

# Questioning the effectiveness of planned conflict resolution strategies in water disputes between rural communities and mining companies in Peru

Milagros Sosa & Margreet Zwarteveen

To cite this article: Milagros Sosa & Margreet Zwarteveen (2016) Questioning the effectiveness of planned conflict resolution strategies in water disputes between rural communities and mining companies in Peru, *Water International*, 41:3, 483-500, DOI: [10.1080/02508060.2016.1141463](https://doi.org/10.1080/02508060.2016.1141463)

To link to this article: <https://doi.org/10.1080/02508060.2016.1141463>



© 2016 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 11 Feb 2016.



[Submit your article to this journal](#)



Article views: 2017



[View related articles](#)



[View Crossmark data](#)



Citing articles: 3 [View citing articles](#)

# Questioning the effectiveness of planned conflict resolution strategies in water disputes between rural communities and mining companies in Peru

Milagros Sosa<sup>a</sup> and Margreet Zwartveen<sup>a,b</sup>

<sup>a</sup>Water Resources Management Group, Wageningen University, the Netherlands; <sup>b</sup>Department of Integrated Water Systems and Governance, UNESCO-IHE; Department of Human Geography, Planning and International Development Studies, University of Amsterdam, the Netherlands

## ABSTRACT

Disputes between mining companies and surrounding communities over the access to, control of and distribution of water form an important part of the socio-environmental conflicts that large mining operations in Peru are producing. In order to mitigate environmental impacts, solve conflicts and deal with opposition to mining operations, governmental actors and mining companies make use of a combination of legal and technical strategies. This article questions the effectiveness of these strategies, focusing in particular on the longer-term sustainability of water resources, water-based ecosystems and livelihoods. Based on research carried out in the surroundings of the Yanacocha gold mine in Cajamarca, the article shows that although legal and technical conflict resolution strategies are effective in temporarily diffusing tensions, they do not address the underlying political causes of conflicts. Instead of these seemingly objective, neutral and quick solutions, the analysis suggests that solving environmental conflicts around large-scale mining operations requires explicitly admitting and dealing with the fact that these conflicts are always inherently political, situated, complex and power-laden.

## ARTICLE HISTORY

Received 31 May 2015  
Accepted 11 January 2016

## KEYWORDS

Water governance; socio-environmental conflicts; mining; conflict resolution; Peru

## Introduction

Since the 1990s mining activities have considerably intensified in the Andean regions of Peru, triggering a proliferation of socio-environmental conflicts (Bebbington, Humphreys Bebbington, & Bury, 2010; Bebbington, Hinojosa, Humphreys Bebbington, Burneo, & Warnaars, 2008). Between 2009 and 2012, more than 250 mining conflicts were reported. Many of these are about access to and control of land and water, and about the availability and sustainability of those resources for activities other than mining (Bebbington & Williams, 2008). In many cases, paradoxically, the communities that are articulating these concerns are often the same as those that expect and demand to benefit from the social and economic development opportunities that mining activities generate in rural areas (Bebbington, 2007). This paradox importantly co-shapes the nature and direction of conflict resolution scenarios: the fact that affected

**CONTACT** Milagros Sosa  [milagros.sosa@wur.nl](mailto:milagros.sosa@wur.nl); Margreet Zwartveen  [M.Zwartveen@unesco-ihe.org](mailto:M.Zwartveen@unesco-ihe.org)

© 2016 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group  
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

communities economically depend on mining companies limits their possibilities and willingness to express grievances and concerns. Often, conflicts happen within an institutional context that is not just characterized by large asymmetries in financial and political power, but that also separates the governance of mineral expansion from that of water resources and local development. Coupled with the political prioritization of mining development, this makes it difficult to effectively plan and regulate the interactions between mining operations and water.

Against this context, this article critically interrogates the effectiveness of planned attempts to solve or intervene in mining conflicts, particularly looking at whether and how these help ensure the sustainability of water resources, water-based ecosystems and livelihoods. We use selected examples of an iconic conflict, the one between the Yanacocha mining company and the rural communities of Combayo (Cajamarca, Peru), to show how conflict resolution typically happens by invoking the 'authority' of law and of science. The legitimacy of both importantly relies on their association with objectivity and neutrality. In other words, their strengths stems from the fact that they are designed to be non-political. We argue that the deeply political nature of mining conflicts makes it intrinsically difficult, or perhaps even impossible, to institutionally or scientifically safeguard objectivity and neutrality. This subsequently calls into question the effectiveness of the proposed technical and legal solution strategies. In particular, there is a danger that rather than correcting unsustainable or unjust behaviours, those in power – mainly the mining companies – use supposedly objective solutions as a legitimizing device to continue with business as usual.

We conclude that instead of trying to screen off socio-environmental mining conflicts from politics by resorting to science and law, it might be better to explicitly admit and subsequently deal with the fact that these conflicts are always inherently political and power-laden. That is to say, instead of basing solutions on forms of objective 'rightness', we suggest there is merit in acknowledging that they are always part of specific institutional contexts characterized by huge inequalities in voice and financial resources. This calls for much more emphasis on the process and power dimensions of environmental conflict resolution strategies.

This article is part of the first author's (M. Sosa) PhD dissertation. It is based on fieldwork done in Cajamarca, Peru, from 2008 to 2011. Like many farmers in the area of Combayo, during her fieldwork M. Sosa alternated living in the city of Cajamarca with stays in the rural town of Combayo. She also spent time in the communities of El Triunfo, Bellavista Alta, Bellavista Baja, Porvenir and Pabellón de Combayo. Information collection consisted of 40 semi-structured interviews in Cajamarca and Combayo with farmers, local and regional authorities, consultants, researchers, representatives of state agencies, the mining company and local NGOs. In addition, six in-depth interviews were held with presidents of irrigation canals and local authorities. M. Sosa also participated in community assemblies, communal work parties, herding activities, communities' parties, Sunday church services, cattle markets and judicial hearings. She used many of these occasions for observations, more or less formal interviews, oral stories, surveys, and focus group discussions, thus combining multiple research methods (Burawoy, 1998; Manson, 2002; Ranjit, 2011). Grey literature formed another important source of information.

After this introduction, the article presents the theoretical inspirations that informed the analysis. This is followed by background information on the case and a description of the conflict, and then an analysis of the legal and technical solutions that form important elements of strategies for dealing with opposition to mining operations. As a conclusion, the article discusses the effects of such strategies on rural communities, disputes over water resources influenced by mining operations, and the sustainability of water resources in general.

## **Water governance and socio-environmental conflicts**

This analysis draws theoretical inspiration from an emerging literature about the contested nature of environmental problems on the one hand, and from scholarly attempts to come to grips with the many entanglements between science and society on the other. As for the first, scholarship that explicitly acknowledges the deeply contested character of environmental problems has a long history. Inspired by political ecology as a way to think about ‘conflicts and struggles engendered by the forms of access to and control over resources and the inherent power relations in defining, controlling and managing nature’ (Peluso & Watts, 2001, p. 25), this work assumes and posits linkages between the institutional regulation of property and the organization of society. In contrast to much conventional water-focused scholarship, it explicitly sets out to unravel how environmental planning and governance processes help reproduce social hierarchies and power relations. Hence, in political ecology terms, water governance is not just about water but also about the distribution of incomes, wealth and authority in society (Bridge & Perreault, 2009). This is one important reason why water is an intrinsically political and contested resource (Boelens, 2008; Mollinga, 2008; Panfichi & Coronel, 2010; Zwartveen, Boelens, & Roth, 2005).

