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Exploring the Politics of Water Grabbing: The Case of Large Mining Operations in the Peruvian Andes

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ABSTRACT: The operations of the large mining company Yanacocha in Cajamarca (Peru) provoke and require a fundamental reshuffling of how rights to water are allocated, resulting in changes in the distribution of the benefits and burdens of accessing water. We use this paper to argue that these changes in water use and tenure can be understood as a form of water grabbing, since they result in a transfer of water control from farmers' collectives and government agencies to the mining company, with the company also assuming de facto responsibility over executing water allocation and safeguarding certain water-quality levels. We illustrate – by using two cases: La Ramada canal and the San José reservoir – the company's overt and covert strategies to achieve control over water, showing how these are often backed up by neo-liberal government policies and by permissive local water authorities. Next to active attempts to obtain water rights, these strategies also include skilfully bending and breaking the resistance of (some) farmers through negotiation and offering compensation. The de facto handing over of water governance powers to a multinational mining company raises troubling questions about longer-term water management, such as who controls the mining company, to whom are they accountable, and what will happen after mining operations stop.

KEYWORDS: Water grabbing, water rights, water governance, mining, Peru

INTRODUCTION

"El Perú es un país minero" (Peru is a mining country). With this statement, pronounced during the opening ceremony of a water reservoir constructed by the large gold mine Yanacocha in Cajamarca in 2008, the then president of Peru Alan Garcia underscored the government's fondness of the mining industry. From the 1990s onwards, the different Peruvian governments have actively promoted mining as one of the cornerstones of the country's development through state measures to attract and secure private and often foreign investments in mining (De Echave et al., 2009). Helped by the worldwide increase of mineral prices, these measures resulted in a mining boom that was particularly remarkable from 1999 to 2009 (IPE, 2011). According to Torres (2007) from 1990 to 2005, the sector sparked the development of the national economy, with global GDP rising only by 80% as compared to that of mining rising by 221%.

Yanacocha, in the northern Peruvian Andes, was the first large mining investment that benefited from the new favourable legal and policy climate. Since its establishment, Yanacocha's production has significantly contributed to making Peru one of the most important mineral producing countries in Latin America and worldwide (Torres, 2007). Although undeniably positive for the national trade balance, there is much controversy and debate about the impacts of large mining industries on the areas where they operate, as they provoke significant social, economic and environmental changes (Bury, 2004,

2005; Bebbington, 2007; Bebbington et al., 2008) which are not necessarily positive. This is why Bebbington et al. (2008) characterise the relationship between large mining and development as "contentious and ambiguous", as "mining has often delivered adverse social, environmental and economic effects for the many, but significant gains only for the few" and "because of the abiding sense, among local populations as much as development professionals, that *just maybe* mining could contribute much more" (Bebbington et al., 2008, emphasis in original text). Analysing mining as a form of "capitalist expansion that deeply transforms the development of those rural territories where it operates", Bebbington (2007) argues that a development model based on (foreign) mining companies has its price. "It transforms livelihoods strategies, social relations of production and forms of environmental governance in those territories".¹ These changes and transformations do not go uncontested, but provoke sometimes violent resistance and reactions from civil society groups at different scales (local, national, international)

The best documented impacts of mining operations on local communities are about how mines appropriate resources (in particular land and water) compromising livelihoods and environments. In this article, we focus on water, a resource that is of crucial importance for mining operations. Gold mines, for instance, require a large amount of water to 'wash' the soil containing gold minerals (Budds, 2010). In addition, mining sites are often located in the catchment areas of water sources and rivers (Bebbington and Williams, 2008), which means that mining operations affect, and often alter, hydrological regimes and the quantity and quality of downstream water flows. Mines also contaminate water through leaching (infiltration of acids and heavy metals used for ore separation) and dumping of tailings (finely ground rock from which ore had been extracted). Mining operations, in sum, entail profound material modifications in water flows.

In the article, we use the case of the Yanacocha mine to show that alongside producing such material effects, large mining operations in rural areas are also accompanied with profound and often irreversible changes in how water is controlled and managed. We argue that these reconfigurations of waterscapes provoked by mining operations can be understood as a form of water grabbing. We make this argument on the basis of a detailed description of what we call the politics of water grabbing, presenting two cases that show the mining company's strategies to acquire control over water. We show how the appropriation of water by the mining company happens through long-winding and often somewhat shady processes of negotiation and struggle between the company, the surrounding communities and different government agencies. Our descriptions illustrate that both the mining company and the communities a) skilfully make use of the institutional and legal fuzziness and plurality that characterise water tenure relations in the Peruvian Andes, especially after the new Water Framework took effect in 2009 (del Castillo, 2009; Budds and Hinojosa, 2012) and b) also, often, resort to extrajudicial means for defending their claims.

