents the core of the neoliberal institutional framework currently shaping the Chilean state (Moulian 2002).

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[3] "Pattern of accumulation based on the exploitation of natural resources, mostly non- renewable, and the expansion of borders towards territories previously considered "unproductive".

This article aims to analyze the plurality of water conflicts existing at the watershed level in an extractivist context. It is based on ethnography of water organizations from the Elqui River watershed in Chile, realized for my doctoral researches. My purpose is to understand how water governance is associated with a normative and cognitive power structure and generate contradictions between water users. I argue that those conflicts can create new collective actions which may found new spaces of identity and legitimacy, and a new material and ideal definition of water. Those news water territories may become a base for new water governance.

Water and electricity are essential resources for extractive companies, mostly used in production processes, particularly to extract minerals and irrigate lands. The water code of 1981 implemented a commodification of water in order to guarantee the concentration of water rights (Bauer 2002, Budds 2004) into the hands of extractive companies. On one hand, the code separates land tenure from water rights. It therefore creates a water market that incites water right holders to strategically use them, allocating them to business areas deemed to be more productive and beneficial for the country. Nevertheless, the appropriation and concentration of water rights not only results from market mechanisms. In fact, water rights have been distributed by the *Dirección General de Aguas* (DGA) to extractive companies in 1980 and 1990 (Bauer 2002, Prieto 2015). In doing so, the DGA didn't take into consideration current water rights on watershed, leading to an overexploitation of underground and surface water resources. On the other hand, the code establishes a difference between consumptive water rights and non-consumptive water rights in order to guarantee water access for hydroelectric companies (Bauer & Prieto 2012). The non-consumptive water rights force companies to return the water to the stream without deteriorating water quality or affecting its amount.

Regarding water resources and drinking water distribution services, the water-management institutional framework grants a prominent role to community organizations. Some of these organizations are in charge of distributing the water resource and maintaining collective infrastructures. At the watershed level, the *Junta de Vigilancia* is responsible for distributing water from river to irrigation canals. *Comunidades de agua* or *Asociaciones de canalistas* have to distribute water from

irrigation canals to water rights holders, usually farmers. In these organizations, the general assembly makes decisions and elects a board of directors. The internal institutional structure is hierarchical: The *Junta de vigilancia's* assembly is composed of the directors of both *Comunidades de agua* and *Asociaciones de canalistas.* Each water rights' holder has the duty to pay a monthly contribution for the *Asociación* de *canalistas* or *Comunidad de agua* and for the *Junta de Vigilancia* in order to finance collective infrastructure maintenance and to fund payment of wages for the person in charge of water distribution.

In rural areas, a distinct kind of community organization is in charge of the distribution of drinking water to its members. Rural Drinking Water Committees or Cooperatives[4] were created in 1964 by the *Programa de Agua Potable Rural.* In this context, the *Ministerio de Obras Publicas* finances the well drilling of Committees, and those one, as non-profit organizations, provide funds for the maintenance and the extension of water network through the benefits of water billings. This reality contrasts with the situation in urban areas where water and sanitation services are guaranteed by water private corporations. In 1998, the government of Eduardo Frei Ruiz-Tagle decides to privatize regional public companies in charge of drinking water services and to establish that new private companies would become the only actor to provide technical and administrative support to Committees (Jouravlev, 2007).

In this context of commoditization and privatization of water, water conflicts have increased in Chile in the past 15 years. Carl Bauer (2002) argued that until the year 2000, water conflicts only unfolded in ordinary courts opposing water holders, therefore depicting "judicialization of water conflicts" in the neoliberal Chilean framework. Nevertheless, it seems clear that water conflicts are currently taking different shapes, and appear to follow the patterns of socio-environmental conflicts, involving multiple actors with a higher capacity to intervene within the public and political arenas at the local, regional and national levels (Bauer 2015).

[4] In Spanish: Comités and Cooperativas de Agua Potable Rural. We will use Committees as an abbreviation.

Literature about socio-environmental conflicts focusing on water access inequalities or water resource overexploitation and dispossession abound. NGO's reports which identify the main conflicts and confrontations between local residents and extractive companies have certainly contributed in framing new research areas (Programa Chile Sustentable 2010). Numerous studies describe the history of conflicts and the causes of confrontations between local communities and extractive projects (Yañez & Molina 2011, Jimenez 2012, Torres 2009, Carmona 2014, Budds 2012). Other studies focus on a new type of social movements characterized by their territorial and environmental claims (Salinas & Carmona 2009, Romero 2009, Gomez et al. 2014, Bottaro et al 2014). Despite their contributions, investigations too often remain one sided and leave aside some actors involved in water distribution processes. Such investigations posit conflicts as negative social realities, and leave aside their productive aspects (Aliste 2014, Simmel 2010).

Through an ethnography which currently leads me to spend several months within water organizations and among users at the watershed level, a multiplicity of water conflictual situations can be observed (Martin & Justo 2015), some of which are poorly investigated (rural drinking water committees versus private water companies, *Junta de vigilancia* versus *Asociaciones de canalistas* and *Comunidades de agua*). Beyond legal conflicts, daily and informal micro struggles and resistances are important because "water rights embody social and power relations (they organize inclusion and exclusion), they contribute to constituting and profiling power relations in water society (...); and they are shaped by the way power is socially/culturally organized in water governance practices" (Boelens, 2015: 5-6). This article aims to analyze the plurality of water conflicts existing at the watershed level in an extractivist context, in order to understand how the Chilean water-management institutional framework is based on the implementation of a normative and cognitive power structure, which is generating contradictions between several water users. These contradictions may become a source of conflicts which, despite not necessarily becoming important social movements, may be the detonator of local social changes and territorial redefinitions or repossessions (Prieto 2015). Borrowing from the work of Georg Simmel (2010), I adopt a positive vision of conflicts, and as Enrique Aliste and Caroline Stamm (2014,

2015) have proposed, I argue that conflicts can create public spaces for debate and thus generate social and spatial proximity between different water users. New collective actions may lead to a territorialization process, generating new spaces of identity and legitimacy that could reconfigure water governance based on a new material and ideal definition of water. This article questions the way in which water conflicts can be the root of social change through processes of territorialization which question the extractivist mode of accumulation, drawing on the case of the Elqui River watershed, located in the arid region of Coquimbo, 450 km north of Santiago. This valley has been a grape production site, as well as gold and copper for their exportation to Asian and North American markets (Bugueño y Jimenez 2014) since 1980. Currently, 30 Committees, 2 *Juntas de Vigilancia*, 2 *Asociaciones de Canalistas* and more than 200 *Comunidades de agua* manage the watershed.

The Roots of Water Conflicts in the Elqui River Watershed

a) A Typology of Water Conflicts

In the Elqui Watershed, I have noticed a plurality of water conflicts. Each conflict could correspond to one abstraction level of Boelen's "Echelon of Rights Analysis" (Boelens 2015), although, as he underlines, each echelon interacts with each other and "the chain of echelons together shows the case-particular elements of water rights struggles: there is a battle over the material control of water use systems and over the right to culturally define, politically organize and discursively shape their existence" (Boelens 2008: 50).

	ACTORS	CONFLICTS	"ECHELON OF RIGHTS ANALYSIS"
1	**Drinking Water Organizations**	Inter- organizations: Water Committees or Cooperatives VS Private Water Companies	*Regulatory Control*: struggle over decision-making authority and legitimacy of rights systems

2		Between members of organizations	*Rules*: contest over the formulation and contents of water rights and operational norms
3	**Water Resources Organizations**	Inter – organizations: Junta de Vigilancia VS Asociaciones de canalistas, Comunidades de agua	*Regulatory Control*: struggle over decision-making authority and the legitimacy of rights systems
4		Between members of organizations	*Rules*: contest over the formulation and contents of water rights and operational norms
5	**Water Users**	Inter users	*Resources*: struggle over water, infrastructure, and other material means
6	**Civil Society**	Activists VS State	*Regimes of Representation*: diverging discourses that defend or challenge particular water policies, normative constructs and water hierarchies

First, conflicts arise between different actors in charge of water drinking distribution services: the tension is palpable between workers of the water private company, *Aguas del Valle*, and Committees in charge of drinking water distribution in rural areas (1). Since the privatization occurred, the Technical Unity of the company has to train Committees on technical and administrative aspects. Meetings between workers and Committee tend to become more conflictual. Leaders contest the increase of exigencies on management and the lack of knowledge about local realities. According to them, these developments may lead to "institutional isomorphism", which could facilitate the privatization of Committees in case private company were to acquire them (Laville 2001).

These power relationships, which reveal different water management views, may lead to internal conflicts within Committees (2). For instance, members who intend to modernize intern management and to improve current infrastructures, following Technical Unity recommendations, despite the rising price of water, confront members who would rather keep things simple as they are. Another example revolves around the power conflicts that take shape around the elections of the board of directors. Reaching the position of president of the Committee guarantees an important social position, as the organization is one of most important social

institution on rural areas. These conflicts reveal differences on water management views which are closely related to representations associated to water, which are often narrowed down to an economic commodity or a common.

Secondly, conflicts arise between actors in charge of the distribution of the water resource. On the one hand, the hierarchical institutional structure itself composed of *Junta de Vigilancia* and the *Comunidades de agua* or *Asociaciones de canalistas* are often a source of conflicts (3). Members of the *Comunidades de agua* stress the dysfunction of mechanical doors which should regulate water flows entering in irrigation canals. Sometimes, water flows do not correspond to the farmers allocated water rights. Furthermore, they criticized the "desmarques" measure system, which allocated only a part, defined in percentage, of the total of their water rights. Lastly, the *Junta de Vigilancia* targeted the non-collaborative nature of some leaders, regarded as old inhabitants with outmoded mind and refracting to change.

One the other hand, internal organizational conflicts between members seem to happen (4). Within the *Junta de Vigilancia*, the main power relations oppose mining users to agro-industrial users, thus reflecting water use conflicts. These actors compete for both water access and for the use of the electricity produced by the hydroelectric company in Puclaro dam, which belongs to the organization. In fact, agro-industrial companies use the electricity to propel water on the slopes of the mountains. Moreover, as is the case for Committees, internal *Comunidades de aguas*' conflicts oppose people for power motives (related to leadership) or for contrasting water management and water views. Some members refuse to implement projects to install new technologies in order to improve efficiency in water use and distribution, arguing that the shortage of water originates from water overexploitation. They therefore refuse to pay the monthly increase needed to fund such projects.

Other struggles concern the access to water resources (5). Mining industries, agro industrial companies, the private water company Aguas del Valle, and other users are fighting for the appropriation of water rights. In the Elqui valley, most of superficial water rights are used by the agricultural sector. In a context of a decrease of superficial water flow, caused by the drop of rainfall or upstream water overexploitation, news

conflicts emerged concerning the sharing of superficial and underground resources. In fact, for farmers the underground water pumping by mining and private water companies contributes to accelerate the infiltration of water brought by irrigation canals. In order to decelerate this process, the *Junta de Vigilancia*, with the help of the *Comision Nacional de Riego*, implements projects consisting in getting water from canals to plastic impermeable tubes. Holders of underground water rights, as for instance Committees, argue that this canalization process will impeach aquifer recharge. In recent years, one important conflict illustrates this in the Elqui valley. At El Culebrón aquifer, downstream of the river, water extraction by Carmen de Andacollo mining company leads to groundwater overexploitation and the privation of water access for other users, as particularly Aguas del Valle and Committees whose well drilling where near but less deep than the mining ones (Ferreira and Villaroel, n.d).

Finally, several environmental associations have been created by activists from cities such as La Serena, Coquimbo or Vicuña, to denounce new infrastructure projects which may be harmful for the environment, and to defend the valley's natural resources (6). For instance, they criticize water canalization projects, the construction of a bio-oceanic tunnel called "*Aguas Negras*" between Argentina and Chile implemented by the *Iniciativa para la Integracion de la Infraestructura Regional Suramericana*[5], the use of pesticides, and the socio-environmental impacts of mining exploitation. Their main claim is the end of the extractive mode of accumulation in the valley.

b) Commons Causes: The Extractivist Mode of Accumulation

Despite the fact that, among all actors interviewed, only activists develop a well-constructed argumentation criticizing the harmful effects of extractivism, I notice that this mode of accumulation in Chile has provoked social and territorial

[5] www.iirsa.org

transformations, associated with the modification of water norms and perceptions, which lead to the water struggles evoked earlier.

First of all, the existence of Committees and private water companies, and the conflicts which oppose them, has started with the urbanization process induced by the extractivist mode of accumulation. The installation of agro-industries on the valley is made possible throughout a complex dispossession process of small farmers' lands comparable to an "accumulation for dispossession" process (Harvey 2010). The degradation of livelihoods leads to the impoverishment of local families. Their descendants were often forced to migrate to find employment in the nearest cities. This rural exodus vacates cultivable lands and superficial water which will be later appropriated by agro-industries (Jimenez, 2012). The pollution of superficial water by pesticides and mining toxics residues has been the reason why Committees use only well drilling to give drinkable water to rural inhabitants. Groundwater resources are considered of better quality and need an easy purification process by chlorination. These new community drinking water distribution systems lead to the concentration of population around Committees, thus forming new small urban areas reinforced by the construction of social housing by the *Ministerio de Vivienda y Urbanismo* close to them. This urban concentration process in medium rural cities lead to a social phenomenon called "neo-ruralization for export" (Daer, 2014), referring to those cities where the economy, and therefore the workforce, is driven mainly by mining, agricultural industries and services associated to them. The same applies to the conurbation of La Serena-Coquimbo which is based on trade activities and development of infrastructures and industries to sustain export, as for instance the port of Coquimbo. Since 2000, a new tourism industry and the growth of population have provoked an urban expansion process.

Since 1990, with the influence of the neoliberal referential thinking, water and sanitation services have been seen as being efficient only while performing a private management pattern (Boelens, 2015). Industries and trade development in the cities as well as the rise of water demand have increased the urgency to install water sanitation that would prevent situations of insalubrities and contamination (Jouravlev, 2007). This urgency has legitimized the privatization of regional public

water companies by foreign groups specialized on this topic and are appreciated as more competent to provide sanitation services. According to the law, urban sprawl could lead to privatization of Committees in two cases. Firstly, if Committees become localized in rural areas after land-use planning changes. Secondly, if Committees need to connect their water network to private companies in case they weren't able to respond to increased water and sanitation demand.

Furthermore, the conflicts within the *Junta de Vigilancia* and *Comunidades de agua* are caused by the organizations' decision-making model introduced by the water code in 1981. It allows more important water rights holders to possess power as it establishes that "one water right equals one vote", as opposed to "one member equals one vote". The conflicts, drawing from different water management conceptions, are produced by the will of some members to improve water infrastructures financed through credit. These views rest on the valorization of modern water management by technology integration. This should improve efficient water use, reallocate it for the export industry and legitimize the disengagement of the state in water governance following neoliberal advocations (Vergara Blanco 2014).

Finally, the conflicts between mining and agricultural users' results from the competition for water resource access occurring in production processes. Mining companies utilize water through a leaching process in order to extract minerals from rocks. Agricultural companies utilize water in new irrigation technologies allowing a more efficient use of water. Nevertheless, the consequence isn't a reduced water demand, as it leads to an extension of agricultural land.

2. Are Conflicts Challenging the Roots of Extractivism?

A. Water Conflicts: Making New Territories of Solidarity, Regulation and Contestation

As a result of these disputes, several holders of water rights, or water users, with common interests have founded new water social organizations. Their actions demonstrate the existence of important social changes and new water territories, even though they don't constitute necessarily a critique to the foundation of the extractivist mode of accumulation.