In line with this body of scholarly work, water governance can be defined as “the practices of coordination and decision making between different actors around contested water distributions” (Zwartveen, 2015, p. 18). Such practices are thick with politics and culture, are linked to creative processes of imagining and producing collective environmental futures, and combine political problems of scale (spatial, ecological, administrative, temporal), with problems of coherence – the durable alignment of different people and different waters despite problems of incommensurability and political tensions (Bridge & Perreault, 2009). The implication of this perspective for water conflict resolution, the topic of this article, is that it can never be just a technocratic exercise, but should always engage with issues of (the organization of) power and politics.

Socio-environmental conflicts materialize when disagreements and contestations between different groups within society around natural resource (i.e. water) distributions, or the allocation of risks and hazards (Muradian, Martinez-Alier, & Correa, 2003), cannot be solved in a manner that is agreeable to all parties involved (Edmunds & Wollenberg, 2001). Such conflicts are symptoms of inadequate or ineffective political processes, as much as they signal problems of a more technical nature. This brings us to the second source of theoretical inspiration for this article, the literature on the entanglements between science and society. Because water is always contested, water (management and governance) questions cannot be resolved by just

referring to ‘objective’, scientific information or analyses, but also involve matters of opinion and choice (Zwarveveen & Boelens, 2014) and have to do with interests and values (Muradian et al., 2003). Thus, to intervene in water conflict situations, scientific accounts of reality cannot be dealt with as an objective ‘black box’ separated from the context and from the political and social issues they are immersed in. On the contrary, pretensions of scientific objectivity or neutrality risk being purposively used to screen contentious questions off from explicit deliberation (Castro, 2007). As Li (2007) famously argued, questions that are rendered technical are simultaneously rendered non-political.

This article combines these insights about the intrinsically contested nature of water and the impossibility of separating politics from scientific or technical forms of knowledge as a framework to assess the effectiveness of conflict resolution strategies in mining areas in Peru. To summarize, we consider these conflicts more-than-technical in that they are indicative of wider power imbalances. These conflicts emerge when two or more actors or organizations compete for control of or access to water, and may evolve around issues of quantity, quality or opportunity (Pereyra Matsumoto, 2008). Urteaga (2011) thus aptly refers to these conflicts as expressions of political processes, with prevailing power relations co-shaping relations between the actors involved and their relations with water.

## Background of the area and the conflict

### *The highlands of Combayo*

Combayo, a rural town located in Cajamarca, has been the setting for a sequence of socio-environmental conflicts involving farmer communities and the Yanacocha gold-mining company as main actors. During the period of the *hacienda*, this rural town was known as the Hacienda Combayo. It formed one of the important estates in the northern region.<sup>1</sup> Today, about 13 of the 21 *caseríos* or communities of Combayo are located within the area under direct influence of Yanacocha mining operations (Yanacocha, 2007). Between 1992 and 1996, the company acquired about 4069 ha from 41 Combayo farming families, land that it needed to start operations in Cajamarca (Pascó-Font, Diez Hurtado, Damonte, Fort, & Salas, 2003). The combined effect of these sales and population growth is that at the time of this study, most land holdings in Combayo were small individual *minifundias*, ranging in size from 0.5 to 2 ha (INRENA, 2007). Here, like elsewhere in Cajamarca, the main economic activities are livestock and dairy production, together with some small-scale agriculture. For instance, surveys conducted in El Triunfo, one of the communities of Combayo, revealed that livelihood activities consisted mainly (76%) of small-scale farming and dairy production, with temporary employment at the mining site complementing families’ incomes.<sup>2</sup> Farming and dairy production in Combayo rely on irrigation water that comes from streams or creeks fed by water from the Azufre River, a tributary of the Chonta River, which is part of a river basin of about 34,531 ha.<sup>3</sup> Assessments conducted during 2006 and 2007 by MINAG and sponsored by Yanacocha concluded that agricultural yields and dairy production in Combayo were lower than in other areas in Cajamarca Province. The study attributed this to low-quality seed, lack of

proper soil fertilization, and inadequate farming practices. However, it also mentioned the lack of water for irrigation, or the lack of water security in the area, as a reason for low productivity (INRENA, 2007). A comparison of the water requirements of the existing farming systems in the watershed with water availability in the area reveals water shortages of about 38 MCM between May and October. Availability of water for irrigation is lowest and most critical in August (CEDEPAS, 2008), but water shortages can last for about eight months of the year.

Water is conveyed to the fields through a network of rudimentary canals. Some of these were constructed during the hacienda era, while others were dug more recently by farmers. Of the eight farmer canals in Combayo, about three were directly affected by the mining operations at the Carachugo site: Azufre Ahijadero (conveying about 100 L/s), Azufre Atunconga (150 L/s) and Azufre Ventanillas de Combayo (160 L/s), with a total of approximately 357 users and 885 ha of irrigated areas impacted (Mendoza Moreno, 2008). To manage the irrigation canals, farmers have organized themselves in water user associations, one *comité* for each canal. Some of them, like El Triunfo, hold official water rights given by the state. The associations are registered with the local water authority in Cajamarca<sup>4</sup> and led by a canal-president, who is responsible for distributing the available water supply, establishing the rotation schedule for the delivery turns, and organizing maintenance work. These canal-presidents also play a key role in mobilizing farmers in times of water disputes. They are the ones who speak for and represent the irrigators in the outside world. Their powers, means and resources to protect their canal's water rights are nevertheless limited (Sosa & Zwarteveen, 2012).

Before going into a more detailed description of the conflict, we briefly introduce the main features of the mining company. Yanacocha is a joint venture of the Newmont Mining company (USA), the Buenaventura mining company (Peru) and the International Finance Corporation, a member of the World Bank Group. It started operations in the region of Cajamarca in the 1990s. The mining concession of Yanacocha in Cajamarca consists of about 25,000 ha. The company operates a complex of open-pit mines, consisting among others of four leach pads and *in situ* processing facilities. Yanacocha's gold production for 2012 was 1.35 million ounces (Newmont 2012). Of all the mines operated by Newmont, Yanacocha is considered the most profitable (Bury, 2004). During the years of mining operations and because of its performance and expansion plans, Yanacocha has faced countless cases of socio-environmental conflicts (Arana, 2009; Bury, 2002; Deza, 2008; Guardia Nogales, 2011; Lingán, 2008; Sosa Landeo, 2012; Tanaka & Meléndez, 2009; Zavaleta, 2014) with several of the about 100 communities neighbouring its area of operations (Yanacocha, 2008).

### **Socio-environmental conflicts in Combayo**

In 2005, farmers and authorities from Combayo started opposing the expansion of Yanacocha mining operations. They were particularly against the Carachugo II expansion project, an open pit, about 150 m in diameter and 180 m deep, in the high areas of Combayo. Yanacocha had obtained the authorization from the Regional Agricultural Authority (which also was responsible for water at that time) to use sources that were also used to supply water to Combayo. The mine had also obtained authorization to

construct a dam on the Azufre River. *Comuneros* were concerned that the mine's uses and manipulations of water flows would negatively impact the quality and quantity of water available in the sources that fed this river, which in turn would have implications for their irrigation water.<sup>5</sup> In particular, three lakes were going to be compromised: Corazón, Patos and Estación 1.