These negotiations and struggles occur in one of the poorest regions of Peru. In 2011, the Ministry of Finances and Economy (MEF, 2012) reported that Cajamarca presented the highest number of poor districts in Peru. It is a region consisting largely of rural areas and inhabited by small livestock farming communities. As we show, the political agency of the people in these communities is remarkable and many also display a deep awareness and pride of their territory and natural environment. Yet, and even though they are assisted by environmental NGOs (such as GRUFIDES²), their bargaining power is very limited as they hardly have any fallback position, making it difficult for them to say no to the financial compensations and favours that the mining company offers them in return for water. In terms of money, these compensations are enormous as compared to their normal earnings.

The empirical material for the chapter comes from 18 months of research in the region conducted between 2009 and 2011 as a part of the first author's PhD research about water management and mines. Semi-structured interviews were conducted with key informants from peasant communities, the

¹ Our own translation.

² Grupo de Formación e Intervención para el Desarrollo Sostenible.

Yanacocha Company, local NGOs, water authorities at the local and national level, and local government offices (we anonymised their names).

In what follows, we first briefly explain our theoretical points of departure. Before moving on to the description of the two cases (La Ramada canal and the San José reservoir), we provide a background of Yanacocha mine and water use in Cajamarca. In the last section, we draw three major conclusions about how mines alter waterscapes. Our cases illustrate that mining operations not only change how and who uses water but also reconfigure water governance, with the mining company obtaining control over water and assuming major responsibilities for water allocation. The longer-term impacts of these changes on livelihoods and environments remain poorly understood, although it is clear that the 'de-territorialisation' of water management that it entails is irreversible.

WATER GRABBING AND MINES: SOME THEORETICAL POINTS OF DEPARTURE

In analogy with the definition proposed by Borras and Franco (2012) for land grabbing, we define 'water grabbing' as involving both changes in water use, and (perhaps more importantly) also involving (irreversible) changes in water tenure relations. As with land grabbing, this process involves the enclosure of commons by multinational companies and government agencies, dispossessing peasants and indigenous people and altering the environment. Our understanding of water grabbing rests on the concept of waterscapes. The term allows recognising how the natural and the social environments always co-constitute each other, and is therefore useful "to explore the ways in which flows of water, power and capital converge to produce uneven socio-ecological arrangements over space and time" (Budds and Hinojosa, 2012).

We associate changing waterscapes through water grabbing with the so-called 'neo-liberal turn' and the neo-liberalisation of environmental arenas of governance, as well as with the privatisation and commoditisation of nature (Bakker, 2002; Fairhead et al., 2012), a stream of theoretical literature which focuses on the inevitable environmental dimensions of neo-liberalism, trying to understand how capitalism emerges through a restructuring of nature-society relationships. In particular, we use these insights for conceptualising water governance as a form of state re-regulation to secure capital accumulation, through both material and discursive means, which produce particular forms of authority and social order (Budds and Hinojosa, 2012). These ideas are inspired by discussions on water becoming a commodity (Prudham, 2009), and a necessary lubricant for capital accumulation (Budds, 2011). Our analysis thus suggests that the entrance of mines in waterscapes entails the introduction of market dynamics or market-oriented processes in water management, allocation and supply, leading to the commercialisation or privatisation of water management (Bakker, 2002).

CAJAMARCA, WATER AND YANACOCCHA

Cajamarca is located in the northern Peruvian Andes, and therefore is a region characterized by mountains, high grassy plains and valleys.³ The capital of the department is the city of Cajamarca, located at 2700 MASL (meter above sea level) in an inter-Andean valley and surrounded by mountains of about 4000 MASL. Since hacienda times, Cajamarca has been one of the most important regions for livestock and dairy production in Peru (Armijos, 2005). The livelihood activities of rural households consist of grazing cattle, milking schedules, milk delivery and milk-related production. Small-scale agriculture is also part of the activities of the region, which depends on irrigation. Irrigation is mainly done with water from streams and sources located in the high mountains which are channelled to the

³ This region is historically notorious because in 1532 it was here that the Inca Atahualpa was captured and murdered by the Spanish conqueror, Francisco Pizarro. History tells us that Atahualpa offered one room full of gold and two with silver in exchange for his freedom. The Spanish accepted the offer; however, once the rooms were totally full and the time had arrived to acknowledge the agreement, Pizarro decided to not release Atahualpa, but instead killed him (Sarmiento and Ravines, 2009).

agricultural fields through a network of rudimentary canals. To manage these irrigation canals – i.e. distributing the available water supply, establishing the delivery turns and organising maintenance work – the peasants organise themselves in water user associations. These associations take decisions collectively or in consultation with the community general assembly. They are also responsible for formally registering their association's members and the water sources that they use. Rights to water – *permits, licences or authorisations* – are registered in the names of these associations, and it is also the responsibility of the associations to renew such water rights. When water is also used for other purposes next to irrigation, the rights specify this. Not all associations have their records, rights and registrations in order.