First of all, Committees of the Elqui River have constituted their association in order to create an organization for mutual aid and share experiences. The main goal is to develop a solidarity fund which may help to reduce internal management charges and help Committees in the event of an unexpected problem. Their members underline the harmful effects due to both the lack of State government in water management and to the role of Aguas Andinas's Technical Unity in charge of assistance. It should be noted that the association is built in opposition to Technical Unity itself and not to extractivism or water services privatization.

Following the conflict in El Culebrón aquifer, the *Comisión Nacional de Riego* proposed to create several underground water communities downstream in Puclaro's dam. According to the water code, those communities are composed of holders of underground water rights, whose role is to define water extraction rates in accordance to the level of groundwater table. That would consist of applying "desmarques" measure system for underground water uses. For *Aguas del Valle* Company and Committees, integrating this type of committees may guarantee them a water resource access and consequently the human right to water. It should be noted that this new community is a partial solution to water overexploitation and not an alternative for extractivism.

A few years ago, socio-environmental organizations of the valley started working in a network with other organizations from the Coquimbo's Region. Since 2016, they have created the Macro Zona Norte Chico, a regional organization which gathers local organizations in water national movement called "*Movimiento por la Recuperación del Agua*", created since 2013. The territorial extension of the mobilization and collective actions lead to the broadening of their claims. In fact, they created a common platform for the sharing of strategic knowledge and juridical experiences and set a baseline on the growing awareness around socio-environmental conflicts throughout the country. The water code and extractivism therefore became the main focus of contestation. Collective thinking between activists peaked in a critic of the whole political and economic system which resulted in the framing of a common claim: the repeal of the Chilean Constitution.

B. Little Convergence of Struggles and Soundless Water Conflicts

Despite the fact that water conflicts in the Elqui watershed affect a plurality of actors and have common roots, there doesn't seem to be a strong social mobilization against the extractivist mode of accumulation. That may be due to an absence of awareness on the common roots of socio-environmental problems which affect all inhabitants. Thus, one of the challenges for activists from socio-environmental organizations is to bridge the struggles of the working classes forced to sell their labor power to mining and agricultural industries. This challenge seems to be hard to overcome because of differences and contrasts between socio-economic profiles of activists and working class people. Activists are often new in the valley. They have a high level of college education but choose to become artisans or develop tourism activities to live in rural areas. According to Di Méo and Buléon's (2005) typology, they are "transitional actors" in contrast to "endogens actors" formed by social local leaders and local inhabitants who are "born and grown" in the Valley. Their struggles take place within community based organizations as *Junta de vecinos*, Water Committees, Mothers Associations and they share with activists, for now, few common claims.

Despite all those conflicts, until 2016, no NGOs had worked on water conflicts in the Elqui valley. This fact underlines the limited definition which NGOs use to elaborate their mobilization strategies. In this sense, they operate a selection of the causes that seem worth fighting for according to their future work projects or media visibility advantages. These NGOs often play an important role in structuring and amplifying socio-environmental conflicts. In fact, they fund research projects about environmental issues, organize conferences on the topic of conflicts, legal and legislative monitoring, or practical training to reinforce action and mobilization capacities of activists in the juridical or the organizational field. Nevertheless, my fieldwork reveals that their intervention criteria target three specific cases: a model of affirmative action towards ethnic groups in the North; the actors responsible for the issues, such as mining transnational companies; and specific infrastructural projects in rural areas. Those affected populations are often attractive and sensational for the media and represent an opportunity to make visible the organizations defending their cases. The clearer juridical and political qualification to bring claims courts or

authorities is the better. NGOs are rarely interested in water conflicts linked with water communities or water Committees. When they do intervene in local affairs, they support activist discourses and have few relations with endogenous actors from the working classes.

Reflections

Conflicts are structuring our societies. At the watershed level, they manifest themselves with more or less violence and visibility, between all water users. Neoliberal legislative transformations implement a new development model throughout natural resource appropriation provoking territorial mutations. To allow this, natural resource management institutional frameworks have been transformed, particularly the one concerning the management of water. Changes affect water rights distribution rules but also, at local level, distribution rules and internal structure of water community organizations, generating new water views.

Despite the plurality of water conflicts, I observe two water views and two water management valorization, both internally opposed to one another, which seem to represent the contradictions of the extractivist mode of accumulation in the field of water. The first one valorizes the improvement of infrastructure employing news technologies in order to realize an efficient use of water – a consumption adjusted to demand and a reduction of water leakage for domestic or productive uses – in order to reallocate water rights to extractive industries able to pay for them. Water is viewed as an economic good because water price - defined by Committees, private companies or monthly contributions - has become the tool for producing fictitious scarcity and is legitimized by discourses – the necessary modernization, minimization of water wastage during drought – which occults its reallocation to extractive industries. The other water view defends recreational and landscape water uses and a consumption without restrictions throughout the utilization of simple infrastructures and traditional irrigations canals, allowing a low water price. Activists and a large part of endogenous inhabitants, who remember passed forms of water distribution, consider water as a common.

Regulation, solidarity or contestation territories propose materials solutions but don't converge in new forms of governance nor do they claim to abolish extractivism, therefore failing to create new common water views. Although the State products the neoliberal normative and cognitive power structure, all solutions are established outside of it, according to the neoliberal thinking which valorizes auto-organization and the disengagement of the State on service production. Activists who are more organized and critical are often disconnected from social bases and advocate for an a-politicism and away from political parties that make it difficult to build a political and massive alternative to break away from extractivism and the neoliberal ideology.

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CÉLINE DELMOTE[1]

Small-scale gold mining, mercury exposure and the Struggle for the Right to Water in the Peruvian Amazon2

Since the 2008 financial crisis, increase in global demand and the price of gold have led to an expansion of industrial and artisanal gold mining (Swenson et al., 2011; World Gold Council, 2010). Worldwide, Artisanal and Small-Scale Gold Mining (ASGM) is carried out by an estimated number of 15 million miners in more than 70 countries (UNEP, 2015; Diringer et al., 2014) and accounts for 15 percent of the world gold production (Telmer, 2011). In Peru – which is currently the sixth largest gold producer in the world and the first in Latin America (Mujica, 2014) –, 70 percent of national artisanal gold production is mined in the department of Madre de Dios, located in the southwestern Amazon basin (Brooks et al., 2007).

Since the 2000s commodities boom, Madre de Dios, considered one of the most biological places on the planet, has indeed experienced a rapid development of ASGM operations which have transformed large expanses of rainforests into denuded and mercury-poisoned wastelands (Asner et al., 2013; Elmes et al., 2014; Román et al., 2015). It is estimated that as many as 30.000 miners are working in this region (Fraser, 2009) and are using mercury to recover gold from the river sediments or solids extracted. Numerous studies show that mercury levels found in fishes and inhabitants of Madre de Dios are above the maximum levels recommended by the

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World Health Organisation (WHO) (Damonte et al., 2015; Diringer et al., 2014; Ashe, 2012), therefore due to ASGM, artisanal miners as well as local population are exposed to dangerous levels of mercury contamination.

As a consequence, socio-environmental conflicts between miners and downstream population (farmers, indigenous communities, logging concessions, reforestation, conservation or ecotourism concessions) are increasing in Madre de Dios, especially water-related conflicts. Indeed, because of the mercury use and mining techniques, ASGM causes serious violations of the Right to Water and Sanitation – declared fundamental human right in 2010 - and leads to numerous conflicts linked to access to and defense of water resources.

Little is known in Madre de Dios about water conflicts between miners and logging concessions. In fact, mercury is known to cause many conflicts with indigenous communities, farmers, reforestation/ecotourism concessions, but at present there is little empirical data to describe the relations between miners and logging concessions and their respective strategies regarding to water. So the aim of this article is to examine the principal components of water struggles between miners and logging concessions in the Peruvian Amazon (Madre de Dios) and by what means these struggles are resolved. In this sense, this study addresses the following questions: (1) What are the triggers of these water-related conflicts and their main characteristics? (2) How are these conflicts carried out? (3) What are the different interests at stake and their link with the Right to Water and Sanitation? (4) What are the strategies established by the two parties in order to resolve the conflicts?

Methods

1. Study area

The Madre de Dios Department is located in the headwaters of the tropical Amazon in the Southeastern Peru, bordering Brazil and Bolivia. It is one of the world's biodiverse region and is Peru's designated "Capital of Biodiversity" (Federal Law 263111). Madre de Dios is in fact recognized as a prioritized biodiversity hotspot for conservation (Myers, 2001) due to its remarkable wild fauna and flora and its

relatively low deforested area (4.75%). In addition to this high biological value, Madre de Dios also has a rich mosaic of cultural diversity, including indigenous communities and some of the last uncontacted indigenous groups living in voluntary isolation (Shepard et al., 2011 ; Huertas, 2002). Around 3% of the population is indigenous, made up of eight different ethnic groups organized into 24 recognized native communities (Brack, 1997). Prior to mid-1940, the department had few inhabitants and low development. However, the department has experienced a significant growth for the last sixty years (its population increased more than fourfold between 1940 and 2007 – INEI, 2007), due to the construction of a road leading into the region, government subsidies for agricultural expansion (Cronkleton and Larson, 2015 ; Chavez and Perz, 2012) and the successive extractive "booms": wood, Brazil nut and gold.

Small-scale gold mining, appeared in Madre de Dios in the 1930s, has been its main economic activity since the boom of the 1970s. However, with the significant increase in the international gold price in the 2000s, a real gold rush has occurred in the department: ASGM and its opportunities of rapid enrichment have been attracted thousands of people. According to Ashe (2012), "*poor migrants from different regions of Peru are flocking to the Amazonian department of Madre de Dios to find their fortune as artisanal gold miners*". In 2007, the number of immigrants amounted to 44,985, which was 56% of the total population that year (INEI, 2007), most of them coming from the Andes (Cusco and Puno departments) driven to Madre de Dios by a lack of economic opportunities, poverty and unemployment, in their village or district. Therefore, due to immigration, Madre de Dios has currently the highest population growth rate in Peru (4.8%), almost 2.5 times the average national growth rate (INEI, 2007), most of it dedicated to ASGM. Unconfirmed reports have estimated that ~95% of gold operations in the department are illegal because the miners either lack the proper permits to run their operations or because they are working outside authorized mining concessions (Keane, 2009). Since 2012, the central government has tried to regulate ASGM in Madre de Dios by promoting the formalization of some 30 000 illegal miners who are working in Madre de Dios

(Urgent Decree 012, Legislative Decrees 1100 and 1102[3], Supreme Decree 013-2015 among others) but its actions have led to intense social and political conflict. Indeed, mining activity has created tens of thousands of local jobs, generates an estimated US$369 million in annual revenue (Mosquera et al., 2009) and makes up nearly 50% of all regional economic activity (GOREMAD, 2009). Due to these jobs and revenues generated as well as the growing demographic weight of immigration, local mining industry has become the region's dominant socio-political force (Scullion et al., 2014). As a matter of fact, in 2014, a candidate backed by miners' groups – Luis Otsuka – was elected as Governor of Madre de Dios. Former head of the illegal miners' union and owner of several mining concessions in the department (Torres, 2016), Luis Otsuka often leads the regular miners' protests and strikes against the formalization norms (and use of force) promoted by the Peruvian government since 2012. As a result of his policies, the state-driven formalization of ASGM has not made significant progress in the department and remains at a standstill.

Within this social and political context, the different population groups of Madre de Dios are extremely vulnerable to mining activities. Indeed, ASGM not only impacts the native communities or groups living in voluntary isolation in protected areas or communal reserves, but also a variety of local actors from farmers to reforestation, ecotourism, brazil nut harvesting, conservation and logging concessionaires. To better understand these impacts and, further on, the water struggles between the logging concessionaires and miners, it is here important to mention that in Peru, concessions have been granted by the government (or other controlling authority) to individuals or organized enterprises since 2001 in order to improve sustainable forest management (SFM). In this sense, these concessions can be seen as a delegation to the private sector for fulfilling certain missions of public service – SFM – against the right to get financial benefits from their respective activities (reforestation, ecotourism, Brazil nut harvesting, conservation or logging) (FAO, 2001). Regarding to logging concessions, they have been granted to small and medium-scale loggers

[3] The national government declared through LD 1100 that taking actions against illegal mining was a national priority and later the same month enacted LD1102 which incorporates both illegal and informal mining into Peru's penal code and set sentence guidelines for convictions.

since 2002, making them stakeholders of the forests of the Amazon region. These concessions, awarded through public bidding, are thus areas of public land that are designated for permanent timber production. A concession contract is valid up to 40 years and implies the payment of an annual area-based harvesting fee. In addition, "*logging practices of concessionaires are evaluated every 5 years to ascertain compliance with an Approved Forest Management Plan (PGMF) for the whole concession area, and an Annual Operational Plan (POA) for the annual authorized harvesting area*" (Smith et al., 2006).

2. Data collection

The study was carried out in Madre de Dios from February to May 2012 and consisted of a mixed–methods approach combining structured questionnaire, semi-structured interviews, direct observation and a review of secondary sources. Indeed, first of all, primary data was collected through a structured questionnaire administrated to eight logging concessionaires located in the Tambopata province, along the Madre de Dios River. The aim of this questionnaire was to determine the geographic localization, financial situation, management characteristics as well as opportunities and threats to the logging concession. Second, semi-structured interviews with regional government agencies, NGOs, university researchers, mining enterprises, independent miners, forestry professionals and logging concessionaires, as well as primary data sources produced by them, complemented the survey. Third, a field visit/evaluation of the logging practices was carried out in each of the eight logging concessions mentioned above, as well as a direct observation of environmental degradation (mercury contamination of water, deforestation, etc.) caused by informal/illegal miners within the logging concession. Finally, information on ASGM, SFM, Right to Water and water conflicts in Madre de Dios was obtained from secondary sources as well as from informal discussions with inhabitants of the study area (miners and their wife, shop or restaurant holders, national parks wardens, etc.).

Water rights and water fights: an analytical framework

Discussion of water conflicts between logging concessions and miners, due to serious violations of the Right to Water and Sanitation (RTWS) in ASGM, requires first a short introduction to two key concepts: RTWS and water-related conflicts.

1. Right to Water and Sanitation

Internationally, water and sanitation have been for long time a side issue on the international agenda, ignored in the debate about human rights (Kirschner, 2011). It was not until 2002 that the UN Committee on Economic, Social and Cultural Rights and its general comment No. 15 expressed the right to water as the "*right of everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses*" (UN, 2010). Based on that definition and as a result of several conferences on Water during the 2000s, the Right to Water and Sanitation is finally recognized as a fundamental human right in 2010 by the UN General Assembly Resolution[4].

Legally, the Right to Water implies three principal aspects[5] : availability, quality and accessibility. First, water must be supplied in sufficient quantity for personal and domestic needs; second, it must be of adequate quality. "*The water required for each personal or domestic use must be safe, therefore free from micro-organisms, chemical substances and radiological hazards that constitute a threat to a person's health*"[6]. Third, water and water facilities must be accessible to everyone without discrimination (physical, economic and information accessibility).

These aspects are the key characteristics of the Right to Water and Sanitation (RTWS) and must be respected, protected and fullfilled by all member States[7]. Indeed, among others responsabilities, States must ensure individuals or corporate bodies do not infringe the water rights of others. In several countries, as a result of the decentralization process, "*the same three obligations apply to the local governments*

[4] A/RES/64/292, see note 6.

[5] E/C.12/2002/11, para. 12 (b).

[6] E/C.12/2002/11, para. 12 (b).

[7] E/C.12/2002/11, paras 23-24.

because they are part of governement or because the national Government has delegated power to them" (UN, 2010).