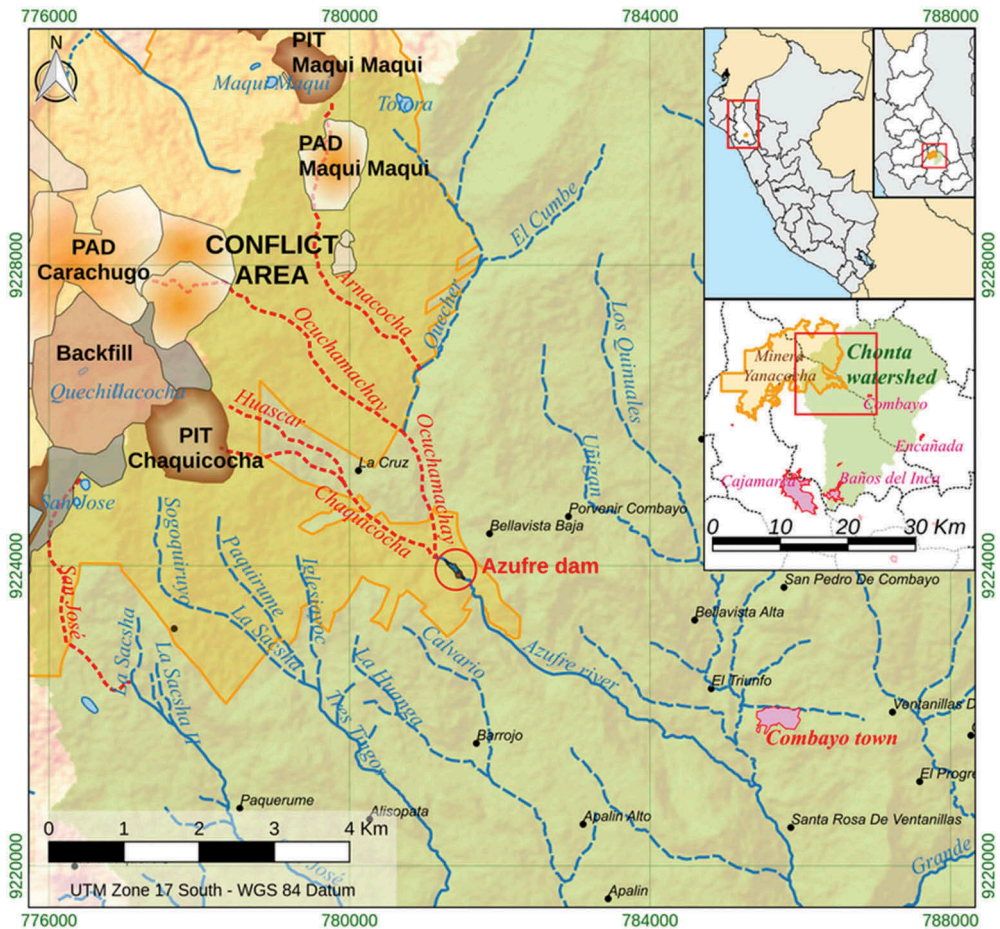
The farmers and communal authorities mobilized to launch a collective complaint to the Agriculture Authority in Cajamarca against the authorization given to Yanacocha. In support of the claims of the population, the Agriculture Authority agreed to revisit its authorization. Yanacocha, fearing obstruction of its plans, reacted by engaging in conversations and negotiations with some Combayo representatives. The mining company succeeded in reaching an agreement with these representatives, in which it promised to protect the water sources of Combayo.

In spite of this agreement, however, communities of Combayo in the Azufre Watershed, and particularly in the area of direct influence of Yanacocha, began noticing changes in the water flows in their canals after Yanacocha had started its operations: "the water was different".<sup>6</sup> After they irrigated their grass it changed colour – "it got yellowish" – and animals that drank this water got sick. They also noted a reduction of water flows. As Yanacocha's operations happen in the upstream areas of the Azufre River, near the three lakes, *comuneros* did not hesitate to attribute the reported changes to the mining operations. Farmers' discontent and anger with the company were also fed by the collapse of the dam that Yanacocha was building on the Azufre River; this damaged farmers' plots and crops.<sup>7</sup>

Led by the presidents of the water user associations, irrigators decided to stage an organized campaign to demand Yanacocha's compliance with the promises it had made in 2005. In the first days of August 2006, around 600 people from the affected areas (Bellavista Baja, Bellavista Alta, El Triunfo, Porvenir and Pabellón de Combayo) headed for two of the Yanacocha mining sites – the Chaquicocha open pit and the Carachugo mountain – to protest (Figure 1). They were repulsed by the security company of Yanacocha and the police officers the company had hired to protect the mining site, who used tear gas and guns to stop the protesters.<sup>8</sup> In the confrontation, Isidro Llanos, a farmer from the community of El Triunfo, was hit by one of the bullets and died. During the ensuing turmoil, two workers of Yanacocha were taken by the farmers. Yanacocha interpreted this as a kidnapping, and held two farmer leaders responsible.<sup>9</sup>

Right after the protest, the mayor of Combayo joined with some other authorities in attempts to arrange meetings between the farmers and Yanacocha to discuss the impacts of its operations on water. According to them, however, all their initiatives were unsuccessful. This is why they decided to revert to less peaceful means. For about 20 days, they blocked the main access road to the mining site, preventing Yanacocha from operating as usual. In the media, representatives of the company stated, "Because of this conflict, Yanacocha has decided to stop operations at the expansion project."<sup>10</sup> The vice president of Newmont in Latin America, Carlos Santa Cruz, announced that this would represent a loss of about USD 700,000 for the Peruvian state and about USD 2 million for the company.

The continuous tensions in Combayo, the blocking of the road, and the company's announcement that it would stop its mining operations in the region aroused the attention of the central government. Even the prime minister, Jorge Del Castillo,



**Figure 1.** The conflict area in Combayo, Cajamarca, Peru. The figure shows the conflict area in the vicinity of the Yanacocha mine, the Chaquicocha and Ocucho Machay creeks, the Azufre river and the dam. The box in the upper right corner zooms in on the conflict area, the middle box shows the size of the Chonta watershed and the Yanacocha mine site in relation to the town centre of Combayo and the city of Cajamarca. Source: Designed by C. Cerdán based on ZEE-OT Cajamarca: Gobierno Regional de Cajamarca (2011), *Zonificación Ecológica y Económica base para el Ordenamiento Territorial del departamento de Cajamarca*, retrieved from <http://zeeot.regioncajamarca.gob.pe/sites/default/files/DocumentoZEEfinal.pdf>; M. Salazar, *El camino del Azufre*, *La República*, 3 September 2006, retrieved from <http://larepublica.pe/03-09-2006/el-camino-del-rio-azufre>.

intervened. He decided to personally help solve the conflicts by mediating between the farmers and the company (Villar, Gonzales, & Roncal, 2006). His intervention resulted in a public meeting in September 2006, one month after the conflict, in which the Peruvian government, the company and the authorities of Combayo signed an agreement, called the Acta de Combayo.<sup>11</sup> This agreement consisted of a whole menu of solutions to the water problems in the area, ranging from assessments and management plans to promises of work and investment projects. In addition to those agreements, the meeting was also used to explicitly and formally obtain Combayo's promise that it would stop opposing the development of mining operations in the area.