In the mid-1990s Cajamarca gained importance as a significant contributor to the national economy, due to the operations of a large gold mine, Yanacocha (established in 1993). According to the Ministry of Energy and Mining, Cajamarca is the second most important region – of the 12 Peruvian Andean regions – in terms of mining concessions, particularly for gold, silver and copper production (Luna Córdova, 2009). In 2008, about 40.88% of Cajamarca's territory was given out for mining concessions (Grufides, n.d.). For the last 10 years, in the Cajamarca region, at least 10 transnational mining projects have been implemented and developed by transnational and national investors. Yanacocha is very prominent among these. It is the largest gold producer in Latin America and one of the most profitable mining enterprises in the world (Bury, 2005). It is a surface or open pit mine,⁴ consisting of six open pits, four heap leaching pads or platforms and three gold recovering plants (Elizalde et al., 2007). The company is a joint venture owned by Newmont Mining Corporation (USA), the Buenaventura Mining Company (Peru), and the financial sector of the World Bank⁵ (Kuramoto, 1999; Bury, 2005; De Echave et al., 2009). Since its establishment, the production of Yanacocha has exceeded 26 million ounces (Newmont, n.d.). In 2008 and 2009, Yanacocha produced 1.81 and 2.06 million ounces, respectively, making corresponding profits of about US\$ 1.6 billion and 2.1 billion (Yanacocha, 2009). The mine constitutes the "first large-scale heap leaching project in Peru" and is "the largest heap-leaching operation in the world" (Bury, 2005).

As Yanacocha itself states: "[t]he development of our activities requires water. [We] accumulate water from rainfall, surface and groundwater [extraction] and drainage, to use them in our operations" (Yanacocha, 2009). The process of obtaining gold consists of the removal of large amounts of soil deposited in the pads or platforms. This soil is then constantly irrigated by a cyanide solution (50 mg per litre of water) which dissolves the gold, and through pipe systems this gold-containing liquid is pumped to the processing plants where the gold is recovered (Yanacocha, n.d.). Hence, for producing gold, Yanacocha requires a permanent supply of water (Yanacocha, 2009). According to its annual report of 2009, the total amount that entered into its productive process in that year was about 33 Mm³,⁶ most of which reportedly came from groundwater sources (Yanacocha, 2009). All the water used by Yanacocha's operations is (in principle) stored in a reservoir constructed for this purpose, where the water is treated before it is released to the surrounding communities.

The mine, however, does not just require water for its operations but also alters water flows because its site is located in the headwaters of five of the main rivers of the Cajamarca region (Yanacocha, 2008), hence also at the place where many sources and streams feeding irrigation channels are located. According to the reports of the mining company, there are about 9,330 farmers' families living in the area influenced by the mining company (Yanacocha, 2007a). During the operations on the open pits, groundwater sources are removed in a process called 'dewatering'. According to one of the mine's managers, this water is not necessary or useful, "it is a burden"⁷ and hampers operations, which

⁴ The operations are established from 3500 to 4100 masl; 48 km north of the city of Cajamarca and 800 km north of the capital city (Golder Associates, 2008).

⁵ About the shareholding: Newmont 51%, Buenaventura 44% and World Bank holds 5%.

⁶ Mm³ = million cubic metres.

⁷ Translated from Spanish: "*El agua ahí es mas un estorbo*" (Mining manager 1, 2010)

is why it needs to be pumped or removed. This dewatering process has enormous implications for the downstream waterscape: lowering groundwater levels, altering the flows of rivers and creeks and even making entire upstream lakes disappear. There are also repercussions for the operation of existing downstream hydraulic networks, for instance, irrigation systems (Younger et al., 2004).

Besides dewatering, the extraction of water is accompanied by capturing and draining of surface water, from small lakes and water springs. This is done to secure operations on the pit and to prevent acid mine drainage. This is the result of a chemical reaction that can occur when removed metal sulphides exposed during the soil removal enter into contact with surface water (i.e. from rainfall of surface sources) and air (oxygen).