In this sense, national and/or local governments are in charge of the effective implementation of the RTWS. This implies, apart from a comprehensive regulatory framework, the establishment of "*accountability mechanisms especially including means of judicial or quasi-judicial implementation*" (Kirschner, 2011). Indeed, the RTWS has to be recognized and incorporated into the national legislation but also requires the enforcement of that right, granting an effective judicial protection[8]. The creation of enforcement mechanisms and implication of judicial bodies is what Olmos and Paz (2014) call the "justiciability" of the RTWS. In Peru, the RTWS as such has no explicit recognition in the Constitution. However, under Article 55 of the Constitution, the main international human rights treaties enjoy constitutional hierarchy[9]. Thus, the RTWS is implicitly recognized through universal human rights instruments. Moreover, the right to water is also guaranteed in the internal Water Resources Law (2009) through different principles contained in its article 3[10]. Finally, in 2007, the Peruvian Constitutional Court recognized the drinking water as an unenumerated right, according to article 3 of the Constitution. As a consequence, the RTWS is made justiciable through remedies; right holders should be authorized to make special claims if their RTWS is threatened or denied.

2. Water conflicts

In Latin America, and particularly in the Peruvian Amazon basin, water rights can become very contentious issues. Indeed, conflicts related to access to or defense of water resources are increasing and in most cases result from opposing interests of water users, public or private. Conflict refers here to a situation where at least two

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[8] Harvard Law Review *"What Price for the Priceless?: Implementing the Justiciability of the Right to Water"*, Harvard Law Review, vol. 20 num. 4, 2007, p.1077

[9] Constitution of Peru, Article 55: *"Treaties formalized by the State and in force are part of national law"*.

[10] For example: Water Resources Law, art. 3, para. 2 : *"El acceso al agua para la satisfacción de las necesidades primarias de la persona humana es prioritario por ser un derecho fundamental sobre cualquier uso, inclusive en épocas de escasez"*.

parties interact in an incompatible way, so that at least one of the parties experiences damage from the incompatible interaction as stemming from the other party (Glasl, 2002; Coser, 1956). Regarding to the water-related conflicts, Figueroa (2003) considers that there is a significant interdependence between water users: the behavior of some directly affects the others. According to Wolf and al. (2005) and Estrada (2012), while the underlying reasons for water disputes can be numerous (such as power/control struggles and competing development interests), the most direct link between water and conflict can be attributed to the need for access to water of *adequate quantity* and *quality*. First, a water conflict can appear when a resource is scarce (users compete for a limited quantity) (Mason, 2004). Second, low quality – caused by contamination, suspended solids, excessive levels of salt, etc. – is another source of dispute: unclean water can be a serious threat to human and ecosystem health (Kramer, 2004). In general, water quality degradation implies conflicts between two groups: those who cause the degradation and those affected by it.

Artisanal small-scale gold mining, violations of the RTWS and water conflicts between miners and logging concessionaires in Madre de Dios

Nowadays, the inhabitants of Madre de Dios can be divided into two large categories: the original inhabitants of Madre de Dios who are indigenous Amazonians living in communities recognized by the State, and settlers/migrants (mainly from the Andes) working in agriculture, mining and forest management on either private land or state-approved concessions. According to GOMIAM (2015), these population groups live alongside one another "in a tense environment that sometimes evolves into conflict over resources". Among those, water conflicts between miners and logging concessionaires (both from the second category) are numerous in Madre de Dios and are originated by the use of mercury in ASGM activity. Indeed, during the mining process, mercury is added to large quantities of sediment and soils that have been extracted from riverbanks and forested areas by means of artisanal techniques (mills, sweepers, etc.) or semi-mechanized techniques (water and solid suction, front-loading chutes, lance style sweepers, etc.). At that stage, mercury forms a strong bond with gold particles, called "amalgam" (Damonte et al., 2015). In order to accelerate the

amalgamation, miners generally mix the amalgam while barefoot and handle the liquid mercury with bare hands, coming into direct dermal contact with that chemical element. Then, the gold-mercury amalgam is heated over an open flame, in mining site or in gold shops in town, in order to separate the metals. By doing so, mercury vapors are released to the air, increasing the risk of pollution in the soil, water, animals and humans (Román et al., 2015, Diringer et al., 2014; Ashe, 2012). Thus, regarding to humans, mercury exposure can be dermal, by inhalation of vapor or intake of animal products that contain high levels of methyl-mercury (fishes for example). According to Ashe (2012), the population living downstream from the mining camps – like logging concessionaires – are generally exposed through the latter two pathways, which may cause them serious health problems (harmful effects on the nervous, digestive, respiratory and immune systems, mental and muscular deficiencies, memory loss, skin desquamation, birth defects, early death, microcephaly, etc.). For all these reasons, in Madre de Dios, logging concessionaires consider that ASGM is a threat and violates their Right to Water and Sanitation by affecting the water quality. As it was described above, the RTWS implies three aspects (sufficient quantity, adequate quality and accessibility) and according to the second aspect, everyone must have access to safe and acceptable water, free from chemical substances. Thus, by contaminating waters with mercury, miners do not respect the logging concessionaires' RTWS, which leads to water-related conflicts between them.

In this study, water conflicts were observed between logging concessionaires and either informal or illegal miners. On the one hand, conflicts may appear with informal miners as a result of multiple overlapping land-use rights (Cronkleton and Larson, 2015). In fact, in Madre de Dios, there is little coordination among regional government agencies responsible for granting rights for mining and logging concessions. They lack a common information system, therefore agencies allocate mining and logging rights on a same land without verifying pre-existing claims. However, these miners are not formal, they hold permits issued by local government authorities on logging concessionaires' land but these documents are only the first step in the titling process and formalization. In the eight logging concessions studied,

miners did not pursue additional steps (environmental study, taxes, respect of labor regulations, etc.) and were left with an "informal title" that officially does not give them legal property rights. On the other hand, water conflicts may also appear between logging concessionaires and illegal miners who invade the concession and start to work without any land right, mining license or exploration permit. Their incursion initially consist of a few miners who clear the primary forest in order to make space for more miners (and their engines) and then gradually open up new mining areas in the concession. Logging concessions are miners' ideal targets because "*these are typically located several miles from the roads in order to prevent access by government officials*" (Ashe, 2012).

Considering this, logging concessionaires and miners have thus opposed interests regarding to land-use (timber exploitation VS deforestation and soil extraction), but also regarding to water. While the miners' main concern focuses on accessing to sufficient water resources in order to carry out their extractive work, logging concessionaires insist on defending their RTWS and accessing to water of adequate quality. ASGM indeed requires large quantities of water and implies a direct access to either a river, lake, basin o small swamp. Without water, gold extraction is not possible. In this sense, miners' interest consist of an access to water of *adequate quantity*. Regarding to the logging concessionaires, their principal concern is to live in a healthy environment, free from mercury, and to have access to safe water. To that strategy can be added an economic goal: getting financial benefits from the logging activities; however, if the miners contaminate their water resources and soils, the quality of their forests decreases as well as the price they can get from timber sales. This is a real threat to them considering the fact that, in Madre de Dios, most of the logging concessions already have serious financial and administrative issues (they cannot pay their annual area-based harvesting fee and they do not have their PGMF or POA realized/approved). So it is crucial they have access to water of *adequate quality*, for both their personal well-being and economic activity.

These opposed interests are at the root of water conflicts between miners and logging concessionaires in Madre de Dios. However, these conflicts did not often turn into direct and violent confrontations. Indeed, miners as well as concessionaires develop

their own strategies to resolve water conflicts. These include legal instruments as administrative complaints with the competent authorities and trial, alternative dispute resolutions such as negotiation (Menkel-Meadow, 2015; Shavell, 1995) or extra-legal methods (threats, corruption, etc.). According to the second article of the Peruvian Constitution (1993): "*every person has the right to a balanced and appropriate environment for the development of his life*". In this sense, any logging concessionaire can bring complaints to the competent authorities in case of environmental degradation in his concession or violation of his RTWS. In Madre de Dios, as part of the decentralization process, these complaints have to be brought to the regional Agency for the Supervision of Forest Resources and Wildlife (OSINFOR), which is supposed to examine them, verify the content of complaints by a field visit in the concession, and if needed transfer them to the judiciary (Araujo, 2012). However, in practice, it seems that the enforcement of that legal procedure remains poor. Previous studies found inconsistencies between regulations and actual practices and outcomes in the field, due to governance failures and little involvement of local institutions (Sears and Pinedo-Vasquez, 2011; Smith et al., 2006). Concessionaires complain that OSINFOR has been unable to resolve disputes arising from invasions or mercury contamination and that they have suffered from long administrative delays and costs as a result of their complaints (Smith et al., 2006). Indeed, all the concessionaires interviewed agree to say that either the OSINFOR never responds to their complaint (and when it does, the answer arrives several months later – there is a real lack of responsiveness) or that the field visits to verify the invasions or contamination were not a public service but had to be paid by the concessionaires themselves (transport, food, accommodation fees, up to 1000 soles). Torres (2003) confirms these facts; according to him, the financial budget and human resources allocated to OSINFOR is inadequate to prevent invasions and supervise concessions. Staff is not sufficiently trained and often changes due to problems related to corruption. Indeed, miners' common strategy to make the concessionaire's complaints go away is to bribe the OSINFOR officials. This allows them to pursue their extractive activity in the logging concession while remaining legally unpunished. For that reason, logging concessionaires also consider that despite the obligation for the regional government

(GOREMAD[11]) to respect, protect and fulfill the RTWS, it does not oversee its implementation. Indeed, the RTWS is impeded by a lack of political will from the GOREMAD. As we described earlier, local mining industry has become the region's dominant socio-political force, therefore impunity is granted to miners and no effort has been made to protect the logging concessionaires' RTWS. Moreover, an effective implementation of the RTWS would require clarity on the distribution of responsibilities between the central and regional governments. However, the process of decentralizing facilities to regional governments has been slow and problematic in Peru, which has led to an inertia of the GOREMAD regarding to the RTWS. Indeed, some logging concessionaires expressed a lack of confidence that government authorities would defend their right. On the contrary, some others were unaware of their rights, which means that there is also a lack of transparence about the RTWS and the possibility of complaint in case of violations. Another element that complicates concessionaires' legal remedies is the lack of clear property rights in Madre de Dios (and in the Amazon region in general) (Cronkleton and Larson, 2015). As we said earlier, some mining concessions overlap existing logging concessions, which means that the logging concessionaires do not have clear land-use rights over their concession. This complicates legal remedies and makes it difficult to produce satisfactory outcomes for the concessionaires. The miners are well aware of that situation and take advantage of it by invading even more the concessionaires' land, preventing them from going into their concession or threaten them to death (verbal attacks).

As a result of all these governance failures and weak State presence, most logging concessionaires do not resort to legal complaints anymore and avoid expensive trials before courts. Indeed, as government agencies do not comply with their obligations, logging concessionaires seek better outcomes than those commonly provided by the formal justice system and therefore tend to develop informal codes of practice with miners in order to overcome administrative delays or costs and resolve invasion disputes. These codes implies an alternative dispute resolution: negotiation, being

[11] Regional Government of Madre de Dios.

defined as "any form of direct or indirect communication whereby parties who have opposing interests discuss the form of any joint action which they might take to manage and ultimately resolve the dispute between them" (Law Society of Upper Canada, 1992). In this case, logging concessionaires and miners negotiate in direct communication – on the field (concession) – a financial agreement that consists of a bride given by the miners to the logging concessionaires in exchange for the quality loss of their water resources. So the miners pay a financial compensation for the violations of the concessionaires' RTWS, which generally involves the payment of a "*regalia*", a royalty equivalent to a miner's working day per week or 10% of the gold extracted by the miners on the logging concession per day. This situation corresponds to what Bebbington (2009) calls "*livelihood based environmentalism*" and Martínez-Alier (2002) "*environmentalism of the poor*": negotiation can always resolve a conflict if one of the parties accepts a compensation for the loss of access to a resource or the substitution of a resource by another. In this case study, negotiation is chosen by the logging concessionaires for all the reasons that have been exposed above (governance failures, regional institutions' weakness and lack of responsiveness, expensive costs and delays of the formal justice system, etc.) but also because bribes solve their financial issues. Indeed, most of the logging concessions are failing to pay annual timber extraction fees and are indebted, the royalty paid by the miners thus enables them to pursue their economic activity. In others words, concessionaires accept a financial compensation for the loss of access to safe water. On the other hand, resolving conflicts by negotiating and bribing is a commonly accepted practice among miners because it prevents them to be put on trial and imprisoned. Furthermore, negotiation allows them to develop long-term relationships with logging concessionaires and by authorizing them to work in a logging concession for several months, provides them a steadier and safer job. In this sense, in Madre de Dios, an active resistance against ASGM and extractive activities does not exist. Unlike the water-related conflicts observed in other departments of the country, in Madre de Dios, water struggles do not question the extractive development paradigm, on the contrary, due to a weak regional governance, logging concessionaires' resistance

against miners rises up in order to get financial compensation for the loss of access to their water resources.

Conclusions

In Madre de Dios, ASGM is currently reconfiguring the socio-political landscape of the department as well as its environmental characteristics. Indeed, nowadays, miners' groups (mostly settlers or migrants) have growing influence within the regional government and represent a large part of the departmental population. As a consequence, ASGM has grown significantly since the 2000s commodities boom, becoming a major driver for land degradation and deforestation as well as mercury contamination. This study shows that ASGM does not respect the Right to Water and Sanitation in the department (yet recognized fundamental human right by the international community), and especially the logging concessionaires' RTWS, by violating its second feature: adequate quality of water resources. This violation (due to mercury use, combined with overlapping land-use rights and illegal invasions), currently leads to water struggles between logging concessionaires and illegal/informal miners, which are the result of opposed interests regarding to water (access to water of adequate quantity versus access to water of adequate quality).

Our results also suggest that the parties pursue these interests through non-violent strategies, including verbal arguments as well as legal, extra-legal and alternative dispute resolutions. As far as miners are concerned, extra-legal strategies are generally preferred, such as threats (to death), corruption of OSINFOR officials or verbal assaults. Regarding to logging concessionaires, they first opt for legal instruments by lodging administrative complaints with the OSINFOR. However, considering regional governance failures (lack of enforcement and transparency of the RTWS, weak State presence, OSINFOR administrative delays and costs, or confused land-use rights), they finally choose an alternative dispute resolution: negotiation. They negotiate with miners and accept to lose their access to safe water in exchange for a financial compensation. In Madre de Dios, bribing is indeed a common strategy among miners but it seems to be accepted by both parties. In conclusion, because of the weak regional governance and absence of political will to control and regulate

ASGM, extractive activities are not questioned by logging concessionaires in this part of the Amazon region, on the contrary, the extractivist model seems to emerge victorious from these conflicts. As a result, the exceptional biodiversity of the region and the health of its population are at risk; to prevent this, the national government and the GOREMAD should begin to clarify their respective responsibilities and roles in order to ensure that regulations designed to protect the RTWS are enforced. Also, awareness raising, access to information and transparency about the RTWS should be promoted. In addition, improving the enforcement of legal procedure regarding to administrative complaints would also mean increasing the budget allocated to the OSINFOR. Finally, preventing conflicts would entail developing mechanisms to ensure that new land-use rights are not granting in existing concessions. Instead of gathering and storing data differently, all agencies involved in forest management and granting land-use rights (including Ministries of Agriculture, Environment and Energy and Mines, as well as the GOREMAD) should develop a consistent and unique system enable them to share and compare data among themselves.

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By Emilio Travieso SJ[1]

Lake Atitlán, Guatemala: "The Possibility of a Shared World"[2]

Conflicts around development issues are increasingly focused on water. These conflicts tend to intertwine a struggle over whether water should be treated as a commodity with struggles over how its management should be configured, and by whom (Castro 2008). Latin America has emerged as a particularly relevant region for these debates (Ávila-Garcia 2016).

This article presents the case of Lake Atitlán, in the Sololá department of Guatemala, where long-standing conflicts and divergent imaginaries have made it difficult to create consensus about how to solve an ecological problem. The article is based on four months (April to July 2016) of ethnographic fieldwork, in three towns and one village on the shores of the lake. Many names and other identifying details are left out, due to safety concerns.