Satisfied by this outcome, Yanacocha stated that dialogue is the only way to understanding and development. “What started as a conflict ended with an agreement for mutual support, inclusive dialogue and long-term development plans” (<http://www.yanacocha.com/informes-especiales/>, accessed 2009). The farmers, however, were less satisfied. Especially those from the affected communities were suspicious about the outcomes of the negotiations.

The following sections present a more detailed analysis of these negotiations. The analysis shows that the conflict resolution strategies favoured by the mining company and state officers importantly rely on legal and technical (or scientific) forms of authority. As noted, the conflicts took place in a context of large financial and political power asymmetries. Indicative of this is that Yanacocha had agreed to make ‘social’ investments of about USD 1 million in 2007 and 2008 in Combayo. The communities that (hoped to) benefit from this support (with sprinkler irrigation systems) were also the ones that complained that their water sources were deteriorating because of the mining operations.<sup>12</sup> The economic dependence of the communities on the company obviously weakened their bargaining power, and negatively affected their ability to hold the company accountable for its water actions.

### **Invoking legality: operating according to law**

For the mining company (often in combination with some government actors), a first important and powerful strategy to deal with communities’ complaints and reduce tensions is to convince all involved that everything they do is within the law. The reasoning is that if something is legal, it must be right, even if it is clear that this legal rightness says little to nothing about its social or environmental integrity.

Mineral expansion projects like Yanacocha’s Carachugo project have to comply with more than a dozen regulations and norms to get a license to operate from the state (Torres, 2007). A large number of government authorities, such as the ministries of energy and mining (MEM), agriculture (MINAG), and environment, as well as the local and the national water authorities, have thus been involved in granting Yanacocha permission to operate. Permissions were given, among others, for accessing and collecting water, as well as for its extraction, management, treatment and disposal (MWH, 2012). Also, as part of the requirements established by the Peruvian environmental legislation, environmental impact assessments (EIAs) have to be publicly presented and discussed.<sup>13</sup> For the Carachugo expansion project, this took place in meetings organized by the MEM in Cajamarca in 2003 and 2004. These meetings happened with the help of private consulting companies, who informed the general audience of the actions that Yanacocha would be developing in the area. After these public hearings in Combayo (December 2003) and in Cajamarca (January 2004), the EIA was approved. The MEM considers these public hearings to be processes of consultation and public participation. The mere fact of their being held is enough to comply with the law. However, it is debatable whether these meetings are effective in terms of communication.<sup>14</sup> As is also shown below, many people from Combayo – authorities as well as farmers – were not properly informed regarding how mining operations would affect their water resources.

In 2008, Yanacocha wanted to develop mining operations at the Carachugo Mountain, compromising the areas of the Ocucha Machay and Chaquicocha Creeks,

tributaries of the Azufre River. These operations, as well as previous hydrological and hydrogeological studies done by Yanacocha, were authorized by the water authority and the MINAG through administrative resolutions 051-2008-INRENA-IRH and 367-2008-INRENA-IRH. These stated that Yanacocha was authorized to execute “surface draining works at the influenced area of the Los Patos, Corazón and Estación 1 Lakes at the Ocuca Machay Creek to facilitate the expansion of the ... leaching pad at the Carachugo Project”.<sup>15</sup> Having all the authorizations made it seem as if everything was agreed for the company to proceed. Yet, not all were in favour of the mining company’s plans. The deputy governor of Combayo, for one, complained against Yanacocha, arguing that the people of Combayo had not been informed about these works. They were particularly upset about the fact that they had not given any authorization to the company to proceed with drying out Combayo’s water sources.

According to the deputy governor, the EIA did not contain any clear reference to or information about the removal of lakes. The only answer from the representatives of Yanacocha to the complaints was that they had duly complied with all the legal requirements, met all the regulations and had obtained all the permissions needed to proceed since the approval of the EIA in 2004, a process that was validated by the local authorities of that time. They also referred to the authorization given by the National Water Authority resolution (367-2008-INRENA-IRH) approving hydrological and hydrogeological studies and drainage plans in the area of the lakes.

Besides letters to the local representatives of Yanacocha, the deputy governor issued a letter to the highest representative of Newmont in Latin America.<sup>16</sup> In the letters, he expressed his discomfort regarding the lack of communication from the company about the drying out of the lakes. He mentioned that those actions were not communicated to the population and that when he had asked for explanations, the response was merely that they “are not doing any work that does not have all the permissions of pertinent authorities and with the full acknowledgment of the population”. Arrogantly, the company added that they could do as they pleased within their concession. According to the deputy governor, if there was an authorization given by the population, this must have been given in a dubious way, without those granting the authorization realizing what they were doing.<sup>17</sup>

In addition to permissions or authorizations given by the state, the law also requires that companies get permission to operate from the communities and their authorities. How this community approval should be obtained, however, remains vague and questionable (Li, 2009). Commenting on communities approving documents and actions, a Cajamarca regional officer told the story of the leaders of Combayo signing a document thinking that it was a simple request for a regular inspection of the headwater areas to be done by the Cajamarca Water Authority (ATDRC). They did not realize that the document would be used as an authorization to dry out the lakes: “The signatures [of the authorities] were for the inspection of the lake area, not for making them disappear!”<sup>18</sup>

As part of the agreement signed by the state, Yanacocha and Combayo, the company promised not to make any more legal accusations against the farmers. The farmers and communities in turn had to state that they would not oppose mining operations in the

area. However, the farmers from the affected communities that organized the protest commented that little was achieved for their areas in terms of environmental conservation, water protection and socio-economic improvements. According to them, they came out of the conflict worse off than they had entered it: with the death of Isidro Llanos, and the anxiety provoked by the judicial case that followed the conflict. “The people fear that they will be judicially denounced by the [company]; the judicial processes have restricted people.”<sup>19</sup>

### Invoking science: technical knowledge supporting operations

A second important strategy of Yanacocha in alliance with the Peruvian state to solve conflicts is to rely on scientific expertise to produce supposedly objective assessments of how mining will affect the quantity and quality of water flows.

As mentioned earlier in the article, small-scale agriculture, livestock and dairy production constitute the permanent livelihood activities of rural households in Combayo. Those activities crucially depend on the availability of water in the canal networks that are fed by water from creeks and the Azufre River. That MINAG and Yanacocha are well aware of the criticality of local water resources for sustaining rural livelihoods shows in the assessments conducted (by MINAG) in 2006 and 2007 (and sponsored by Yanacocha), which both refer to the lack of water security to explain low agricultural productivity (INRENA, 2007).