According to Yanacocha, most of the water that it uses is treated and recycled. In one of its sustainability reports, the mine states that its water use for 2009 amounted to 125,100 Mm³. The report claims that 98% of this amount was reused and recycled, and that therefore only 2% was actually consumed in mining operations. According to the mine, therefore, its actual consumption of water: 2 Mm³ is negligible compared to the amount used by agriculture – in the 5 catchment areas – which is estimated to be about 68 Mm³ (Yanacocha, 2009; Yanacocha, n.d.). Indeed, Yanacocha uses such figures to boast of its environmental awareness. Yanacocha's focus on net consumption, however, is misleading as it obscures the impacts of Yanacocha's operations on the quality and quantity of downstream water flows. In an attempt to arrive at more accurate figures that do take these impacts into account, Preciado (2012) analysed Yanacocha's water use in the framework of a river basin. She estimates Yanacocha's yearly use to be around 34 Mm³ instead of only 2 Mm³. The author calculated this quantity considering consumed water by mining operations (2 Mm³) and extracted groundwater (32 Mm³). In her analysis, Preciado (2012) highlights that there are extra amounts of water that are involved in the mining operations, but they are not quantified such as drainage water from surface water sources and the amounts of water that, in the long term, are taken from the watershed because of mining operations in the area.

Yanacocha covers an area of about 10,000 ha in three main districts of Cajamarca: La Encañada, Baños del Inca and Cajamarca. This large mining site is adjacent to around 100 peasant communities. The national land titling and registration programme (PETT⁸) initiated in 1992 by the Peruvian government, largely in line with the ideas of de Soto (de Soto, 2000), greatly facilitated Yanacocha's acquisition of land; once land titles were registered through the PETT process, they could also be transferred and sold (to the mining company). Evidencing its interests in the matter, Yanacocha even actively supported parts of the PETT process, by helping the clarification of the land status and legal ownership through "rapid land-titling initiatives in communities" (Bury, 2005).

Yanacocha acquired most of its land by direct purchase, and some through negotiations. The direct purchases or plot negotiations were done between Yanacocha representatives and the landowners. With hindsight, many involved feel that Yanacocha obtained land at very low prices (for example US\$25/ha) (Deza, 2008). Land transactions were the cause of several socio-environmental conflicts between Yanacocha and the inhabitants of neighbouring communities. In case a landowner refused to sell or did not want to negotiate, the mine would take actions to have the plot expropriated by force, making use of the '*ley de servidumbre*', or right of way. Such land was registered as "property acquired during rebellious resistance" (SCG, 2004).

Through its acquisition of large portions of land, Yanacocha de facto appropriated the means of subsistence and production of many people in the area. According to many of them, this comes with responsibilities: they feel that Yanacocha should be creating employment and provide assistance to those deprived of their land. The families' perception was that "the work replaces the land. It is not a gift, it is our right", so it must be considered as permanent and inherited (SCG, 2004).

⁸ Programa Especial de Titulación de Tierras (PETT), which was created and implemented to promote the formalisation of property rights in rural areas. This is to provide land titles to farmers and in that way to support their private landownership.

In what follows, we provide detailed descriptions of two specific sets of encounters between the mining company and the surrounding communities about water.

Case 1: La Ramada Canal

In this first case, we illustrate the strategies of the mine to gain access to, and control of, water from a particular set of sources (in the Cerro Negro mountain) which used to feed the La Ramada canal, a canal used by farmers to irrigate their fields, about 247 ha of agricultural crops like potatoes, barley, wheat, among others. The beneficiaries of this canal were two communities from the rural town La Ramada: La Ramada and Manzanas, located in the sub-catchment area from the Porcón and Maschón rivers.

The canal La Ramada was constructed in the 1980s, under the enthusiastic leadership of Don Eusebio Yopla. He organised the farmers to collectively work on its construction, a tremendous effort which took a long time, from 1982 to 1986. It was a tiresome and difficult process, because of the roughness of the terrain and the remoteness of the water sources. Many *comuneros* still vividly recall the hardships they faced when building their canal: "[w]e walked for hours very early in the morning to reach the sources and worked the entire day" (Farmers 1, 2009). Once the canal was built, Don Eusebio also took the lead in officially registering it, so as to formally establish the water rights of the involved *comuneros*. In 1989, the *Cerro Negro-La Ramada* canal of 17 km of length was officially registered and got state water rights licences. These were issued by the General Water Directory of the Ministry of Agriculture to the water users of the La Ramada and Manzanas communities (Ministerio de Agricultura, 1989). These water rights authorised the members of these communities to use the water from a group of natural springs located in the Cerro Negro area.⁹ Some of these springs are located in the Cajamarca watersheds, while others are in the Jequetepeque watersheds. The water flows given were about 13 litres per second (l/s) to irrigate 247 ha of agricultural land. Logically, Don Eusebio also became the first president of the water user association of the La Ramada canal.