Theoretical framework

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Political ecology, and in particular the concept of "hydrosocial territories" developed by Boelens et al. (2016), offers a useful frame of reference that helps to make sense of the controversy surrounding Lake Atitlán. The starting point is that imaginaries about "nature" are socially constructed. Plural constructions of the same "natural" territory can coexist, and their (re)production entails conflict, in ways that are intertwined with the struggles over control of natural resources in the territory. The lens of "hydrosocial territories" allows for analysis of these phenomena in sites where water is a central concern. In short, struggles over the control of water are also struggles about the epistemological and social configurations that motivate, frame and enable competing claims.

This article adopts the "hydrosocial territories" perspective to offer an empirically-grounded analysis of the competing claims that different groups make about Lake Atitlán. Then, it evaluates the implications of the interaction between the groups in light of Mella's (2015) ethical theory. This theory, rooted precisely in the Latin American context of conflicts "in the world of development," allows for going beyond a description of what is at stake, to suggesting criteria for truly creative action that could "reinitiate the possibility of a shared world."

Lake Atitlán: Context

Lake Atitlán is home to some 300,000 people. The great majority of these people belong to the Kaqchikel, Tzutujil or K'iche' Mayan ethnic groups. Tourists are attracted by the volcano-framed lake's spectacular beauty, and others are attracted by the tourists; the population has thus grown, especially in the town of Panajachel. Along the edge of the lake, wealthy families have built vacation homes.

Though exact statistics are hard to come by, local activists estimate that most families have access to less than half a hectare of land, while a few non-indigenous landowners control most of the surrounding hillsides. Their plantations are characterized by monoculture and the heavy use of Green Revolution inputs. The main crops are grains and vegetables to the North of the lake, and coffee and avocadoes to the South. There are also some protected forest areas.

Algae blooms in 2009 and 2015 have raised awareness about pollution in the lake. The blooms are caused when wastewater from the growing towns, coupled with fertilizers and soil erosion from the farms, overfeed cyanobacteria with phosphorous and nitrogen (Chandra et al. 2013; Chandra et al. 2014). Even if these explanations are not universally known or accepted (cf Harvey 2012), concern about the effects of pollution and algae blooms – fish kills, a decline in tourism, and gastrointestinal diseases for approximately 80,000 people whose only source of drinking water is the lake itself – are widespread (data from fieldwork).

The pipeline proposal

In this context, an association of vacation homeowners, Asociación de Amigos del Lago Atitlán (AALA), has taken initiative. The association commissioned two reports by scientists and engineers from Guatemalan and U.S. universities,[3] who presented a diagnosis of the problem and a proposed solution (Chandra et al. 2013; Chandra et al. 2014). These USAID-funded reports constitute the principal publicly available source of information regarding the lake's pollution issue.

According to the reports, untreated sewage, especially from Panajachel, is the single largest cause of pollution, as well as the most dangerous one in terms of human health. Further, the situation might soon reach a "point of no return," where the level of deep water dissolved oxygen would provoke a shift to "internal loading" of nutrients, making it much harder to deal with the algae blooms. Based on these findings, AALA suggests that intervention strategies should prioritize wastewater.

The reports consider two possibilities for wastewater management. One is fully treating the wastewater before it reaches the lake, and the other is diverting the wastewater to prevent it from entering the lake at all. The first is evaluated as unfeasible, since full wastewater treatment is complex and expensive; the second option is considered more viable.

[3] The universities are U. del Valle de Guatemala; U. del Valle Altiplano; U. Rafael Landívar; U. of Nevada, Reno; U. of California, Davis; and California State U. Chico.

Following the reports' advice, AALA proposes a project that would collect sewage from around the lake basin and pump it southwards, where it would first be used to make methane gas (to be traded for carbon credits), and then to irrigate some 1,000 hectares of farmland with nutrient-rich water. These uses, along with hydroelectric energy generated by turbines inside the downward sections of the pipeline, would make the project self-funding and even profitable. The project is explicitly modeled after Lake Tahoe, in the United States.

This proposal has the backing of Autoridad para el Manejo Sustentable de la Cuenca del Lago de Atitlán, which is the governmental authority – presided over by Guatemala's vice-president – that is responsible for the management of the lake (AMSCLAE 2014). Through the Inter-American Development Bank (IDB), the Spanish Agency for International Development (AECID) has provided US$1.2 million to fund a full feasibility study, which would be the intermediate step before starting the construction (AMSCLAE 2014). A lobbyist from the Asociación de Amigos del Lago Atitlán has been engaging local government authorities and Catholic clergy from around the lake, to create favorable public opinion for the feasibility study (data from fieldwork).

The association presents its proposal as "the only" solution, and in fact it is the only concrete proposal being publicly discussed by policymakers. However, fieldwork revealed that most people around the lake are only vaguely aware of any of the project's details, beyond its sarcastic popular nickname, "el popoférico" ("the poopway"). Meanwhile, some local groups who have gathered information are in strong opposition to the project.

Opposition and counter-proposals

Opposition is rooted in both mistrust of the project's proponents and concerns about its content. The fact that the vacation homeowners behind the project are some of Guatemala's wealthiest and most powerful people, with ties to an extremely corrupt government, lends itself to a hermeneutics of suspicion by the indigenous

communities that see that social group as their oppressor (data from fieldwork). In that light, local activists have pointed out (in interviews) that the project's proponents are the same outsiders who have taken over what was once public land (the lake edge), and that many previous "mega-projects," in the activists' opinion, have benefitted nobody but the urban elite. This history is compounded by the lack of consultation with local communities about the proposal, and the lack of transparency even when there has been some communication.

Although the 1,000 hectares to be irrigated have not been explicitly identified, there are credible rumors to the effect that the wastewater pumped from the lake basin would be destined for one of the sugar plantations that dominate the country's southern coast. The Guatemalan sugar industry, controlled by the country's oligarchy and backed up by government policy and international finance (Alonso-Fradejas, Caal Hub and Chinchilla Miranda 2011: 31-37), is known for leaving entire communities without water by diverting rivers and sucking up aquifers for its unsustainable monoculture (cf eg Tizol 2016).[4] In that context, many activists interpret the pipeline proposal – which would pump water away from Central America's largest freshwater reservoir – as simply a continuation of this trend (fieldwork data). Since there is currently no legal framework in place to protect water as a public good, or even to regulate its use,[5] there is no reason at all to believe that the best interests of the lake communities would be protected in such a case.

Another concern put forth by opponents is related to the magnitude of the project. Its size and complexity raise the stakes of failure, and the local communities – not the project's proponents – would bear the brunt of any malfunction. In the context of previous failures of top-down projects (including the abandoned attempt at a sewage treatment plant in Panajachel), such arguments are not just hypothetical.

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[4] Another factor that adds credibility to the rumor is the link between one of the largest coffee plantations located near where the pipeline would leave Lake Atitlán, and the country's largest sugar mill to the South; both are owned by the same family, and the sugar mill has recently received large loans from the IDB to expand its operations.

[5] A coalition of social movements and NGOs have proposed a bill with a legal framework for water; as of July 2016 it was awaiting debate by lawmakers.

Further, these projects have served to bring the country into debt. Indeed, the AECID funds for the feasibility study are already tied to a larger package that includes a US$50 million loan from the IDB (AMSCLAE 2014). Social movements see this debt, and its likely increase through the financing of the project's implementation, as dangerous in light of the entire region's history.

What the social movements propose (in public meetings, interviews and email correspondence) is to conduct a more thorough study of various options, evaluating not just their technical and economic feasibility, but also their social and ecological impact, with full participation by local communities. They tend to think that a more decentralized model, that would fully treat wastewater using ecologically sound methods at different locations, would be a safer bet. They also suggest that any proposal could first be tested with a pilot project at the much more-polluted Lake Amatitlán, which – because it is close to the capital city – would face greater scrutiny by more powerful stakeholders. Finally, the social movements insist that not just wastewater, but all the sources of the problem, must be confronted.[6]

The opposition and counter-proposals of the social movements are backed by the opinions of local and international scientists and engineers who they have consulted (though without the funding to conduct a full-fledged study comparable to that of AALA's allies), as well as by NGOs and local community leaders, including both traditional Mayan priests and some Catholic priests. However, they do not have the same access as AALA to the decision-making circle, despite their efforts to establish dialogue with both AALA and AMSCLAE. The reality of political violence against

[6] Indeed, the AALA-sponsored reports insist that sewage is the largest single factor, but never show the relative proportions of all the factors. In a powerpoint presentation given by the AALA lobbyist to Catholic clergy, one slide claims that 51% is due to sewage, while soil erosion accounts for 38% and fertilizers for 18%. Notwithstanding the problem that these add up to more than 100%, the AALA's own numbers would seem to indicate that conventional farming – counting fertilizers and soil erosion together – is a greater contributor to the pollution problem than sewage.

activists in Guatemala, including the recent murder of a water-rights activist,[7] is a form of intimidation that further hampers their advocacy efforts.

A radical alternative

Meanwhile, other local indigenous organizations, such as the Instituto Mesoamericano de Permacultura (IMAP), are proposing something even more radical, explicitly based on the non-anthropocentric Mayan cosmovision that aims to live in harmony with non-human beings. Dry composting toilets, combined with sustainable agricultural practices to care for soil fertility and prevent erosion, address all the lake's pollution-related problems at their root. Further, human waste is creatively turned into a resource by the composting toilets, as would the sewage pipeline, but the difference is that the benefits of this model go to local people, rather than faraway plantation owners, and that the use of the resource would both be sustainable and support food sovereignty. Another difference is that the technology involved in IMAP's proposal is simple, accessible and inexpensive.

IMAP both carries out these practices and teaches others to do the same. In so doing, IMAP demonstrates that the responsibility – and the power – to solve the problem can be grounded at the local level. This bottom-up approach circumvents the need to negotiate with the dominant system, because it not dependent on it. Instead, IMAP chooses to bear witness to the fact that an altogether different system is possible, by prefiguring it. More than a social movement, then, IMAP is what Dinerstein and Deneulin (2012) would call a "hope movement".

For now, in spite of the many advantages of IMAP's proposals, few people seem to take them seriously. In the case of elites, the unattractiveness of a model that dismantles dominant structures of profits and power should be clear. The lack of interest at the level of local communities, while more frustrating, is also

[7] A press release by a coalition of movements, dated 18 March 2016 and titled "Agua para la vida, no para las empresas", denounces the assasination of Walter Manfredo Méndez Barrios, environmentalist and community leader of La Lucha, Las Cruces, Petén, who was killed for fighting against oil palm companies and hydroelectric dam projects. This press release was distributed by members of social movements in Lake Atitlán.

understandable. IMAP's proposals are indeed technically simple and economically accessible, but they would require a widespread paradigm shift in order to achieve large-scale implementation.

Discussion

The theoretical tools of political ecology, and of "hydrosocial territories" in particular, can be fruitfully applied to the Lake Atitlán case. In this brief article, it is only possible to make some initial observations to show how several different aspects of the case can be illuminated with this multifaceted approach.

So far, we have mainly analyzed the conflict itself. We have seen how the mutual suspicions of the various actors can be followed as clues, to map out a political economy of concrete interests and histories. Indeed, the pipeline proposal is connected to a wider context of government policy, international finance and agroindustry's role in the dispossession of indigenous peasants in Guatemala (cf Alonso-Fradejas, Caal Hub and Chinchilla Miranda 2011).

We have also considered the ecological facts themselves. These can now serve as an entryway to investigate the political economy of their causes further. For example, the algae blooms are partly caused by an increase in the use of fertilizers. This increase is largely a reflection of the growth in non-traditional export crops, such as broccoli and other "winter vegetables" for the U.S. market (Novotny 2015). This productive change, in turn, reflects changes in moral economy – the entry of indigenous communities into the consumer economy through paid labor (Benson and Fischer 2007) – as well as changes in government policy which enables this form of agriculture (Isakson 2014). Of course, these factors themselves are linked to the whole political economy of land distribution and globalization.

The awareness of how hydrosocial territories are socially constructed also gives insight into our finding that the AALA has privileged access not only to state power and major funding, but also to university researchers. Indeed, epistemology itself – the way in which the ecological "facts" are constructed and deployed – has its own political economy, and the implications of this are reflected in the waters of Lake

Atitlán. Being the spokespeople of the scientific discourse around Lake Atitlán not only gives the AALA the legitimacy of having hegemonic "expert" knowledge on its side, but also the opportunity to frame this information according to their interests. In a further example of this dynamic, Harvey (2012) has shown that local media blamed Mayan women from the villages for the algae blooms, because they wash clothes with non-organic soaps, while ignoring other known causes which would have placed the burden of responsibility on much more powerful people, such as the plantation owners (who use fertilizers and allow soil erosion) and the hotel industry in Panajachel (which has massively increased the sewage problem).

Political ecology also takes epistemological questions to another level, to the current debate about the discordant ontologies at play in development-related conflicts (Escobar 2010). This lens can be helpful for understanding IMAP's explicit framing of its proposal as coming from within a Mayan cosmovision, in contrast to the Western cosmovision implicit in the pipeline proposal. At stake is not only a question of power, but also of alterity; elucidating how these two dimensions intersect is perhaps the greatest contribution of the hydrosocial territories approach to the conflict surrounding Lake Atitlán.

An at least equally pressing question, though, is how to bridge across alterities and balance power in order to create genuine consensus, rather than simply documenting the multidimensional violence of a yet another imposed development project. Mella's (2015) theory of ethical creative action in the "world of development" offers criteria that could orient such a project. A new, shared imaginary of the lake can still emerge, through an intercultural dialogue that attends to asymmetrical power dynamics, but is also rooted in mutual care, open to forgiveness and invested in building trust. Such a human encounter would go beyond mere negotiation; it would aim to "tirelessly reinitiate the possibility of a shared world" in which life can flourish (Mella 2015: 102).

This may seem even more idealistic than IMAP's call for the universal adoption of composting toilets, but there is indeed hope. Since 2007, international law and several Latin American countries have increasingly recognized the duty to seek the

free, prior and informed consent of indigenous peoples for development projects that affect them (Flemmer and Schilling-Vacaflor 2016). Even though the formulation and implementation of these policies leave much to be desired (Ibid.), they are a step in the right direction. In the case of Lake Atitlán, the meetings of AALA with church communities have been an opportunity for activists to personally engage the AALA representative and invite him to meet on their own terms (fieldwork data). Surely there is still a lot of work yet to be done; among its other meanings, Lake Atitlán represents a standing invitation for further research, especially research designed to engage all stakeholders in the generation of shared meanings.[8]

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[8] On the role and design of research in light of his ethical theory, cf. Mella 2015: 457-488.