When the first incidents of conflict happened in 2005, with Combayo opposing the expansion plans of the company, Yanacocha was prompt to initiate negotiations. Yanacocha’s quick success in reaching an agreement with the mayor of Combayo “for joint work towards development and the protection of water quality and quantity in Combayo” largely happened because many in Combayo hoped the agreement would lead to improvements in water availability and security.<sup>20</sup> The agreement consisted of promises to: (1) support the implementation of a drinking water supply system for Combayo; (2) preserve the water sources of Combayo; and (3) develop social investment projects in the town.<sup>21</sup> This was the first agreement signed by the company. As noted, many *comuneros* were of the opinion that it was not respected, and this is what prompted the conflict of 2006.

The mediation process that followed the conflictive events of 2006 again ended with an agreement in which the state, in coordination with Yanacocha, promised to implement drinking water systems for the town of Combayo and its communities. In addition, the agreement stipulated that the prime minister would commission a water management study to be implemented at the river basin level. The idea was to assess and determine the water quality and quantity in the area and propose the best and most efficient ways to protect water resources and ensure water supply for Combayo for drinking and irrigation purposes. To develop these studies, the government engaged funds from the Inter-American Development Bank. The international consulting company Nippon Koei was hired to carry out these water studies in the Chonta and Mashcon Watersheds within 10 months. The consultants proposed several actions to manage water at the watershed level. These included the construction of a main reservoir (42.5 Hm<sup>3</sup>) on the Chonta River to secure water for Cajamarca and irrigation for downstream areas of the watershed. They also proposed the construction of two

minor reservoirs (about 1.5 Hm<sup>3</sup>) at the upper side of Combayo to secure water for the Azufre Watershed.<sup>22</sup> Other proposed interventions in this regulated system included maintenance work on the irrigation canals and installation of water measurement devices (Koei, 2010).

The study was finished in 2010. It is now available online on the national water authority's website. Although they reduced the tensions, neither the agreement nor the post-conflict water study proposed interventions that would guarantee or improve the longer-term sustainability of water resources. They also had little resonance in the conflict area, as the agreement did little to influence what happened with the three lakes, nor did it propose solutions to the problems of water depletion in Combayo. Instead, the improvements seemed to depend on each community's political agency, its networks and its lobbying skills, as well as their success in mobilizing external funding from the company or other sources.

After the signing of the agreement, and during the preparations for the studies, Yanacocha proceeded with their actions in the Carachugo site. This entailed the draining of areas at the Ocuca Machay and Chaquicocha Creeks of about 412 ha and 685 ha, respectively. In May 2008, and in spite of the ongoing studies, the company also communicated to the water authority, ATDRC, that it would begin the removal of the three lakes. The ATDRC approved those actions and specified that the company would have to mitigate the reductions in water availability by releasing treated water, suitable for irrigation and animal consumption, to the creeks. To mitigate impacts at the Ocuca Machay Creek, the company would have to release water permanently (minimum discharges of 5 L/s in 2007, 15 L/s in 2009 and 35 L/s from 2011 onwards). Compliance with these agreements was to be controlled by the ATDRC.

On paper, these agreements sound reasonable, even though they do not include any concern about the longer-term sustainability of the water-based ecosystems. Yet, the capacity of the ATDRC to actually monitor and enforce them is highly doubtful. In fact, its little involvement during the Combayo conflict, its poor track record in managing water resources in the area (Caballero Martin, 2012), and its lack of credibility and legitimacy among affected communities (Sosa & Zwarteveen, 2012) seriously call into question whether the ATDRC will be able to make Yanacocha keep its part of the agreement or hold the company accountable for the impacts of its operations (Sosa & Zwarteveen, 2014). Some have suggested that the monitoring could also have been done by the technical committees established in 2000 by the ATDRC and appointed to assess and monitor water in areas where Yanacocha operates. However, because the technical committees are financially sponsored by the company, they have little credibility in the eyes of the rural population (Orian, 2008).

The quality of the water assessment studies themselves is likewise the subject of serious doubts and questions (Orian, 2008). As part of Yanacocha's expansion plans for the Carachugo site, the company carried out a water assessment study. This study characterized the three lakes that would be affected as intermittent (or non-permanent), reducing their significance. The study indicated that Patos Lake had a water volume that varied from 5135 m<sup>3</sup> during the rainy season to 2868 m<sup>3</sup> during the dry season, and that the other two lakes were basically empty during the dry season.<sup>23</sup> The deputy governor of Combayo considered these findings a strategic way to dismiss the relevance of the three lakes; it allowed the mining company to convince some leaders of Combayo

that there was no water in the lakes. He stated apprehensively, “The authorities supported the mine’s version in exchange for money, and there is going to be a leach pad in place of the lakes!” The deputy governor was also disappointed and suspicious about the role of the ATDRC, because the water inventories elaborated and updated by this authority in 2007 did not mention that the three lakes were not registered. This omission, according to him, made it easier to forget about these waters.<sup>24</sup>

The representatives of the mining company countered the worries of the deputy governor about water availability in Combayo and the performance of Yanacocha by emphasizing the fact that there are water studies being carried out in the area by a renowned international consulting company and financed by the Inter-American Development Bank.

## Conclusions

Although some *Combayinos* received benefits from the company, like temporary work or assignments for their communal companies, many things regarding local development in Combayo remained as they had been before the conflicts. In particular, nothing happened to better protect the water resources of Combayo. In spite of the promises and agreements, the mining company’s operations depleted the three lakes that were at the centre of the conflict.<sup>25</sup> In the process, the communities lost faith in their collective ability to alter the course of mining events. Instead of the risky strategy to collectively mobilize to protect their water resources, they had come to appreciate that directly and individually dealing with the mining company to secure funding for their water projects would be more effective, at least in the short term. The conflicts indeed seemed resolved, but the underlying problems of environmental integrity and livelihood security are not.

To deal with the conflicts surrounding the activities in the highlands of Combayo, the government of Peru and Yanacocha importantly relied on two strategies. First, they made sure that what the company proposed to do was legally right just by obtaining all required permissions. This enabled the company to respond to complaints by simply stating that it was operating within the law. Second, Yanacocha made sure that what it did was scientifically sound, by conducting scientific impact assessments and proposing technical strategies to mitigate the impacts on the environment, particularly water. Yanacocha proposed for instance to compensate for depleted water sources by installing water treatment plants and by releasing treated water to communities suffering from the depletion. Together, these two strategies lent legitimacy to the company’s operations by making them seem morally and scientifically sound. Indeed, the discussed examples show that legal compliance (justice) and technical (or scientific) accuracy function to legitimize mining operations, allowing the company to proceed with business as usual without having to take seriously the demands of ecosystems or communities. Rendering water problems legal and technical thus conveniently transforms them into problems that can be solved. It simultaneously renders them non-political (Li, 2007).

How this is problematic can perhaps best be illustrated with the example of the water assessment study that was proposed by the state as part of its conflict resolution strategy. Interestingly, the final report explicitly mentioned that its outcomes were dependent on how the problems were framed and by whom. According to the report,

the fact that there were different parties involved, with diverging views and opinions, made it difficult if not impossible for the report to meet everyone's expectations.