These Cerro Negro water sources which feed the canal are located on the land that was later purchased by Yanacocha, soon after it started its operations in the area in 1993. Yanacocha bought this land from the *Granja Porcón*, which is an evangelical farming cooperative that was established (and had received its land) as a result of the Land Reform of 1969 (*Granja Porcón*, n.d.). This cooperative owns about 11,000 ha in Cajamarca and its relationship with Yanacocha is one of friendly comradeship. Yanacocha also wanted to be able to use the riparian (adjacent) waters, including those from Cerro Negro, as a source of drinking water for one of its mining camp sites, La Pajuela. In 2003, Yanacocha applied and got the official water rights¹⁰ to use 8.5 l/s from the Cerro Negro water sources. These rights were issued by the water authority of Jequetepeque, *Administración técnica del distrito de riego del Jequetepeque* ATDRJ (ATDRJ, 2003). As part of the requirement to apply for water rights and to reinforce its application, Yanacocha presented its land titles to prove that the water sources were located within its private property.

The members of the Canal Ramada water user association were not aware of the fact that their rights to water had been transferred. In 2002, a group of some ten *comuneros* got together and travelled to the catchment area to clean parts of the canal. To do this, they had to enter the area that now belonged to the mine. Yanacocha discovered this, and accused the farmers of trespassing and denounced them to the Crime prevention office of the Cajamarca court (DJ-Cajamarca, 2002). To the farmers' surprise, Yanacocha also stated that the farmers' use of the Cerro Negro water sources and the canal was illegal, since (according to the mine) their rights to these waters had been officially revoked. The court decided not to take any actions against the farmers, because there had not been any violence, nor had any private property been damaged.

⁹ The sources and water flows were as follows: Rumi rumi 3 l/s; Cuyoc 3 l/s; located at the Jequetepeque watershed and Perga Perga 7 l/s located at the Cajamarca watershed.

¹⁰ The details of the water sources and flows given are: Rumi rumi 1: 1 l/s, Rumi rumi 2: 0.20 l/s, Rumi rumi 3: 2 l/s, Cuyoc 1: 1 l/s, Cuyoc 2: 1.50 l/s, Cuyoc 3: 1 l/s, Quebrada Cuyoc: 2 l/s, Pampa Cuyoc 1: 0.15 l/s and Pampa Cuyoc 2: 3 l/s.

It was through this incident that the farmers found out that there was something wrong, and they started inquiring about the status of their water rights and their canal. They soon found out that Don Eusebio, their charismatic leader, had arranged for the cancellation of their rights. In 2001, he had (together with another leader of la Ramada) presented a petition to the ATDRC (the *Administración Técnica del Distrito de Riego de Cajamarca*) to cancel the communities' rights to water. The reasons he gave for this request were that the water flows and the canal were no longer in use, and that the canal was damaged because of leakages. In addition, he mentioned the fact that "in La Ramada, Yanacocha is already executing programs of provision and improvement of drinking water systems", supposedly indicating that the Ramada and Manzanas communities would, in the future, access water through these systems. Don Eusebio had undertaken this action entirely on his own account, and without informing the other members of the La Ramada water user association. In response to Don Eusebio's request, the ATDRC – based on the water law 17752¹¹ – revoked the water rights for irrigation given to the La Ramada and Manzanas water users. Their main arguments to do this were: the lack of maintenance and cleaning of the canal for about 4 years; the fact that the users' register was not updated; and the failure of the users to pay water fees (ATDRC, 2001).

Why had Don Eusebio initiated this process? His relatives – and in particular his grandsons – speculate that he was approached by Yanacocha. They think the mine may have offered him money to help pay for his medicines, in return for which he had to make sure the canal was abandoned to allow for the rights attached to it to be cancelled. Another water user likewise thinks that "the mine paid him little by little to stop organising users for the canal maintenance work" (Farmer 2, 2009). The water users all state that Don Eusebio had been acting entirely on his own account, and not as the president of the canal. They emphasised that they had not been aware of the cancellation. Of course, the official cancellation of the rights of the La Ramada and Manzanas users was indeed convenient to the mine, as it allowed the company to formally acquire these rights, which happened in 2003.

Although there are no precise measurements, it is clear that the loss of the La Ramada canal did significantly reduce farmers' access to water. People interviewed agreed that there was less water, and that this was becoming an ever more serious problem with the population of the communities increasing.¹² As one farmer observed: "before we could irrigate for about 12 hours every 45 days but, after the water decreased, we irrigate less than 3 hours and using only water from [surrounding] canals" (Farmers 2, 2009). Some users indicated that they had changed their cropping pattern because of the reduced availability of water, and were now only irrigating pastures to at least be able keep their livestock production.