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The many natures of water in Latin American neo-extractivist conflicts 4

Thousands of diverse 'water protectors' representing different ethnic, cultural, and social backgrounds throughout the American continent are standing firm against the destruction of ecological systems carried out by extractive development projects. One recent example concerning indigenous peoples has been the mobilization carried out by the Hunkpapa Lakota and Yanktonai Dakota Native American people of the Standing Rock Sioux reservation against the construction of the Dakota Access Pipeline. The pipeline project is a $3.8 billion investment to move 500,000 barrels of domestic crude oil a day through four U.S. states. If constructed, the Dakota pipeline would pass through sacred burial grounds as well as the Missouri river – the main water source for the Standing Rock Sioux population. David Archambault II, the tribal chairman, recently stated: 'The U.S has its laws, and pipelines know how

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to comply with all the laws, but just because something is legal, that does not make it right. And so, what we are trying to do is expose the wrongs and the flaws with the permitting process of pipelines (…) I think there are a lot of similarities between indigenous peoples (…) what is important to us is the earth, and it is the same for all indigenous people, *we protect the relatives that we have*, and those relatives are the plant life, the animal life, the water. *We don't think about them as resources*, we think of them as actual beings that are precious to us, and it's indigenous peoples who share that'.[5] In what follows, we would like to explore how water can '*not only',* to say it with Marisol de la Cadena´s (2015) words, be conceived of as a natural resource ready to be extracted, used, and transformed by and for human desire and consumer needs or capital profit. Strongly moved by David's words, in this article we will think about water as entailing ontological political conflict, namely, a 'conflict involving different assumptions about what exists' (Blaser 2013; 547). These conflicts are not new, and there are a lot of similarities between the Dakota Pipeline conflict involving the Standing Rock Sioux population and those involving indigenous peoples in Latin America. For example, the Huichol indigenous peoples in Mexico are struggling to protect their sacred territory of Wirikuta from mining extraction. Similarly, the Diaguita communities in the Andean mountains bordering Chile and Argentina, are demanding the halt of mining projects in glacier-fed river headwaters because it will destroy "Yacurmama or Mayumaman", that is to say the mother of water. Nevertheless, state institutions, transnational corporations, and many water experts hardly thought of them as entailing different politics of nature, and indigenous claims are generally dismissed as pertaining to "cultural beliefs", or "strategic slogans". Yet, what would happen if the actors just mentioned were trained in thinking that water is *not only* a natural resource, but it can also be, among other multiple options, a relative too?

In this article, we want to reflect upon a particular learning experience in which academics engaged in a dialogue about ontological politics with people outside

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https://www.facebook.com/IndigenousPeopleOfAmerica/videos/1298547666842450/?pnref=story

academic circles, a dialogue in which we experimented with the idea that water might be a resource, *but not only*.

The story we are about to reveal, took place last year, at the 7th annual International Course-Workshop on Water Justice in the city of Cali, Colombia[6]. The Course-Workshop is a ten-day, intensive programme that provides a space for opening up a dialogue about the impact of neo-extractivist practices in water conflicts and injustices in Latin America. It is based on critical pedagogies, such as "participatory action research" (PAR), a political and lived experience grounded on popular education that aims to move away from the binary, hierarchical, and exclusionary mentality of eurocentrism and capitalism (Fals Borda, 1996; Freire, 2001). In the context of environmental problems, PAR provides a way to comprehend human and non-human relationships, and to learn from the people whose knowledge is systematically made invisible or whose being in the world is denied existence (Santos, 2009). The aim is to enable participants to become active learners in the production and construction of knowledge, side by side with people who are confronting water related-injustices, as well as with course facilitators and teachers, who are equally subject to the same learning process (Freire, 2001).

The pedagogical approach of this course builds on the critique of intellectuals such as Gustavo Esteva, Vandana Shiva, and Boaventura de Sousa Santos, all scholars proposing different ways to resist hegemonic discourses and practices of modern development. The course, thus, provides the opportunity for ecologists, activists, engineers, lawyers, anthropologists and other water professionals to critically engage in a reflexive exploration of their own relations with water conflicts and that of various epistemic communities, including academic, activist and popular knowledge. On the academic side, participants are introduced to different water approaches by scholars in various fields of study, such as political ecology, critical studies of law, cultural studies, social movement theory, science of technology studies, gender and development studies, conflict resolution and environmental justice. On the other side, activists play an important role in the course, because, as practitioners, they

[6] For more information about the course, please visit: www.justiciahidrica.org.

provide invaluable *know-how*. The programme, thus, offers a wider political ecology perspective about 'capitalism', neo-extractivist conflicts, resistance, and social movements, and, at the same time, focuses on exploring how it is that the 'the diversity of the world is infinite'; on how 'the world is made up of multiple worlds, multiple ontologies or reals that are far from being exhausted by the Eurocentric experience or reducible to its terms" (Escobar 2015: 15). Thus, the course opens the way to thinking about water beyond nature – culture divides.

Accordingly, one of the workshops during the course presented anthropological ideas arising from academic settings, ideas particularly related to the need to abandon '*culturalist*' approaches to understand differences within neo-extractivist conflicts. It invited students to develop ontological frameworks to analyse such conflicts. These frameworks invited the participants to abandon widespread multicultural ideas for which *the* world - one world- appears strongly defined by nature-culture divides. These multicultural realities are mostly organized upon the premise that there is one shared human nature upon which differences emerge as 'cultural differences'. From this perspective, water tends to be understood as a natural resource to which humans 'culturally' attribute different meanings. This multicultural grid for organizing realities through the distinction between natural resources and the cultural meanings attached to them, situates differences at the level of 'cultural beliefs' as an isomorphic and renewed version of what Whitehead (1920) has called the "bifurcation of nature", "the strange and fully modernist divide between primary and secondary qualities" (Latour 2004: 2). For the multicultural grid, the primary quality of water is that *it is* a resource upon which secondary qualities, such as cultural beliefs, are attached. This division allows us to think that what water extraction practices do, for instance, is to extract only the primary and 'natural' qualities of water, leaving its secondary qualities within the human imagination. This multicultural logic strongly emphasizes the rational idea, that first there is only one Nature and that human culture dominates it, second that cultural difference is a matter of symbolic difference, and that the dominant and more developed epistemology is that of science, the rest are mere "cultural beliefs" (Escobar 2012, Latour 2004).

In the vast field of Political Ecology, and its analytical tendency to focus on the 'politics of who' (who has the right to act, speak and to have access to the resource), this multicultural grid to understand water issues is widespread. Let us briefly consider just one example of how this multicultural approach informs part of the Political Ecology scholarship. Think about the conceptualization of environmental conflicts as emerging from different and, most of the time, incommensurable 'languages of valuation' (see Martinez Alier 2008). Even if these 'languages of valuation' have been a substantial contribution to considering environmental conflicts out-of-the-box of 'conventional economic accounting', conflicting differences in environmental conflicts appear as 'secondary qualities, as 'cultural' outcomes of different 'languages of valuation'. Put it differently, even if the nature-culture divide has been strongly questioned by political ecologists, a particular analytical premise that separates the knower from the known, the subject from the object, or, in more anthropological terms, culture from nature, it still needs to be further deconstructed. For this logic, the differences at stake in environmental conflicts correspond to 'cultural differences', or 'cultural beliefs', or even to differences in the 'languages of valuation' of one world 'out-there'. In short, 'Nature' remains singular, culture remains plural.

Alternatives to this stabilized multicultural approach have been offered by different scholars working in Anthropology and in Science of Technology Studies. For instance, the work of Viveiros de Castro in Amazonia and its thought provoking -ethnographically grounded- concept of 'multi-naturalism' (see Viveiros 2004), as well as the 'ontological politics' concept by Annemarie Mol (1999), which has inspired the project on Political Ontology proposed by Mario Blaser, Marisol de la Cadena and Arturo Escobar, are all conceptual repertories that overcome, in different ways, multicultural approaches, re-conceptualizing difference in ontological terms. What is relevant for these kinds of inquiries is not only the '*politics of who*' but also the '*politics of what*' (op .cit), the kind of realities that are produced in practice in the relationship between humans and non-humans. For Mol, for instance, the 'what' is not seen as a result of cultural beliefs, or as an object 'out-there' that is valued differently by different languages. Instead, the 'what', the 'object', appears as an object multiple

that cannot be known in univocal ways, but which can be practiced differently. There is not just 'an object', there is *more than one*, or in other words, a multiple object. There are not different languages of valuation of an 'object' -one water 'valued' differently- but multiple natures of water.

While there is insufficient space here to share all the details of the ethnographic events mobilized in the workshop, following is a summary of the most significant events. For example, the environmental destruction of Mapuche indigenous communities was not univocally explained through epistemological narratives based on nature-culture divides, but by the consideration of multi-natural dimensions and indigenous human and non-human practices that were more fundamental than the logics of capital and the modern understanding of water as resource. In Callaqui, one of the Pewenche-Mapuche communities located in Alto Bío Bío, Southern Chile, water places, or *menokos*, dried up because of the withdrawal of the specific spiritual entities, the *ngenko*. These spiritual entities "autonomously" decided to leave their traditional water places when facing the land division and eucalyptus forest plantations, which was encouraged and put into practice by the Pinochet administration. *Menokos* were necessary for the cattle, as they could drink water from the streams, but also, medicinal herbs used to grow near these water places and herbalists could collect these herbs with relative ease, without having to travel far. Nowadays, a lack of water is one of the major problems in this community, and during the last years a special municipal truck has periodically distributed water among the inhabitants during the summer. The land division just mentioned, however, did not affect the whole community: half of the community are private owners and the other half still share right over the land. As Pablo, a community member says, "if you compare both, the answer is obvious: those with private rights have lost their streams because the *ngenko* has left, and they do not have water, whereas in this part of the place there are still some streams, and also a few herbs."

After sharing this ethnographic vignette as well as some theoretical reflections on 'ontological disorders' (Bonelli 2012) with the students participating in the workshop, we asked them to think about water conflicts through an ontological framework. We wondered: are these stories entailing just 'cultural beliefs'? Is the

ngenko a secondary quality of a more fundamental primary and 'natural' quality of water? Or could we understand *ngenko* indeed as something similar to a relative, to say it with David's words? Using the theatre of the oppressed methodologies, the students were able to collectively perform different natures of water while immersing themselves in role-playing (Boal, 1993). This required them to put themselves in the shoes of human and non-human "others", an exchange of perspectives that builds ties of empathy, changes one's vision and position when facing different versions of water. Thus, this experience provided an opportunity to discuss the many natures of water at stake in an environmental conflict. The students worked in three groups, each enacting a neo-extractivist conflict in which water was contested.

One of such cases was the U´wa conflict in Colombia. The U´wa people live in the Sierra Nevada de Cocuy, which drains more than 80 rivers and is a very sensitive and complex ecological water system of moorlands (*páramos* in Spanish) and lagoons. In the late 1980s, the National Hydrocarbon Agency authorized the Occidental Petroleum Company (Oxy) to explore the Gibraltar block in the U'wa's people territory. The oil company offered development projects, new houses, healthcare centers and schools, all material stuff that were not of interest to the U'wa. In 1995, the Environmental Ministry authorized oil exploitation in the Samoré block inside U'wa territory. Although Oxy told the government that they had consulted the Uwa population, the Uwa people denied this, saying that their traditional authorities had not been consulted. In 1998, they organized themselves, attracting support from national and international organizations against the oil project (Rodriguez-Garavito & Arenas, 2005).

In their role-plays, students performed different perspectives such as the U'wa territory, the U'wa people, the state representatives and the owners of the petroleum business. *Kajka* (a words in U'wajka language that could be provisionally translated as territory) was enacted by a lagoon performed by a female student, who was sitting down, surrounded by chairs. Water here was fundamental to understanding the U'wa position against oil extraction in their territory. For the U'wa, oil is the blood of the earth, *Ruiria* in U'wajka language. As the blood of the earth, *Ruiria* is the mother of all sacred lagoons (Motta Marroquin et.al., 2000), which not only have life but are

alive, and the blood of the earth or Ruiria works to care for them (2000). In the play, the U'wa people said: *"We are not going to permit any kind of development in our territory. We are fine in our world and we don't want to be in any development world. You must go"*. In fact, the U'wa threatened to commit collective suicide if the company insisted on drilling for oil in their territory.[7] The Oxy Corporation business representative expressed surprise and frustration at the U'wa's position: *"Why don't they want development? It is incredible that they don't understand what could happen: they could improve their culture, it could be a win-win situation in which there is a development process"*. The business representative further asked himself: "*Why are they speaking about different worlds if we are all part of one?*" While the U'wa people enacted a multi-natural world, the Oxy representatives performed a multicultural one constituted by one nature and many cultures. Some cultures, Oxy representatives believed, needed to "improve" and realign towards development and to benefit from economic growth. For the U'wa, in contrast, there was nothing wrong with their world and, at the same time, they did not expect to change the 'white men´s world'. For them, their life had no sense if deprived of the equilibrium and protection of *Ruiria* and other non-human beings (Osborn, 1995).

This illustrates how students were trained in recognizing how water conflicts could be conceptualized as entailing ontological politics. What was at stake in this conflict was not cultural systems, nor was it languages of valuation. Instead, it was a totally different practical understanding about what counts as real. Oil, from the Uw'a perspective, *is* the blood of the earth. Through the pedagogical methodology, the theatre of the oppressed, students were able to perform conflicts in which relations with different natures of water were at stake.

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As part of the reflexive pedagogies of the course, the day after the workshop three students organized a creative feedback in which they had to summarize the key

[7] The U'wa people have committed collective suicide in the past. U'wa oral history tells how a number of U'was committed suicide by jumping The Cliff of Death rather than give themselves up to the Conquistadores (Freitas, 1998). Freitas, Terrence (1998) Blood of our mother Report.

learning components of the previous day. That day, for the first time, they invited the group to go outside the classroom, to participate in a special activity they had prepared at a small lake surrounded by a tropical forest. There they asked all of us to form a circle, to close our eyes, and be silent. They then exposed us to different kinds of smells and sensations, while passing around different kinds of fruits for us to taste, carambolo, uva isabela, uchuvas and mangos, all fruits that grow in Colombia. We were asked to guess the fruit by how it tasted, felt and smelt. Afterwards, they asked us to reopen our eyes.

In the center of the circle, we saw the fruits. Beautiful fruits, they went on, that we should consider as fundamental actors in our understandings of ecologies. At first glance, they added, these fruits might be described as 'just' fruits, or in botanic jargon, seed-bearing structures in flowering plants. For many people, fruits are not water, they are made of water, and while they are not political actors, they are objects mobilized in human politics. For the students, conversely, carambolo, uva isabela, uchuvas and mangos were more than 'just' fruits, more than 'just' passive prey for humans. They also said that the infinite diversity that exists outside academic circles could be seen as a source for learning processes in environmental conflicts. The diverse entities that exist outside academic circles, they said, can teach us something about a kind of politics that goes beyond the political ecology's emphasis on the *politics of who*. We could benefit from attending and learning from those different natures that are at stake in water conflicts. They also invited us to produce knowledge from and for the local ecologies we work with. This whole activity, they said, was an invitation to '*change our vision*'. In the encounter with ontological difference, what counts as our senses also changes, they said. To engage with other worlds might entail the dissolving of all the senses. Thus, they said, fruits are not just made of water, they are water, or they are different ontological versions of water that have active roles within the ecologies in which we work. They emphasized that changing our vision entails two big challenges: first, developing a sensibility that takes into consideration those unstable ontological differences present in our field-site, and second, cultivating a sensibility that re-situates knowledge production processes outside academic circles. In this way, the students helped us to become aware of the need to multiply the

worlds and languages involved in water conflicts in Latin America, *as we are all always part of ontological politics.*

Interestingly enough, the student's reflection of the many natures of water taught us the importance of opening up the dialogue for thinking about "difference" among water professionals. If fruits are water, then could they also be considered, as the Standing Rock Sioux people say at the beginning of this article, our relatives? This was not something easy to grapple with, but through role playing and creative pedagogical methodologies, engineers, lawyers, activists, and academics put aside their own pretensions and suspicions about each other, and engaged in a humble and interdependent conversation with themselves and non-human agents such as water.

Reflecting on the lived experience of the course and seriously considering the feedback provided by the students, we are invited to think that the study of neo-extractivist conflicts where water is at stake might benefit from 1) not taking for granted what water is 2) cultivating a genuine dialogue between various water worlds, those of activists, professionals, indigenous peoples, peasants, and so on, including that of academia, and 3) developing a critical and reflexive learning process that allows young water professionals, researchers, activists and authorities to 'change their vision' and to define some new politics when facing multiple water worlds.