Since the launch meeting in June 2008, it became apparent that there were different and conflicting expectations among the actors [and] about the importance and the value of the study. As stated in public meetings, the city of Cajamarca and the water users [of the Chonta Watershed] expect the report to justify the need for a large dam in the Chonta Watershed to provide water not only for the city of Cajamarca but also to extend the irrigated areas close to the city. Exactly the opposite idea was echoed by the highland water users [Combayo and those nearby the mining operations], who hope that the study will emphasize the need for numerous reservoirs in the upstream areas of the watershed [to secure water for them]. [This action, however,] would have a direct negative effect on the amount of water that reaches the downstream areas. (Nippon Koei, 2010, p. 142)

The consultants thus acknowledged that, although they had made efforts to make the study as participatory as possible,<sup>26</sup> the fact that different parties had widely diverging and sometimes opposing views made it difficult to fully involve them and their interests: "Although an important mobilization of public opinion and information have been generated, a [comprehensive] response of actors' proposals has not been achieved, [nor have there been] organizational actions that could allow to work with a [legitimate] representative in the study area" (p. 142).

The report clearly showed that problems were articulated differently by different actors. Its interviews revealed that many *comuneros* and the authorities representing them wondered whether "the study would produce more water for the users, particularly from the upstream areas" or be "just another study" done in the area (p. 134).<sup>27</sup> Hence, while the mining company could use the study as an objective statement of fact, the very consultants conducting it were aware of its partiality. They were worried about the effectiveness and value of their own report, because they were conscious of the impossibility of screening off their analysis from the political context in which it was conducted.

This example serves to underscore the more fundamental point we want to make about the success of water conflict resolution. We have argued that the complex and deeply political nature of mining conflicts makes it difficult or perhaps even impossible to institutionally or scientifically safeguard objectivity and neutrality. Our analysis shows that there is a danger that rather than correcting unsustainable or unjust behaviours, supposedly neutral or objective solutions work and are used as a legitimizing device for those in power (in this case the mining company), to continue their business as usual.

Hence, rather than relying on forms of 'objectification' (law, science, technical solutions) that deny (eliminate, erase or render invisible – Edmunds and Wollenberg 2001) the intrinsically political nature of conflicts, water conflict resolution strategies should be much more explicitly concerned with the question of how to democratically organize political decision making processes, including the question of how to organize possibilities of objecting. This goes far beyond public hearings and stakeholder engagement. It also requires thinking beyond quick solutions (Himley, 2014) or short-lived forms of consensus, both of which tend to blur the diversity of positions and mask abuses of power (Castro, 2007; Edmunds & Wollenberg, 2001; Moreyra & Wegerich, 2006). Rather than seeking to neutralize differences in position and power, our analysis suggests that the longer-term sustainability of livelihoods and ecosystems may be better served by openly accepting and dealing with such differences, and by learning to

acknowledge that experiences and knowledge (including science) are always contextually embedded and plural.

One implication is that effective environmental conflict resolution and water governance strategies should pay more attention to processes and power dimensions in conscious attempts to create a more or less level playing field. As Budds (2014) suggests, communities' abilities to engage and object require not just improved access to information, but also improvements in their skills to critically analyze and understand this information, as well as the capacity and the influence to use it and make it count. Another implication of our analysis is that creative ways need to be identified to give voice to the environment (the ecosystem) beyond the single voice of science, allowing it to speak in multiple ways (as articulated by the different parties involved). And a third important implication is that it becomes essential to find innovative ways of accounting for water uses beyond mere economic or market benefits, challenging dominant approaches of dealing with water (Trottier & Brooks, 2013) to include longer-term and often harder-to-measure values and functions.

## Notes

1. This hacienda was the property of Eloy Santolalla, well known in the area for his mining activities in other areas of Cajamarca (Santolalla, 1906). The Land Reform of 1969 affected and dissolved this hacienda, like many others in the region.
2. Because of the proximity to Yanacocha, many households in Combayo rely on employment with the company. Usually farmers are hired for short periods (three to six months) as unskilled workers. During the development of the mining operations in the region, and encouraged by the company, farmers also created small community or communal companies to provide services to Yanacocha.
3. Together with the Grande and Quinuario and Paccha Rivers, the Azufre River forms the Chonta Watershed. The Chonta River is about 39.8 km long and together with the Mashcon River feeds into the Cajamarquino River, one of the most important in the region (Koei, 2010).
4. The irrigation canals of this river basin belong to the Chonta Water User Association (Junta de Usuarios del Río Chonta, JURCH). The water user associations in Combayo, however, are not formally part of JURCH, because the fees asked by the JURCH (30–40 soles) are too high for them and farmers do not feel that JURCH works for their benefit (CEDEPAS, 2008; Mendoza Moreno, 2008).
5. Interview by Alicia Abanto Cabanillas (commissioner in the Cajamarca Ombudsman office), with Luciano Llanos (then mayor of Combayo), and the main leaders of Combayo, 2 August 2005.
6. Focus group discussion with farmers from Bellavista Baja, 5 April 2009.
7. This dam was constructed to prevent mine sediments from obstructing the canals and water flows, but the people thought it was going to be for securing and increasing water quantity in the area. Personal communication, farmer leader from Bellavista Baja, 30 April 2009.
8. For a discussion of Peruvian national police being hired by private mining companies, see Kamphuis (2012).
9. The Peruvian legislation considers kidnapping a complex crime, with a punishment of imprisonment for 20–30 years (Sala Penal Cajamarca, 2010).
10. Different representatives from communities, civil society organizations and the private sector, as well as the government, argued that the Combayo conflict was more about communities' attempts to get more economic benefits from the mining company than

about water and the environment. Years after the conflict, a representative of Yanacocha commented: “The conflict in Combayo was extortion; the trigger was not water but employment” (personal communication, 21 December 2010).

11. This meeting brought together high-level authorities, such as the ministers of agriculture, energy and mining, health, and economy and finance; five representatives of the parliament; the president of the regional government; the mayor of Cajamarca; the mayor of the Encañada District; about 50 representatives or leaders of the *caseríos* of Combayo; and 4 representatives of Yanacocha (Málaga Málaga, 2006; Villar et al., 2006).
12. Personal communication, former Yanacocha worker, March 2012.
13. The EIAs are prepared for the mining companies by consultant companies visiting the areas to be mined. During the presentations of the EIAs, these consultants inform the population about the activities to be developed by the company during operations.
14. During fieldwork and together with representatives of the Ombudsman office, M. Sosa attended a public hearing on an EIA for large mining exploration activities in Cajamarca. The representatives commented that perhaps the technical language used to explain environmental and water issues during the hearing made it difficult for many of those present to understand what was explained. Because income issues were more tangible and easier to grasp, some of them seemed less interested in environmental and water issues and instead started talking about issues of employment generation. Of the questions posed by the public, 9 were about water issues and more than 20 related to employment. For a discussion of the limitations of these public hearings as participatory events, see Li (2009) and De Echave et al. (2009).
15. Administrative resolutions 051-2008-INRENA-IRH and 367-2008-INRENA-IRH.
16. Deputy governor of Combayo, letters N.009 and N.010, CPM-Combayo, May 2008.
17. He commented that “precisely the days that the personnel of Yanacocha was drying up the lakes in the headwaters area ... the mine organized together with our mayor ... a music parade which included folkloric artists”. Presumably his intention with this comment is to notice that water issues were blurred by other activities that were organized in Combayo at the same time.
18. Personal communication, 30 April 2009.
19. Personal communication with one of the judicially denounced farmers, 21 March 2009.
20. Letter N.009, CPM-Combayo, May 2008.
21. Yanacocha offered USD 1,500,000 to invest in Combayo, and the municipality arranged lists of people and companies from Combayo to work for Yanacocha (agreement documents from 15 and 20 September 2005).
22. In other part of the study, however, the proposal of constructing upstream reservoirs was problematic because this would affect water availability for downstream areas. The proposal to develop minor reservoirs is not new. Previous studies developed by the Water Authority in Combayo already proposed that alternative, but with differences concerning the selection of water sources.
23. Communication from Yanacocha to the ATDRC requesting approval for hydrological and hydrogeological studies of the Patos and Estación 1 lakes and approval for a draining plan, 11 March 2008.
24. Personal communication, 22 March 2009.
25. Yanacocha releases treated water to the creeks and the Azufre River, as stated in the permissions given by the state.
26. The document states that several information meetings and water quality monitoring were done with the participation of Combayo’s population as well as public and private organizations of Cajamarca.
27. Since the 2000s, several water assessments have been done in Cajamarca (and in Combayo) by national authorities (INRENA, 2007) as well as by international bodies. For example, the Office of the Compliance Advisor/Ombudsman of the International Finance Corporation (CAO, 2007) commissioned a water study in the area by Stratus Consulting in 2003.