The story, however, does not end with Don Eusebio's action. Some of the affected farmers got together and (in 2004) filed an official complaint with the Regional Agrarian Office from the Ministry of Agriculture (DRA, 2004). Their story was treated seriously, and the Office enacted a resolution in support of the peasants' claims. The resolution recognised the existence and legitimacy of the La Ramada canal and the assigned water rights given to the peasants in 1989. Before arriving at this conclusion, the Office had carefully analysed how the cancellation of the water rights could have happened. Their conclusion was that the process of cancellation was not legally valid, because the canal leader had not acted on behalf of the water users, and had not properly notified or informed them.

Yanacocha's reaction to the resolution was clear: they dismissed it by questioning the authority of the Regional Agrarian Office to deal with water rights. According to the mine, water should be dealt with by water authorities, the ATDRs. The mine's view of the matter was that the canal and its water rights were cancelled because they had not been used since 1997. To further lend support to its own

¹¹ Article 116, section about cancellation of water rights (Water Law, 1969).

¹² For drinking water purposes the perception was the same: no enough water to satisfy the population needs. The president of the drinking water system said that they suffer of water shortage; they only have water in the mornings from 8:00 to 11:00 hours. He stated that the problem was not their reservoir nor the distribution system, but the fact that there is less water in the area for the growing population (Representative drinking water, 2007).

position, Yanacocha did everything it could to question the very existence of the canal La Ramada. The mining company for instance produced maps which showed that the canal was seriously damaged and interrupted at several places, and therefore could not have conducted water. In the words of one of the mine's managers (Mining manager 1, 2010), the canal was no more than a large hole. Also, to disqualify the canal and its users, in its documents the mine referred to the "auto-nominated users of the supposed canal La Ramada" (Mining engineer, 2010). In the reasoning of Yanacocha representatives, the farmers "do not really want water or do not really struggle for that, instead, what they want is money" or "to have an excuse to engage in negotiation with the mine, because of the economic benefits they might get" (Mining manager 2, 2009).

Between 2003 and 2004 and convinced of its own rightness, Yanacocha also actively destroyed a stretch of almost 5 km of canal. When they learned about this from the farmers, the Regional Agrarian Office declared that the mine had acted against the water law, which states that nobody can obstruct or impede a right of way because they belong to the state. Any alterations or modifications therefore require the prior approval of the state. After having inspected the damage in 2004, the Office ordered Yanacocha to rehabilitate and fix the damaged stretch of canal.

This trouble with the Regional Office may have prompted the mine to change its strategy. Rather than continuing to attempt to gain control over the Cerro Negro waters through legal means, the company instead decided to enter into a process of negotiations with the water users. In October 2004, the mine succeeded in gathering a group of about 150 people from the La Ramada and Manzanas communities agreeing to negotiate. This group not only consisted of members of the La Ramada water user association, but also included users from a neighbouring canal and even counted some people who were not registered as water users. The mining company, in an attempt to once and for all end the troubles and disputes about the Cerro Negro waters, offered some money to the community members; this money was to compensate them for the work done on the construction of the 17 km of the canal stretching from the *Cerro Negro* area to the community of La Ramada. The amount each farmer would receive was substantial: 7000 PEN (Peruvian Nuevos Soles), equalling approximately US\$2000 (Transacción extrajudicial, 2004). The company even offered those who had never used the water a sum of PEN55,350, supposedly (and as stated in the written agreement) because they had contributed to the maintenance of the canal. These amounts of money are huge for the inhabitants of the two communities; representing four times the average income of US\$509/year – that a peasant could get in 1995 (INEI, 1997) or more than an entire annual income of someone working in the town of Cajamarca in 2008 and 2009 for a minimum wage (about PEN550/month) (INEI, 2010). For many of them, therefore, the offer of the mine was difficult to resist.

Yet, by accepting Yanacocha's money, people also explicitly agreed that the mine had adequately compensated them for any damage or loss they might experience as a result of the closure of the canal or as a result of the transfer of water rights to Yanacocha. Upon receiving the money, people also formally recognised the validity of the mine's water rights (and thus agreed that their own rights were no longer valid), and accepted the closure of La Ramada canal. The agreement signed upon the handing over of the money also stipulated that those who had received money would renounce from any action which would negatively affect the rights given to Yanacocha. The agreement allowed Yanacocha to emphatically assert that the farmers did no longer have legitimate claim to water or to water rights (Yanacocha, 2007b).