These teachings and learning experiences do not end with this ten-day course. After the course, participants go back to their different countries and share with others a wide range of conceptual, methodological and practical tools for confronting water conflicts. Through political action and collective work, former students create water justice action groups that confront the somehow stagnant position of academia, are critical towards mere activism and promote self-reflection. Previous students have become activists in Colombia, Ecuador, Chile and Bolivia. They are taking the first steps towards a water justice action network, inviting us to realize that the wider project of political ontology should not only be concerned with ontological conflicts, but might also benefit from a serious consideration of how to create an 'ontological poetics', namely, a generative and open-ended non-violent exploration about what counts as solidarity, inter-dependence, and collective action. Because the

mobilization against the construction of the Dakota Access Pipeline concerns the Standing Rock Sioux population, but not only.

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Governance in "murky waters": The political fields of water extractivism in Honduras[2]

Background

A sound water, sanitation and hygiene (WASH) sector reform focusing on democratic demands such as sustainability, effective control, and a thorough participation of users constitute still core tasks to be solved through public water policies in poor or transition countries. Concepts and methodologies for reforms are usually "imposed" from industrialized and highly technologized countries, and public administration has to adapt to "logical frameworks" of international agencies and donors. A critical issue is to modify policies and regulatory framework towards private co-investment and overall private participation in service provision (Hall and Lobina, 2006). Poorer countries are normally characterized by a high degree of external dependence through donations and loans, a weak law enforcement and overall inefficient implementation of public water policies. [3] This dependence makes them more likely to choose a none-consultative and top-down approach regarding adjustments and paying less attendance to local and collective demands (Lentini,

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[2] This article was originally published in: http://www.alternautas.net/blog/2016/12/21/governance-in-murky-waters-the-political-fields-of-water-extractivism-in-honduras on December 21st, 2016.

[3] The scope of total investment in WASH sector in Honduras, e,g. is around 823 million Lempiras (31.843.800 Euro) and characterized by a mix of grants, loans, state and municipal investments and management of projects and programs, still depending heavily on foreign aid (CONASA, 2013a).

2011). As a consequence, water administration is becoming widely perceived as low legitimated, especially on local level (Fernández et al., 2009).

Profound changes in public administration after the presidential elections (2013) resulted in a re-structuring and regrouping of public institutions and autonomous entities for the relevant legislative period (2014-2018) in Honduras. These adjustments, thought as a "new public-private co-management" – aimed to "*…tangible impacts not only within the administration but also within communities and scattered settlements which, in turn, are expected to be both, beneficiaries as well as participants in innovative sectorial and public policies programs.*"[4]

The governments' goal was to carry out a National Plan for Water and Sanitation (PLANASA, *Plan Nacional de Agua y Saneamiento*) together with a still pending financial sector policy for the WASH sector (CONASA, 2013b, c, 2014). Both politics established different mechanisms and instruments as well as strategic guidelines according to the Framework Law for Water and Sanitation (2003, FLWS, *Ley Marco de Agua Potable y Saneamiento*). New secretaries and institutional entities generated adjoined existing ones in their technical and administrative mandate.

The driving pressure of our research relied on two "groups" of Honduran citizens who are systematically excluded from access to drinking water and sanitation: small communities of no more than 250 homes living in remote areas, mostly indigenous peoples, with less likelihood of support from NGOs or government (Lopez, 2008; Gobierno de Honduras, 2010b; UNICEF, 2011) and households in peri-urban areas inaccessible by public agencies and development agencies due to high interference of organized crime (Gentes, 2013). Our *core* hypothesis states that the instances of public water and sanitation control are intentionally poorly developed. We understand **control** here as States concrete will, capacity and action promoting and ensuring good and non-harmful water use, preventing overuse and overexploitation of (superficial and underground) water, as well as intervening and punishing in cases of contamination or illegalities, such as none registered water transfers to other

[4] República de Honduras, 2014, legislative degree no. 266-2013. Honduras, La Gaceta, January 23rd, 2014

sectors. Central and local water and sanitation governance level remain weak due to strong pressure from conflicting interests in government and institutions that instead of aiming a systemic, pluralistic and integrated approach to sustainable water management and policy purposes, generate a steady fragmentation in the consultation and decision making process. Our research indicated that more political than financial reasons keep poorest and most vulnerable citizens off from their human rights and concrete participation in WASH systems and services, as prescribed in all national regulatory framework strategies, as well as embedded in United Nations human right to water and sanitation.[5]

Methodological approach

The present article is part of an applied research around four core activities between August 2013 and April 2014 (Gentes, 2013; 2014): (i) the research, collection and analysis of accessible key material for decision makers on WASH; (ii) a set of following activities, such as the preparation, implementation and analysis of 40 semi-open interviews to public officials and development agents, as well as the implementation of two workshops on water governance and modernization; (iii) the preparation and dissemination of different inputs within the two workshops to formulate a "strategic route" for a comprehensive public action, and (iv) two field trips to collect voices and opinions from the "social fields of struggle", to reaffirm the role of social organizations "inside and outside" the WASH sector.

All sort of recorded communication (transcripts of interviews, discourses, protocols of observations, video tapes, documents) from the field were object of a (qualitative) content analysis. In this sense, we analysed not only the manifest content of the material—itself but within their context of communication, following main categories, without a rash quantification (Mayring, 2000). We conducted 40 open-

[5] On 28 July 2010, through Resolution 64/292, the United Nations General Assembly explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realisation of all human rights (http://www.un.org/waterforlifedecade/human_right_to_water.shtml, visited, September 13th, 2016).

ended in-depth interviews with decision makers in water governance with the aim to reconstruct the State-of-the-Art of WASH in the country. In a second step, we grouped the responds in **three main categories**: power and influence, legal performance and institutional change. We expected an overall understanding of these issues. Obviously it is nearly impossible to measure progress or failure in this short progress.

We intuitively questioned "official public discourse" in a way (i) that public water policy advice had become much more discourse than praxis-oriented being highly influenced by means of private benefit and illegal interests, (ii) that the legal framework was only particularly implemented, neglecting sanctions and overall control of hidden privatization and transferring of water rights and (iii) that institutional change did neither include water boards in an overall decision process nor do they benefit from a strengthened participation. In fact, we insisted in totally different concepts of water governance among official decision makers and water boards.

Our guiding research questions were:

- To what extent do current public power structures and decision-making scenarios prioritize an integrated water and sanitation approach including meanings of real participation of all sectors, both formal and non-formal?
- Do the institutions in charge of regulation and conservation and/or protection and operation comply with their political and socio-legal mandates?
- How can the institutional changes from 2014 being assessed according to criteria of effectiveness, social equity and equality (of rights)?

Assessing the "champ" in water and the "participant objectification" as logical framework

We assume, *firstly*, social science, according to Bourdieu, as a theory of practice attempting to overcome certain positions and contradictions, which occur, for

example, when collective action confronts predetermined structures, such as the fight for freedom against the need for political accomplishment. For Bourdieu (2002) "we are playing a game", although we are not always aware of the embedded rules and specific goals. It is in the social field (*champ*) - a structured space of positions, a place of competitive struggles of actors and groups in which resources are distributed, usually unevenly – where symbolic violence results from an encounter between unequal powers; and it is this "unequalness" that has to be exposed by critical social research (Wacquant, 1989; Bourdieu & Wacquant, 1992). In each field social actors struggle to achieve key positions and compete for what is on stake (*power*). This betting for "cultural capital" (taken from Marx) therefore has to expose a "false recognition", such as speeches and positions "of the others", and to demystify the forms in which seemingly neutral institutions hinder people to learn from and to judge on public and state affairs and interventions. The final goal of this deliberative process is people´s awareness on taking own, free decisions on what best to do. The *champs* do always involve and commit the researcher to expose the lack of recognition that injustice relies on.

Secondly, and stated before, we understand power here not only in his physically form, but in a transmuted and symbolic one, and as such as an invisible and not recognizable consequence for the (affected) "outsiders" of, in our case, States water and sanitation policies. Therefore we define power, firstly, as the ability to influence others to believe, behave, or to value as those in power desire them to do or to strengthen, validate, or confirm present beliefs, behaviours, or values. As a result, the "victims", better the "dominated actors" inclusively are willing to accept the hierarchy of (States) power and their inherent institutions as *conditio sine qua non* or "rules of the game", and as such, as a natural relation and domain to which they are submitted. But power relates also to the social force that allows select persons to mobilize and to organize others to act in concert and to melt away resistance to leaders' authority. The interrelation between both forms refers to the base, the means, the extent and scope of such power, surely difficult to measure in a concrete quantitative form (Dahl, 1957). Therefore, the researcher needs to pay attention on *"... all structures of power relations"* (Wacquant, 1989: 46). Every social field, every field of human activity

relates to a resource, implies classifications of entities and their competing values and conflicts; we have to carefully assess those *"... rival representations, sometimes hostile, claiming the status of truth and therefore the right to exist"* (Bourdieu, 2003: 13).

Our *third* concept, the participant objectification seeks more than exploring the "lived experience" of the knower, the "social conditions of possibilities" - and therefore the effects and limits - of that experience and, to be more precisely, the act of objectification, *"their goal is to objectify the subjective relation to the object (...) far from leading to a relativistic subjectivism and more or less unscientific, it is one of the conditions of genuine scientific objectivity"* (Bourdieu, 2003: 282). A critical social research thus exposes the "know-how" (in water, i.e.) and objectified knowledge of official policies and laws in a dialectical relationship, a reflexive sociology. Whereas the social fields of struggle reiterate that knowledge (on water, i.e.) must always be subject to criticism, we insist that any kind of categorization is always a psychosocial system, and our language (written or spoken) is always conditioned by these psychological and social structures (Bourdieu & Wacquant, 1992; Bourdieu, 2003). Thus, the "science of water policy" is not composed of an undifferentiated research community nor is it characterized by competition between mere "techno-legal" ideas; it is a "playing field" in which the fight for power is occurring as in any other field of social sphere; their players use strategies (and language!) that are both social and intellectual, sometimes in a closed and selective field, sometimes open and public. All do have inherent an inescapable ethical and social justice dimension (Wacquant, 1989).

Being conscious that modern science does not adopt the ideology of free knowledge of interest, our analysis seeks to identify the constituent interests in the political WASH field in Honduras, mostly invisible for science and contemporary Honduran society. Through a critical analysis of the fields we intend to explore the interests that underlie knowledge claims and their conditions for operation. Law here is seen not as a "simple" elitist construction that is being imposed, but as a collective construction that requires always a process of deliberation (Habermas, 1988).

WASH in Honduras: the "messy" framework

The National Water Act (*Ley General de Aguas, LdA*) was ratified only two months after the *coup d'état* against Manuel Zelaya (June 28, 2009) during the transitional government from Roberto Micheletti, which remained in power until January 21, 2010. In this seven months core concessions were delivered, especially for hydropower, mining, forestry and agroindustry on more than one-third of the country's water resources projects without any parliamentary debate or prior social consent. Hence leaders of social and ecological movements opposed to this neoliberal onrush claiming against a free concessionaire and extractivist policy that implies usurpation, alienation of local rights and environmental destruction, were persecuted and hundreds of them have already paid their commitment with their lives, as illustrated by the brutal murdering of indigenous ecologist Lenca Berta Cáceres in March 2016 (Raimbeau, 2016).

Official figures show a relatively high level of coverage of drinking water service - 82.9% in urban areas and 63.2% in rural areas - while the quality of services is not adequate: 90% of water supply is intermittent, only 44% have effective chlorination and no water quality monitoring data are available (PAHO, 2010). Diseases caused through bad water quality occupy the first place of morbidity and the second in infant mortality (Ministry of Health, 2010). Only a quarter of the population has its own infrastructure to this end, most housings depend on services offered by means of latrines.

The FLWS from 2003 foresees the decentralization of services form the national company *Servicio Autónomo Nacional de Acueductos y Alcantarillados* (SANAA) towards the municipalities that have the legal ownership of the water services. Decentralization of 298 municipalities means connections for 3740 villages or 19,937 hamlets; all of them require local control and support units. The municipality law (*Ley de Muncipalidades*, ML, 1990) empowers them to associate among each other's or together with other national or foreign (private) entities, in order to better fulfil their objectives and attributions (National Congress, 1990).

More than ten years after the FLWS, SANAA still operates 13 municipalities out of 298, including Tegucigalpa. SANAA until the reforms of late 2014 has been judge

and part of the process itself by continuing to be a service provider, operator and trying to fulfil its role as technical assistant.[6] The entity has been criticized for not operating the systems, not providing the technical assistance to the Water Boards and illegally increasing its staff since 2002.[7] Another upcoming issue might be corruption: several water plants financed through international grants and loans do not operate adequately.[8]

In order to coordinate the descentralization process the FLWS created a governing body (*Consejo Nacional de Agua Potable y Saneamiento*, CONASA) and a regulator (*Ente Regulador de los Servicios de Agua Potable y Saneamiento*, ERSAPS).[9] Whereas the sectorial policies are defined by CONASA, chaired by the Secretary of Health, the regulation and control of the provision of drinking water and sanitation services is the responsibility of ERSAPS. ERSAPS "social responsibility" can only be operational thanks to financial support from international entities and assistance

[6] The handover of SANAA's full operation to municipalities had as *conditio sine qua non* a previous total sanitation, financial resources and capacities available in the municipalities. The fragmentation of the WASH service is remarkable in the 602 neighbourhoods and colonies of Tegucigalpa: SANAA only provides water service to 60% of the metropolitan population. In 252 neighbourhoods the service is provided by water boards, only 172 are connected to the SANAA network; 38 districts receive water from other unidentified providers, while 30 colonies from drilled wells, 50 from cisterns (ERSAPS 2010a). What happens in the remaining 40% of the population is kept secret, at least in terms of official data.

[7] The labour liabilities of SANAA were the central argument of the defenders for the reforms. Meanwhile the SANAA board insisted on negotiating the contracts collectively, the government reacted earlier with a trust in January 2014 that meant a privatization of SANAA even against its constitutional law of 1961.

[8] In 2013 a total of 43 treatment plants did not operate properly. During a field visit on December 5, 2013, I verified the complete inoperability of both BEKOX and SETA plants in Comayaguas, a city with almost 150,000 inhabitants (Gentes, 2013).

[9] Before the enactment of the FLWS (2003) no regulatory framework for decentralization of water and sanitation services existed. This led cities to carry out own initiatives, such as in the city of Puerto Cortés, where a regulatory body which includes civil society representatives selected by their respective professional associations was created, or San Pedro Sula which in 2001 constituted a unit of supervision of concessions being in 2015 still the only city in the country with a complete concession to a private company (http://www.asp.com.hn/quienes-somos/, November, 2016).

from regional, municipal and citizen audits. The strategy is to implement Local Supervision and Control Units (*Unidades de Supervisión and Control local*, USCL), the training of Municipal Technical Assistants (*Asistente Técnico Municipal*, ATM), legal advice and the development of a single information system.

CONASA came into force four years after the FLWS in 2007. The agency built to carry out policy formulation (sectorial and financial) and the development of national and municipal WASH plans was built as a council of ministers[10] that is supposed to meet periodically entailing guidelines and take binding decisions WASH policies for each of the 298 municipalities together with the COMAS (*Comisiones Municipales de Agua y Saneamiento)*, another entity institutionalized in 2003 at the local level. Though, there are only few municipalities - such as Comayagua or Tela - where both COMAS and USCL are functioning properly and sustainably (Gentes, 2013).

The National Water Act (2009) recognizes water as a human right, an overall priority and strategic resource for national security and development (article 3). Three indicators refer to the WASH systems: level of WASH regulation, participation and management in municipalities (30), coverage (31) [11] and quality (32). A total of 10% of the national budget is supposed to be passed to municipalities for investment in the WASH sector. The Country Vision Plan (2010-2038) makes more explicit the process of urbanization of the country, and counteracts the prioritization of economic corridors by the State - connoting that the investments should be concentrated in cities of more than 5,000 inhabitants and in the localities of development corridors corresponding to those 10 km to the sides of the axes that articulate the major cities reiterating that the 700,000 people in rural areas without access to WASH systems *"…should not be left ou*t" (CONASA, 2014: 1ss). The sectorial financial policy -

[10] The Technical Committee is leaded by the Ministry of Health and included six representatives of the government, three from civil society (RASHON, National Convergence Forum, AHJASA) and three representatives of the Ministry of Health (IDB, SDC, UNDP) (Gentes, 2013).