## Acknowledgements

We thank all our interviewees in Cajamarca and Combayo for their predisposition to share their stories during the fieldwork. Thanks to Carlos Cerdán for his help with designing and drawing the map to illustrate this article. We thank also the editors of the special issue and the anonymous reviewer for their thoughtful comments and suggestions to improve the article.

## Funding

This research was funded by the Netherlands Organisation for Scientific Research (NWO) [grant number W 01.65.308.00].

## References

- Arana, M. (2009). *Conflictos mineros, responsabilidad social empresarial e institucionalidad ambiental en Perú*. Paper presented at the Replanteando la industria extractiva: Regulación, despojo y reclamos emergentes, York University, Canada
- Bebbington, A. (Ed.). (2007). *Minería, movimientos sociales y respuestas campesinas: una ecología política de transformaciones territoriales*. Lima: IEP CEPES, Centro Peruano de Estudios Sociales.
- Bebbington, A., Hinojosa, L., Humphreys Bebbington, D., Burneo, M. L., & Warnaars, X. (2008). Contention and ambiguity: Mining and the possibilities of development. *Development and Change*, 39(6), 887–914. doi:10.1111/j.1467-7660.2008.00517.x
- Bebbington, A., Humphreys Bebbington, D., & Bury, J. (2010). Federating and defending: Water, territory and extraction in the Andes. In R. Boelens, D. Getches, & A. Guevara (Eds.), *Out of the mainstream: The politics of water rights and identity in the Andes* (pp. 307–327). London: Earthscan.
- Bebbington, A., & Williams, M. (2008). Water and mining conflicts in Peru. *Mountain Research and Development*, 28(3/4), 190–195. doi:10.1659/mrd.1039
- Boelens, R. A. (2008). *The rules of the game and the game of the rules: normalization and resistance in Andean water control* (PhD Thesis). Wageningen University, Wageningen.
- Bridge, G., & Perreault, T. (2009). Environmental governance. In N. Castree, D. Demeritt, D. Liverman, & B. Rhoads (Eds.), *A companion to environmental geography* (pp. 475–497). Oxford, UK: Wiley-Blackwell.
- Budds, J. (2014). Acceso al agua y justicia hídrica: un análisis de las relaciones de poder entre Southern Copper Corporation y comunidades rurales en Moquegua y Tacna, Perú. In T. Perreault (Ed.), *Minería, Agua y Justicia Social en los Andes: Experiencias Comparativas de Perú y Bolivia* (pp. 41–58). Cusco: Centro Bartolomé de las Casas.
- Burawoy, M. (1998). The extended case method. *Sociological Theory*, 16(1), 4–33. doi:10.1111/0735-2751.00040
- Bury, J. (2002). Livelihoods, mining and peasants protests in the Peruvian Andes. *Latin American Geography*, 1(1), 3–19.
- Bury, J. (2004). Livelihoods in transition: Transnational gold mining operations and local change in Cajamarca, Peru. *The Geographical Journal*, 170(1), 78–91. doi:10.1111/j.0016-7398.2004.05042.x
- Caballero Martin, V. (2012). *Conflictividad social y gobernabilidad en el Perú*. La Paz: Programa de las Naciones Unidas para el Desarrollo, & Instituto Internacional para la Democracia y la Asistencia Electoral.
- CAO. (2007). Building consensus: History and Lessons from the Mesa de Diálogo y Consenso CAO-Cajamarca, Peru. Monograph 2. The independent water study (2002–2004). Office of the Compliance Advisor/Ombudsman CAO - IFC.
- Castro, J. E. (2007). Water governance in the twentieth-first century. *Ambiente & Sociedade*, X (2), 97–118.