The agreement also worked to divide the community members, with those who had accepted the money (and in particular those among them who had never been users of water) now taking the side of, and defending, the mine and its actions, for instance by supporting the mine's claim that the canal had never conducted water or, the mine never blocked the canal. According to La Ramada inhabitants, these people were paid by the mine to do this, as "the intention of the mine was to delete any trace of the canal" (Yopla, 2009). The people siding with the mine also forcefully prevented others from entering the area where the canal is situated. They even stopped representatives of the water authority when they passed by to inspect the canal condition. An aggressive farmer explained: "that he does not

bother the authorities at their offices, why they then have to bother him in his property" (Farmer 3, 2010).

There are also many people who maintain that water can and should never be exchanged for money. They therefore argue that if people accepted cash, this just represents compensation for work done on the canal or for damages suffered. But: "it was not selling our water" nor the rights to water or to the infrastructure (Farmers 2, 2009). Some of La Ramada leaders also question the legal validity of the agreement, because it was co-signed by people who had never been water users and who had no relation whatsoever with the canal. According to Emilio Yopla – the grandson of Don Eusebio, and a current leader in La Ramada – this agreement represented nothing else than buying users and thus buying water: "this was more than a payment for labour devoted to the canal. It was a transaction to force us to give up our water sources, the canal and the water flows".¹³ Determined to defend their territory and livelihoods, Emilio and another leader (Anatacio Yopla) approached¹⁴ the water authorities of Cajamarca and Jequetepeque – ATDRC and ATDRJ, respectively – with the request to cancel the water rights given to Yanacocha. Their argument was that the mine was using the water for mining purposes rather than for the intended drinking water purposes, thus violating the priorities for water use as established in the Water Law 17752 (Water Law, 1969). Their requests were dismissed by the authorities, on account of the fact that Yanacocha used the assigned water for drinking water of its camp site (ATDRJ, 2008; IRH, 2008).

Yanacocha refused to talk with the leaders, stating that they did not legitimately represent any community or group of water users. The mining company even qualified Emilio's communications as hidden threats against the mine, and warned that they would report him to the Cajamarca court of justice in case he would undertake any further action. In 2008, Emilio organised a public protest, blocking the road that connects the mine site with the city of Cajamarca. The intention of this protest was to demand a solution and to call the attention of the media and the authorities. Instead, he was accused of causing public disturbance and of aggression against the private property of Yanacocha and brought to court.

The disputes and arguments continue until today, involving different factions in the involved communities and different government authorities. In 2006, the Ministry of Agriculture, commanded a study to determine the feasibility of the canal and the water availability in the area. Its objective would be to "give water rights – in priority – to those who were affected because of the expiration of such rights" (Ministerio de Agricultura, 2006). With this document, the leaders approached the two regional water authorities – ATRDC and ATRDJ – asking them to follow up. In 2009, and following what the Ministry had asked, the National Water Authority – *Autoridad Nacional del Agua* (ANA) hired an independent consultant to do those studies. The conclusions (in 2010) stated that water demands exceeded water availability from May until November, but that the surplus water of the other months could be made available to farmers. The consultant's report also declared that La Ramada canal was not operational, and in urgent need of rehabilitation, reconstruction, and maintenance work. Among other suggestions, the report proposed the construction of a reservoir to store and supply water to the canal, and the installation of a sprinkler irrigation system.

Yanacocha disputed the study's results, and in particular questioned the calculated figures for water availability. It stated that "decisions that can be taken on the basis of [those studies] can have irreversible effects on the property rights of Minera Yanacocha" (Yanacocha, 2010). In spite of this, the ANA (2011) and the local-level water authorities decided in favour of the farmers, by approving a designated water flow¹⁵ for La Ramada of 1.37 l/s from May to September. The authorities also stated that the users needed to make some provisions to regulate and store water in the rainy season, from October to April, and ordered La Ramada water association to rehabilitate the canal within a year's time.

¹³ Judicial demand presented by Emilio Yopla to the Court of Justice from the Jequetepeque region.

¹⁴ These two leaders disagreed with each other on many other accounts.

¹⁵ Water availability of about 2.23 Mm³/year.

Although positive in principle for those who wanted to claim their water, the resolution by itself does not provide them with rights to water, nor does it allow them to construct new infrastructure. Rehabilitating the canal or constructing new reservoirs might turn out to be difficult, as some of those would have to be located on the property of Yanacocha. That the mining company will not be forthcoming shows in the fact that they already made a legal appeal against the ANA resolution (Defensoría del Pueblo, 2011).