[11] Indicator 31 implies four requirements for municipalities: (i) forming and operating a Municipal Water and Sanitation Commission (COMAS); (ii) forming and operating a Local Supervision and Control Unit (USCL) with its respective Annual Operational Plan (POA) and a Regulatory and Control Technician (TRC); (iii) decentralized and specialized providers who periodically report to ERSAPS; and (iv) an instrument for delegating the management of services - whether a contract or operating status - issued by the holder (ERSAPS, 2013).

which would be the mechanism by which government investments could be governed in the form of investment programs or projects - in December 2014 has not yet been approved (CONASA, 2013c).

The Pan American Health Organization insists that the national discharges standards agreed in 1996 are not met (PAHO, 2010). Many wells in soybean growing areas are highly contaminated with pesticides, as stated by representatives of the Hydrobiology Laboratory of the National University of Honduras (UNAH). Public laboratories do not have technical capacity to follow up standards and none is accredited according to international standards (ISO17.025) (Gentes, 2013). The States Health Management Unit (UCSA) is not operational[12], and the process of accreditation of public laboratories, has still not been concluded. [13] Core information on water pollution – generated from the Centre for Studies and Control of Contaminants (CESCCO) – is been "privatised" and does do not necessarily pass to the Secretary of Health nor it is been published on official web sites. [14]

A look at the great Tegucigalpa shows the impact of this governmental inertia: of the 232 wells managed by *Juntas de Agua* (Water Boards), or private companies in condominiums only 32 are authorized by the Secretary of Health. In 2001 the last latrines were built. By 2014 20% of the latrines were on the verge of collapse; a time bomb for the city since all the discharges drain into the Choluteca River causing outbreaks of Dengue. Public medicines claim that some communities do not

[12] Interview of Ing. C. Rodríguez, Honduras-Calidad, September 17th, 2013 (from Gentes, 2013).

[13] The problem of lack of reagents occurs in all public laboratories. Public water labs in Honduras are not independent units, as so they do not handle budgets, especially for logistics or operational expenses (Gentes, 2013; 2014).

[14] Interview of Dra. G. Suazo (Secretaria de Salud), R. Osorto (SIG/DGPC), C. Rodríguez (SEPLAN, *Sistema Nacional de Calidad*), Iris Lorena Galeano (SESAL, *Dirección General de Regulación*), L. Madrid (SEPLAN, Sistema Nacional de Calidad), E. Gutiérrez (PAAPIR, *Sistema Nacional de Calidad*), Dra. L. Reyes (SANAA, *Laboratorio*), S. Hernández (SS-DGRS), September 24th, 2013.

chlorinate because of the high cost of this input.[15]

In Honduras, there is the peculiarity that a Sectorial Law (FLWS, 2003) was created first before the General Water Act (2009), and until today the national authority (ANA) has not yet been constituted. Challenges require adjustments in the FWLS and political decisions - beginning from water rights affecting existing property rights (article 65) to the irrevocability of water rights in case *"… the owner complies"* (art. 72.3). Public Authority should adapt water rights to changes in land use and irrevocable climatic changes.[16] The water act does not provide aspects of conservation of aquatic ecosystems - such as minimal ecological flows - or ways of recovering or restoring the public domain of water by allowing interventions on private land. Both, the control and the regulation of spills, are hardly outlined. Temporality of water rights is not specified, nor is authorizations, their modifiability and conditioners referring to the quality of the effluent and that of the receiving body clearly stated (Cano, 2009, 2010; Gentes, 2013).

According to the National Water Act (2009) the Ministry of Natural Resources and Environment (SERNA) and not the municipalities charge for groundwater extraction; this involves high losses - in the case of the municipality of San Pedro Sula up to 25 million Lempira per year (about one million Euro) – that normally are invested in protection and conservation of protected areas (such as the Merendón river basin) (Gentes, 2013). And in the "institutional field", the multiple levels of Councils basin (basin, sub-basin, micro-basin) with identical functions lead to an overlapping of powers and antagonism between different levels (Cano, 2010; SERNA, 2013).

Power, sweet power: socio-legal analysis of "top-down" changes

The Government of Juan Orlando Hernández (2014-18) decided an institutional

[15] Interview of Lic. Z. Díaz, A. Miralda, C. Ardón, Y. Andino, R. Aguilar & H. E. Urdea (*Secretaria de Salud, Laboratorios de Alimentos y Laboratorio de Aguas Envasadas*), September, 25th, 2013.

[16] Honduras is exposed to severe climate change mainly expressed by tropical storms and hurricanes, according to the long-term climate risk index (CRI) (Harmeling & Eckstein, 2013).

change for the WASH sector in 2014. The presidential Decree No. 01-2014 of February 2014 created the Cabinet Sector Development and Social Inclusion and was composed of various institutions with the main purpose of reducing poverty and improving quality of life. In this new Cabinet a new entity was housed: the Institute of Water and Sanitation and Community Development (IDECOAS) encouraged to coordinate policies, planning and integrating the WASH sector. However, these changes in the "social-political field" of the WASH sector, specifically the top-down creation of IDECOAS, generated several fields of conflict (Gentes, 2014):

(i) The means and scope of an "Institute", and if or not an Institute can become be an executing agency of state policies;

(ii) The use of the concept "Community", which in Honduras stands more for the rural area, excluding the urban, and therefore, if the IDECOAS can lead and unify the WASH sector;

(iii) The "legality" of the process itself, specifically, if executive decrees can be on top of constitutive laws - in this case revoking the law for the autonomous National Potable Water and Sewerage Institute (SANAA since 1961) and the Honduran Social Investment Fund (FHIS, since 1990).

In the following I will review the core outputs of these decrees facing our guiding research questions:

Legislative Decree No. 266-2013. La Gaceta, January 23rd, 2014:

Resulting from the outgoing government of Porfirio ("Pepe") Lobo (2010-2014), the law decree No. 266-2013 grants extraordinary powers to the President of the Republic regarding intervention, regulation and political, economic and social leadership. The decree reforms the public procurement law, establishing dispute resolution platforms, and public-private alliances and promotes *self-sustainability* and *self-financing* of public administrative management. Concerns regarding the human right to safe drinking water and sanitation - as prescribed by PLANASA and the international agreements ratified by the government – are not mentioned nor is it specified how to achieve government's goals in WASH in the rural perspective, which

requires special attention in order to reduce gaps and inequalities in WASH.

The decree explicitly prioritizes the participation of private companies (article 2). The fulfilment of a new public-private goals, intended to be achieved through a re-engineering of the State strengthening command-control instances centralized in "top-down-policies" and personalized power highlights *"... the creation, modification or suspension of the Secretariats of State or of the decentralized organizations or any entity, may only be made by the President of the Republic in the Council of Secretaries of State"* (Article 4). The decree establishes an obligation for planning (sectorial, annual and multiannual) within the framework of the Country Vision and National Plan and under the control and supervision of the General Coordination of the Government (article 29), putting an end to autonomous public instances from state control, such as SANAA.

Legislative Decree No. 266-2013. The Gazette, February 22nd, 2014:

This decree ratifies the creation of new sectorial cabinets, so the Institute for Community Development, Water and Development (IDECOAS, article 20), as well as the re-grouping of secretariats, institutions and semi-autonomous entities of the State. IDECOAS groups together with other SANAA, FHIS and PRONADERS, a rural development programme, in the new Sectorial Cabinet for Development and Social Inclusion (article 3). All this happened, without repealing the constitutive laws of FHIS or SANAA (1961) nor previous consulting of the Council of CONASA. This public-private re-engineering of administration causes new fragmentation to IWRM and makes the co-management of social and infrastructure policies even more complex in relation to the WASH sector. The invention and movement of institutions such as chess pieces reinforces the weak engagement of institutional roles; the overlap or lack of competencies and capacities (in the case of CONASA) is not been solved, nor does it indicate consistency with the social organization in between the water boards. CONASA results as a clear loser of this new policy: its functions do not even appear in the new structure.[17] At the same time, while the new executive

[17] Its future seems uncertain and depends on a change of the FLWS (2003) (interview with L. Romero, Executive Secretary, CONASA. Tegucigalpa, March 13rd, 2014).

powers emphasize the decentralized and decentralized nature of public management, the State now forces them into inter-sectorial and sectorial planning by results (article 13).

Legislative Decree No. 266-2013. The Gazette, February 28th, 2014:

Legislative Decree No. 003-2014 rationalizes the institutional structure and public expenditure (article 1) and reorders the social policy sector (articles 2, 3), allowing budget readjustments by the Ministry of Finance (article 4). In relation to the WASH sector, in particular to SANAA's labour liabilities, an evaluation of the personnel transferred by the Secretary of State will be carried out, involving cuts and numerous dismissals (article 5).

Legislative Decree No. 266-2013. The Gazette, march 10, 2014:

Law decree No. 008-2014 ratifies a trust between SANAA and the FICOHSA bank called "Recovery of losses in water distribution, purification and treatment of wastewater in the services provided by the National Autonomous Service of Water and Sewage (SANAA)" (clause 1). It stipulates that the fiduciary will receive from the private bank (FICOHSA, until July 2014) the total amounts of subscribers' fees and payments received by SANAA and the right to administer the cash flows of SANAA for WASH services (Republic of Honduras, 2014c: clause 4). In this way, the operational assistance that SANAA still lends to the cities is to become a public-private tender project. As justification the ruling party mentioned a non-compliance with the FLWS (2003) regarding decentralization and transfer of WASH services from SANAA to municipalities and a lack of technical assistance and financial losses (República de Honduras, 2014c: clausula 2). SANAA´s union appeal was received by the Court of Appeal in June 2014, alleging that there were shortcomings and inconsistencies of the decree, such as the role of SANAA's technical assistance in the area of decentralization to municipalities is not clearly considered[18]: SANAA must

[18]The court appeal against argues that: (i) the decree did not repeal the constitutive laws of autonomous institutions (SANAA, ENEE, among others), (ii) the total percentage of gross annual

now sign contracts with municipalities for each assistance it provides, thus increasing the suspicion of a "covert privatization" of the autonomous public entity. The municipalities, which could be the most affected, were not consulted, nor are they part of the technical committee.

Legislative Decree No. 266-2013. The Gazette, may 30th, 2014:

This "New Constituent Law of the Institute of Community, Water and Development (IDECOAS)" - because of its rather administrative and non-regulatory nature - seeks to "articulate the functions and attributions of PRONADERS, FHIS and SANAA2 (article 5a). IDECOAS is encouraged with the *"... basic development of necessary infrastruct*

ure for (...) urban and rural population in drinking water and sanitation, among others" (article 6d). The financial assets of IDECOAS will be constituted by: *"... (a) PRONADERS, FHIS and SANAA programs and projects and others related to the water and sanitation sector; (b) the movable and immovable property owned by PRONADERS, FHIS and those assigned to SANAA programs and projects and others related to the water and sanitation sector; (c) donations, transfers and legacies"* (article 19). The IDECOAS will thus obtain technical capacity by means of a "temporary transfer" of the selected personnel of the SANAA-Technical (article 22).

Presentation and Discussion of Findings

The public management of water in Honduras is still guided by a strong tendency for demand, not for supply, facing serious difficulties to meet the legislative requirements of continuity, quality (service and water), and charging the real cost for an adequate sanitation (Banco Mundial, 2012a, b; OPS, 2010). The discursive narrative of a land management in river basins is not crystallized in a systematic policy

income obtained from the operation and maintenance of the property registration system for the period in question was not mentioned; (iii) that the technical losses were around 25 to 30% and not 50%, as stated in the decree; (iv) that CONASA, although it appeared in the Technical Committee of the trust, did not appear as signatory of the previous contract; neither the had Council nor its representatives been consulted on these substantive changes; (v) that the Council of Ministers operated just at a time of transition from two governments - from Pepe Lobo to Juan Orlando Hernández - so its legitimacy could not been ensured.

of allowances and funds (and salaries) of public entities. Only core municipalities – such as San Pedro Sula o Puerto Cortéz - were considered in the planning process of decentralization, especially in international programs; none of them in the WASH reforms from 2014. There is still a need to recognize the pre-existing rights and duties of rural municipalities to provide drinking water, and the roles of the Water Boards (*juntas de agua*). The institutional structure of water provision differs by law between urban and rural municipalities. Demands for territorial and financial decentralization, which involves transferring financial resources to municipalities, and from them to its "social partners" the Water Boards (*Juntas de Agua*) to make the process viable, and in the allocation of human resources and special powers to local governments for the management of their WASH systems, are pending (ERSAPS, 2010; CONASA, 2013c).[19]

The Nation State does not dispose on a systematization of (good and bad) experiences and latent conflicts, nor is public water administration data accessible and up to date (SANAA, 2007, Gustavo & Lentini, 2012; Gentes, 2014). Translating this into a "political field", ministries mostly decide on a process of decentralization, without systematized information. Until the present, access to water and basic sanitation is not listed as an indicator in the social policies of the country, but in the national development plan. This notable exclusion means not only ignoring municipalities' rights and duties, but also neglecting the experiences of social organizations in the areas of training, design and co-execution of policies and regulations. Academic and non-governmental bodies[20] that could certainly contribute to citizens' rights and new

[19] According to the Association of Municipalities of Honduras (AMHON) State must prioritize three actions: (i) compliance with the legal device to transfer 11% of the national budget to municipal governments; (ii) removing municipalities 1% payment of its budget for the Superior Court of Auditors and (iii) the transfer of financial resources to the associations to install and manage their own WASH systems (http://67.19.177.28/~amhon/index.php?option=com_content&view=article&id=73&Itemid=85,accessed 15 September 2013).

[20] In October 2013 an initiative of six NGOs emerged in the WASH sector called *Total Coverage forever* (*Cobertura Total para Siempre*, CTPS) seeking to create conditions for Honduras to

issues such as groundwater extraction, regulation and control, environmental monitoring, watersheds and land use, were not part of the re-engineering of the state.[21]

The above analysis states that the struggles in the political field of water occur around the powers and functions established by the FLWS (2003), the National Water Act (2009) and the substantive changes to public administration between 2014 and 2015, highlighting the following: (i) the lack of an institutionalized and plural operating body - role that according to the FLWA should have the National Water and Sanitation Commission (*Comisión Nacional de Agua y Saneamiento, CONASA*) - to develop proposals, formulate regulations, viable resolutions and issued provisions, make monitoring and evaluation and coordination actions with other national, regional and municipal management plus financing and concreteness, to benefit the sector entities. While the recent establishment of IDECOAS seeks to reverse this situation, this analysis reiterates that rather it worsened it; (ii) a body for monitoring, controlling and sanctioning - role lies at the bottom to the Regulatory Authority for Potable Water and Sanitation (*Ente Regulador de los Servicios de Agua Potable y Saneamiento, ERSAPS*) - that has sufficient resources to carry out the regulation of the sector, enabling it to verify compliance with the law by municipalities and by providers of water and sanitation services throughout the country; (iii) a body of instrumentalization and maintenance of the necessary water infrastructure and on-going training (in and out - role stipulated since 2014 to the National Potable Water and Sewerage Institute (SANAA) - but as a technical assistance agency has no formal processes for operationalization, and whose union is not assumed for years to face a re-engineering required for entailing de-concentrated technical assistance for the

minimize dependence on foreign aid for development and provision of WASH (https://www.waterforpeople.org/country-pages/honduras/, visited September 14th, 2016).