- CEDEPAS. (2008). *Diagnóstico socio económico de la cuenca del río Chonta*. Preparado para la Junta de usuarios del río Chonta y Cajamarquino, CEDEPAS Norte, Cajamarca.
- De Echave, J., Diez, A., Huber, L., Revesz, B., Lanata, X. R., & Tanaka, M. (2009). *Minería y conflicto social*. Lima: IEP, CIPCA, CBC, & CIES.
- Deza, N. (2008). *Impactos socio economicos de la minería aurífera por lixiviación de pilas a tajo ierto en Cajamarca, 1992–2007* (Tesis Doctoral en Ciencias Ambientales). Universidad Nacional de Trujillo, Trujillo.
- Edmunds, D., & Wollenberg, E. (2001). A strategic approach to multistakeholder negotiations. *Development and Change*, 32(2), 231–253. doi:10.1111/1467-7660.00204
- Guardia Nogales, A. (2011). *Exploring the veins of development: Politics of large-scale transnational mining, local access to water and small-scale agriculture in Cajamarca-Peru* (Master thesis). CEDLA, University of Amsterdam - Concertacion, Wageningen University.
- Himley, M. (2014). Los límites de la solución tecnológica: Minería, agua y poder en el Perú. In T. Perreault (Ed.), *Minería, Agua y Justicia Social en los Andes: Experiencias Comparativas de Perú y Bolivia* (pp. 50–79). Cusco: Centro Bartolomé de Las Casas.
- INRENA. (2007). *Estudio de priorización y selección de alternativas de embalse en la cuenca del Río Azufre, Combayo - Cajamarca* (Vol. I - Informe Principal). Lima: Ministerio de Agricultura- Instituto de Recursos Naturales (INRENA). Intendencia de Recursos Hídricos. Oficina de Proyectos de Afianzamiento Hídrico.
- Kamphuis, C. (2012). Foreign mining, law and the privatization of property: A case study from Peru. *Journal of Human Rights and the Environment*, 3(2), 217–253. doi:10.4337/jhre.2012.03.03
- Li, F. (2009). Documenting accountability: Environmental impact assessment in a Peruvian mining project. *PolAR: Political and Legal Anthropology Review*, 32(2), 218–236. doi:10.1111/j.1555-2934.2009.01042.x
- Li, T. M. (2007). *The will to improve: Governmentality, development, and the practice of politics*. Durham, NC: Duke University Press.
- Lingán, J. (2008). El Caso de Cajamarca. In M. Scurrah (Ed.), *Defendiendo derechos y promoviendo cambios: El Estado, las Empresas Extractivas y las Comunidades Locales en el Perú*. Lima: Oxfam International, Instituto del Bien Común, & IEP.
- Málaga Málaga, F. (2006). Atención Comisión Alto Nivel Caso Combayo. Dirección General de Gestión Social - Ministerio de Energía y Minas.
- Manson, J. (2002). *Qualitative researching*. London: SAGE.
- Mendoza Moreno, I. A. (2008). *Gobernabilidad del agua y actividad minera en la microcuenca del río Azufre. Cajamarca 2005–2007* (PhD Thesis). Universidad Nacional de Cajamarca, Cajamarca.
- Mollinga, P. (2008). Water, politics and development: Framing a political sociology of water resources management. *Water Alternatives*, 1(1), 7–23.
- Moreyra, A., & Wegerich, K. (2006). Highlighting the 'Multiple' in MSPs: The Case of Cerro Chapelco, Patagonia, Argentina. *International Journal of Water Resources Development*, 22(4), 629–642. doi:10.1080/07900620600779657
- Muradian, R., Martinez-Alier, J., & Correa, H. (2003). International capital versus local population: The environmental conflict of the Tambogrande mining project, Peru. *Society & Natural Resources*, 16(9), 775–792. doi:10.1080/08941920309166
- MWH. (2012). III Modificación del EIA Ampliación del Proyecto Carachugo Suplementario Yanacocha Este. Lima.
- Newmont. (2012). Annual Report 2012. Retrieved from [http://s1.q4cdn.com/259923520/files/doc\\_financials/annual/2012-Annual-Report\\_v001\\_e75k8c.pdf](http://s1.q4cdn.com/259923520/files/doc_financials/annual/2012-Annual-Report_v001_e75k8c.pdf)
- Nippon, K. (2010). Plan de gestión de los recursos hídricos en las cuencas Mashcón y Chonta con énfasis en el afianzamiento hídrico de las subcuencas Azufre, Paccha y Río Grande de Chonta, Cajamarca: Nippon Koei
- Orian, E. (2008). *The Transfer of Environmental Technology as a Tool for Empowering Communities in Conflict; the case of Participatory Water Monitoring in Cajamarca, Peru* (Master Thesis). University of Manchester, Manchester, UK.

- Panfichi, A., & Coronel, O. (2010). Conflictos Hídricos en el Perú 2006–2010: Una lectura panorámica. In R. Boelens, L. Cremers, & M. Zwarteven (Eds.), *Justicia Hídrica*. Lima: IEP.
- Pascó-Font, A., Diez Hurtado, A., Damonte, G., Fort, R., & Salas, G. (2003). Aprendiendo mientras se trabaja. In G. McMahon & F. Remy (Eds.), *Grandes minas y la comunidad: efectos socio económicos en Latinoamérica, España y Canadá* (pp. 145–201). Bogotá: Banco Mundial, IDRC-CRDI, & Alfaomega.
- Peluso, N. L., & Watts, M. (2001). *Violent environments*. Ithaca: Cornell University Press.
- Pereyra Matsumoto, C. (2008). Conflictos regionales e intersectoriales por el agua en el Perú. In A. Guevara Gil (Ed.), *Derechos y conflictos de agua en el Perú* (pp. 81–99). Lima: Concertacion, Walir, & Departamento Académico de Derecho - PUCP.
- Ranjit, K. (2011). *Research methodology. A step-by-step guide for beginners* (3<sup>er</sup> Edition ed.). Los Angeles: SAGE.
- Sala Penal Cajamarca. (2010). Caso Combayo. Corte de Justicia de Cajamarca. Cajamarca.
- Santolalla, F. M. (1906). *Departamento de Cajamarca: Monografía geográfico-estadística*. Cajamarca: Impr. y Librería de San Pedro.
- Sosa Landeo, M. (2012). La influencia de la gran minería en Cajamarca y Apurímac, Perú: Acumulación por despojo y conflictos por el agua. In E. Isch López, R. Boelens, & F. Peña (Eds.), *Agua, injusticia y conflictos*. Lima: IEP.
- Sosa, M., & Zwarteven, M. (2012). Exploring the politics of water grabbing: The case of large mining operations in the Peruvian Andes. *Water Alternatives*, 5(2), 360–375.
- Sosa, M., & Zwarteven, M. (2014). The institutional regulation of the sustainability of water resources within mining contexts: Accountability and plurality. [SI: Sustainability science - Legal pluralism]. *Current Opinion in Environmental Sustainability*, 11, 19–25. <http://dx.doi.org/10.1016/j.cosust.2014.09.013>
- Tanaka, M., & Meléndez, C. (2009). Yanacocha y los reiterados desencuentros: Gran afectación, débiles capacidades de acción colectiva. In J. De Echave, A. Diez, L. Huber, B. Revesz, X. R. Lanata, & M. Tanaka (Eds.), *Minería y conflicto social*. Lima: IEP, CIPCA, CBC, & CIES.
- Torres, V. (2007). *Minería artesanal y a gran escala en el Perú: El caso del oro*. Lima: CooperAcción - Acción solidaria para el desarrollo.
- Trottier, J., & Brooks, D. B. (2013). Academic tribes and transboundary water management: Water in the Israeli-Palestinian peace process. *Science & Diplomacy*, 2(2), 1–13.
- Urteaga, P. (Ed.). (2011). *Agua e industrias extractivas: Cambios y continuidades en los Andes*. Lima: IEP, & Concertación.
- Villar, A., Gonzales, A., & Roncal, A. (2006). *Vigilancia Ciudadana a la Conflictividad y Conflictos en el marco de la presencia de Minera Yanacocha en Cajamarca - “Caso Combayo”* (Vol. 3). Cajamarca: Cedepas Norte, Propuesta Ciudadana, & Oxfam America.
- Yanacocha. (2007). *Yanacocha balance social y ambiental - 2006*. Cajamarca: Minera Yanacocha S.R.L.
- Yanacocha. (2008). *Cajamarca, tierra fecunda. Balance social y ambiental - 2007*. Cajamarca: Minera Yanacocha S.R.L.
- Zavaleta, M. (2014). La batalla por los recursos en Cajamarca. Cuaderno de Trabajo N. 18. Lima: Departamento de Ciencias Sociales - PUCP.
- Zwarteven, M. (2015). *Regulating water, ordering society. Practices and politics of water governance*. Inaugural lecture, University of Amsterdam, Amsterdam.
- Zwarteven, M., Boelens, R., & Roth, D. (2005). Anomalous water rights and the politics of normalization. Collective control and privatization policies in the Andean region. In D. Roth, R. Boelens, & M. Zwarteven (Eds.), *Liquid relations. Contested water rights and legal complexity*. New Brunswick: Rutgers University Press.
- Zwarteven, M. Z., & Boelens, R. (2014). Defining, researching and struggling for water justice: Some conceptual building blocks for research and action. *Water International*, 39(2), 143–158. doi:10.1080/02508060.2014.891168