[21] Intersectorial partnerships, especially between the Secretary of Health and Education, NGOs, Universities (UAH) and Association of Municipalities are likely better to train human resources than State agencies (Gentes, 2013; 2014).

benefit of municipalities and water boards in the most vulnerable areas of the country (Chama, 2007, SANAA 2007; 2013). Adding to this the lack of integrity and transparency in the act of officials or private companies are not pursued by the General Attorney or strongly sanctioned by the Court.[22]

The present analysis was embedded in the social field theory of Pierre Bourdieu (2003) assuming the applied social science as a participant objectification. Our interest was to support emancipation of the excluded actors in conscious actors and therefore active assets. A more democratic field of water policy in Honduras undoubtedly requires governance that previously consults existing institutions and recognizes collective action taking into account the regulatory framework already in place to improve local management around more effectiveness, efficiency and tangible impact in the communities and territories. Imposing a legal command-and-control system that lacks social policies and cohesion is indicated the current governmental and historical authoritarianism. Regarding our case study, State agencies should consult the Honduran people on progress and setbacks to the institutions and their representatives go beyond social and communitarian action in vogue before making abrupt legislative changes and counter-productive resulting in further fragmentation within the public administration and less social cohesion. Violations by the State against fundamental rights and the human right to water and sanitation delay the necessary modernization and democratization of all public, private and civic sector.

A first reflection allows us to hold that neither drinking water nor sanitation has been a priority of Honduran governments in power since the *coup d'état* of 2011. The public-private interests at stake of parliamentarians around or belonging to the family enclaves allow a tacit allocation process and a strip of exclusive priority rights ranging, for example, from illegal withdrawals from private companies bottling water to the no registration or fees of extraction for mining companies. Corporate interests face weak institutions regarding imposition of regulatory framework, especially studies of

[22] The WASH sector in general is very conducive to private profit interests, weak controls and monitoring, not only in the supply chain and sanitation sector but throughout the tendering system, provision, management and operation as a whole (TI, 2008; Gentes & Laxen, 2011).

socio-environmental impact, participatory monitor alongside a criminalization of peasant movements, their territorial defence of ecological heritage. Despite the three assignments mentioned in the National Plan for WASH, the information system is neither real nor reliable. Furthermore, our research found evidence on several water supply, and local sanitation systems, where community involvement is first and then municipality prioritizes them (Gentes, 2013; 2014). Neither has the national WASH sector taken them into account nor empowered them. States monopoly on water, on the one side, but totally (physically) absence and suppression of local management models in the last decade, on the other - especially in tasks of health monitoring and enforcement of quality standards drinking water - has led to a political field of extractivism.[23]

A second reflection of "political-social field" emphasizes that the FLWS was never dimensioned according to the necessary investments. The FLWS determines the role and responsibilities for management-operation, regulation-control, planning and technical assistance – but has not actually been agreed with the population and different sectors, leaving many gaps such as: (i) a CONASA is set at a very high ministerial level which is dysfunctional in operation; (ii) it is not specified how the Secretary of Health and Education could be involved. The FLWS do not reform the autonomous Law of SANAA, creating a divorce between conservation and water management, causing power struggles between Ministry of Natural Resources and Environment (SERNA) and SANAA and the Ministry of Agriculture and Livestock (SAG) who, before the National Water Act of 2009, had the responsibility for the use of water resources. Today SERNA with highly limited personal and financial resources must control the granted water rights and ensure a river basin management (Congreso Nacional, 2003). This negligence causes serious problems to governance, especially a generalized non-payment of water fee, and extended field for water

[23] Interview with Dr. M. Marín, Autonomous University of Honduras (UNAH), Laboratory of Hydrobiology, November 26th, 2013, and Dr. M. Argueta, SANAA, Head of Public Water Labs, September 13th, 2013.

licenses awarded by the SAG through its programs and projects.[24] There is no public institution systematizing conflict or environmental licenses. The results from 40 interviews demonstrate a non-compliance with principles set by the environmental law (precautionary, rewarding water damage, pay for polluting, payments for services).[25] A public registry of water rights and their different purposes - industrial, private – and location - surface and groundwater - aspects affordable for the general public and the collection of water charges (extraction and use, starting with industrial sectors in the country) is pending. In addition, SERNA must make a sensible monitoring and promoting certification - by standards and good management – of the major basins and seeking to recover heavily damaged ecosystems - such as Lake Yojoa - starting from a formation and operation of regional councils for environmentally sustainable development.

A third reflection insists that, as a consequence of the decrees ratified in 2014, SANAA remained as a "public-private partnership project", as such State enforced a "secret privatization" of an autonomous entity and heritage of the state, since the seventies of the twentieth century. The changes generated a new internal conflict regarding powers and subordination *de facto* of the two autonomous entities (SANAA and FHISS) incorporated in the IDECOAS. The tax changes will require mediation regarding an effective capacity to carry out the national country goals. Our analysis indicated another imminent risk: a lack of clarity and overlapping in the powers granted to IDECOAS with negligent competencies in national water policies and a missing national budget supporting programs in the WASH sector. As a consequence and hand in hand with the legal contradictions IDECOAS may have the effect of negatively impacting water and sanitation provision.

A fourth reflection urges that an integrated water resources management (IWRM) faces the great challenges of the National Water Act (2009): greater coordination and

[24] Interview with G. Cabrera, Head oft he Watershed Unit (SERNA), September 5th, 2013 and Ing. M. Ochoa & Ing. J.F. Rosales (SAG), September 23rd, 2013.

[25] A negative example of a non-operating state control is the activity of Tilapia farming and mining (El Mochito) that impact on Lake Yojoa, the second largest river in Central America (Sandoval, 2003: 21).

state control and joint delegate in the development and management of land, surface and groundwater, river basins and adjacent coastal and marine environments. IWRM in WASH systems is not limited to the management of physical resources, but also involves the reform of the mentioned "social and political fields" in order to enable the population to the benefits derived from those resources equitably reverse it (Fernández et al., 2009; Lentini, 2011). Our studies reiterated that the "reality of water provision" varies greatly across Honduras' contrasting urban-rural, continua and wet-dry supply, high to low supply gradients, including excluded areas from "official" WASH supply, such as great part of the Mosquitia. This has important ramifications for effective water provision, and there are places in which the water boards (*juntas de agua*) have been successful by clever leverage of limited financial and technical support with alliances with NGOs and certain international programs. Therefore we assume important to recognize the diversity of experiences, along with the reality that the legal framework is been implemented and interpreted in different ways and degrees across the country.

In Honduras, water justice "is been played" in an atmosphere of "political and administrative extractive field"; decisions "do not download" to nor taken from the communitarian sector, and are not reflected in concrete social practices, or an effective educational and training system. The large gap between the legislation and the implementation is supported by overall colluded and corrupt practices of private-public policies, supported by the statements and our on-the-ground interviews. Added to a "despotic and negligent state" more and more purposed entities rule by running parallel institutions that fight each other, without an inter-institutional coordination among them. In addition there is another risk that loan agreements from international donors (UE, WB, principally), and the actions of some donors and NGOs, establish areas of priority providing them with the resources generating nee and a priori exclusion zones (UNICEF, 2011). State, as an absolute authority, is no longer limited by laws but self-generates the abuse of power aiming to "hold in check" its individuals and collectivises, in a permanent situation of disadvantages, alienating them from their essential rights, creating "ghost or adjudicative institutions" (Bobbio 1989). Our analysis shows that these indirect usurpation of the

human (and national!) rights to WASH is also fed by a systemic unsustainability, the weak anchor of rules, the failure to consider social practices in water management, as well as low representation and legitimacy of central policy in shift. Neoliberal policies are repressive and indicate a "development towards the underdevelopment", as Andre Gunder Frank would express it, and, in effect, do arise "frightened citizens" without public power and real capabilities to find the right answers carrying out own and more appropriate actions in their water and sanitation systems.

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A Book Review by Laura Tejada[1]

Water security, justice and the politics of water rights in Peru and Bolivia [2]

The overall goal of *Water Security, Justice and the Politics of Water Rights in Peru and Bolivia* is to scrutinize the claim by legislators, policymakers and development institutes that legal recognition of local water rights reduces water conflict and increases water security and equality for peasants and indigenous communities. This is indeed an ambitious goal of the author Miriam Seemann, given the fact that nearly no studies have looked at the actual impacts of water rights formalization policies on the ground so far. Nonetheless, the book touches a subject of major importance in view of the trend towards the adoption of new water legislations in the last decades, resulting in the formalization of water rights and entitlements, not only in Latin-American countries such as Chile, Brazil, Mexico, Peru and Bolivia, but on a global scale (Baillat 2010). Well aware of the shortcomings of mainstream approaches to property rights formalization, like de Soto's (2000) theoretical presupposition that formal property rights are the most important institution for economic growth and development, the book demonstrates that uncritical formalization of local water rights may lead to weakening, instead of strengthening, local water security.

As the author notes in chapter two – following a brief introduction in chapter one – most theoretical approaches within academic and policy debates, regard property rights in water resource management as a "unitary and static economic good" whose formalization is required in order to diminish water conflict and ensure water security for the poor. What follows is a detailed description of the main theoretical currents

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of property rights reflected in Andean water formalization policies, which comprises "new-institutionalist", "political economy", "rights-based" and "common-property-based" approaches. Challenging these dominant theoretical approaches for missing out on the issues of power, inequality and legal complexity of water rights is in itself nothing new, as scholars have done so for decades. This is also reflected in the book's comprehensive literature review. Yet, with the legal pluralism and political ecology lens applied in this book and described in chapter three, the author manages successfully to frame an own theoretical approach, which does justice to the study of "formalization" conflicts, equity and power issues at local level. By tying together a legal pluralistic perspective of water rights, formalization and water securities with a conceptualization of water conflicts, power and equity, Miriam Seemann convincingly engages with the contradiction between formal recognition of rights and alternative conceptions of water security and equity at local level, a topic which is at the core of this book. The author draws especially on Fraser's work (2003) by bringing in the three justice dimensions "redistribution", "recognition" and "representation" as well as on the theory of legal pluralism. This gives her the tools for a detailed understanding of how formalization policies relate to issues of water equity, water conflict and water security.

Having constructed this theoretical lens, Miriam Seemann continues in the following chapters with the presentation of the Peruvian and the Bolivian case studies. Each country case study begins with a very detailed analysis of the different water regulation and recognition policies towards the indigenous population from the 20th century onwards. It is followed by a chapter on water formalization policies and concludes with empirical material collected in two communities of the Andean highlands. The empirical material was collected in two countries with very different water formalization practices, based on two divergent policy frameworks: While Peru is following a top-down formalization process, focusing on individual rights within a neoliberal governance framework, Bolivia is implementing a bottom-up approach to water formalization, based on the recognition of customary water rights assigned to communities and families in the context of an indigenist-socialist governance model. This comparison of two countries with opposed institutional frameworks is one of

the main strengths of the book. Miriam Seemann shows that even though the Peruvian and Bolivian institutional setting diverge in terms of the degree of civil society involvement in the development of the new water legislation and the recognition of local water use rights, both systems fail to take into account power differentials in communal and indigenous territories. As a result both policy frameworks remain exclusionary, by benefitting those peasant and indigenous users who have their affairs in consistence with property or customary rights and thus formalizing local power structures containing unequal norms around water access and control rights. This is a quite surprising result of the study, given the fact that in Bolivia national policy opted for subtle participatory and inclusive power strategies in order to integrate the local into the formal property rights system and renounced to implementation of private and individual-based water rights. Yet, far from solving the problems, both the Peruvian and the Bolivian formalization policies simply cemented the status quo of the water use rights already at place, creating an outcome that in both cases sustains the ideology of modern water policies.

Miriam Seemann's research raises serious concerns regarding the application of water formalization politics in a one-size fits all way, which is ignorant to diversities of agro-ecological systems as well as cultural and social relations. The question is well justified: What are the impacts of official formalization policies in contexts of functioning local water distribution systems in terms of water conflict? While in the case of Peru the interaction between the two normative systems constitutes a form of legal pluralism, which among the local population has led to forms of "legal shopping" and acceptance without necessarily implementing formal rights, in Bolivia water formalization is fostering conflicts between neighbouring communities. The author not only offers a detailed analysis of the existing water conflicts at different "echelons of rights" (Boelens 2008), but also points to the exclusionary nature of the land formalization policies in the longer term and the high probability of water conflicts in the future. Since no mechanisms and procedures to revoke or cancel a registration or license have been established in Bolivia, inequity and inequality among farmers is likely to increase, since new users can hardly be integrated retroactively into the system. Non-recognized rightholders in Peru are in a particularly vulnerable

position, since several authorities have confirmed that in order to tackle scarcity and contribute to an "efficient" resource use, only users in possession of an official license will be granted access in the future (Urteaga Crovetto 2010). This augurs badly in a policy context such as the Peruvian, where agribusiness companies and mining enterprises which can afford modern irrigation technology, are given priority when soliciting new water rights. Thus, even though local water use and control rights are perfectly able to "respond to ecological environments and local principles of equity and security" (Seemann 2016: 163), they are being altered and freezed in the context of ongoing formalization policies, with uncertain outcomes for Andean peasants in the future.

While reading the book, some readers may ask themselves why Miriam Seemann decided to study the impacts of water rights formalization policies in the Andean highlands, where the application level of concrete formalization policies among local water users is considerably low, compared to coastal areas of Peru. This book stands out by revealing the underlying causes for this discrepancy between the issuing of new formalization policies and the lacking implementation on the ground. Yet, it is over-promising to state that this book evaluates "the actual impacts of water rights formalization policies in the field" (Seemann 2016: ix), particularly in terms of water security. While we find out in more depth about the exclusion of certain peasants and indigenous community members in the course of the formalization process and emerging conflicts, little is being said regarding the actual impact of the policies on water security for the local population. A context where water is not allocated according to licenses yet, due to the persistence and higher legitimacy of the traditional water distribution institutions at local level, as reflected in the Peruvian case study, poses a major obstacle to the realization of an impact-oriented study. The confusion around the term 'water security' might stem from the absence of a proper definition of the term in the book, which leads the author to employing the word sometimes in the sense of "formalized" water rights security and sometimes in an "informal" sense.

It is Miriam Seemann's concluding chapter 'The Politics of Water Rights Formalization and the Missing Ingredient of Water Security', which is

simultaneously the least satisfying and most enriching one. While the reader might expect a comparison between the Peruvian and the Bolivian case studies regarding similarities and differences in terms of social equality, water conflicts and security, the author starts with a summary and comparison of the historical background and the water policies of the two countries, which appears repetitive at this advanced stage of the book. The subsequent presentation of the main findings of the book in terms of 'impacts on the ground' is kept short, but provides a good overview over the main results of Seemann's empirical data, namely that (a) the two countries' formalization policies miss out on questions of redistribution and thus benefit some while excluding other, a fact which is leading to water conflicts; (b) recognizing legal pluralism per se does not automatically guarantee more equity in water distribution; and (c) theoretical presuppositions inherent in property rights discourses, ignore the complexity of power struggles over resources as well as the social and cultural exclusion within society, which is not in line with their theoretical assumptions and their promise of delivering 'win-win' situations. After presenting the main findings of the presented research inquiry in terms of water equity, conflict and water security, the concluding chapter dedicates itself to the difficult question of what such an analysis suggests of 'what to do about it'. Yet, given the high practical relevance of the research, this causes no difficulty to Seemann and the result is an elaborated list of valuable recommendations for policy-makers aiming to implement water formalization policies.

This book makes an important contribution to the under-researched topic of water formalization policies and how they relate to issues of water security, water conflict and equity in the field. Readers interested in the engagement between formal and alternative notions of water security and equity as well as the tensions resulting at local level as a result of the dominant water discourse favouring formalization policies, will find it inspiring.

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