Case 2: The San José Reservoir

In this second case, we describe another series of encounters between Yanacocha and its neighbouring communities about water. Like in the La Ramada case, here also the mining company resorted to negotiations and the payment of compensations to resolve the problems and secure its unlimited access to, and control over, the upstream water sources.

The activities of the Yanacocha mine in 2000 and 2003 in one of its open pits led to severe changes in the soil cover (due to erosion and compaction), while also significantly altering downstream water flows by disrupting the existing drainage networks and lowering the water table. Because of percolations during the expansion phase of the platforms at the Cerro Yanacocha and La Quinoa areas, water quality was also compromised. In addition (at the end of 2006), there were some accidents with the spillover of acid water that reached the communities. The mining company qualified most of these environmental impacts of their operations as moderate (MWH PERU, 2006).

However, for water users downstream, the impact was significant, as two of the creeks that experienced a reduction in water flows were feeding five irrigation canals. One of those canals was constructed in 1953 through the collective work of 30 farmers, who had also arranged for its registration with the water authority and who together looked after its operation, cleaning and maintenance. After Yanacocha started its open pits in the two mentioned areas, the five canals only received a fraction of the water flow that they used to have. For example, in one case the water flow dropped from 80 l/s to 56 l/s and in another from 500 l/s to about 100 l/s. The affected communities complained against Yanacocha and demanded to have their water sources back. According to these communities, the impact on the two creeks and the reduction of water in their canals were not mentioned as the impacts of Yanacocha's operations in the Environmental Impact Assessment (EIA) that was approved in 1998.

In its annual reports, Yanacocha admitted that the initial operations in its pits could lead to a reduction of downstream water flows. As a solution, the company proposed getting water from another area – a complex of natural springs or lakes – by constructing a dam to store water, which could then be diverted to the affected communities. However, the communities surrounding those springs opposed these plans, as they feared the loss of their own waters. The mine then came up with a mitigation and compensation plan, in which it proposed to provide the affected communities with treated water from the mine. The proposal was that Yanacocha would collect the remaining or residual water it had used in its mining processes, next to harvesting or collecting rainwater. Before this water could be released to the affected communities, it had to be treated. As part of this plan, Yanacocha constructed the San José reservoir,¹⁶ in an old open pit, with a storage capacity of 6 Mm³ of water. This water would be used by the mine itself, and could also be delivered to the communities. By thus releasing water, Yanacocha intended to replace the water lost because of its operations.

The quality of the treated water was such that it could only be used for irrigation and not for consumption or other domestic uses. This was why many community members were not too happy about the mine's proposal. Many people did not want treated water; they expected to receive what they called 'natural' water, as they always had. However, as one farmer leader indicated: "the only alternative was the one proposed by Yanacocha, so they gave us treated water" (Farmer 4, 2011).

¹⁶ An investment of US\$25 million.

Affected users expressed dissatisfaction with the quality of the mine's water: "[Our] water sources and flows were natural before [the mine arrived], and we were drinking that water and using it for irrigation, as well as for our animals. Water was consumed without any fear" (Farmers 3, 2011). Some of the affected communities refused to use the treated water; they protested, and entered into a long judicial process against the mine, to demand a continued access to 'natural' water. However, they were not successful¹⁷ and finally had to agree to receive treated water.

During 2006 and 2007 and as a part of the mitigation and compensation plan, the communities and the mine signed extrajudicial agreements.¹⁸ The first condition for receiving treated water was that the communities had to give up their former water rights,¹⁹ the ones issued by the ATDRC, over the sources and flows located in the area where Yanacocha is operating. They were requested to apply for new water rights. In their applications for new rights, the communities specifically had to indicate that they are aware of, and willing to receive, treated water from the San Jose Reservoir. Through this process, the former communities' water rights were thus returned to the State administration, allowing Yanacocha to obtain them and proceed with its operations.

The process itself was contentious and full of questionable incidences, like the reduction of water amounts in the new licences given to the communities. The ATDRC issued new water rights with the quantities that users would be entitled to, even before the official agreement had been signed. For example, one of the canals that used to receive about 500 l/s now only received a licence for 100 l/s (Community advisor, 2011). The presidents of these water user associations had diligently followed the requested procedure, thereby giving up their former water rights and applying for new ones from the San José reservoir.²⁰ The new water rights stipulating amounts and sources, as issued by the water authority, indicated for example: "this canal will conduct 56 l/sec of treated water and 29 l/sec from natural sources, rounding up to 85 l/sec to benefit about 230 water users, mainly agricultural families" (ALA-C, 2009).

What is also remarkable is the relative eagerness and ease with which the peasant leaders believed, and agreed to, the mine's discourse about the viability and sustainability of the reservoir. This can perhaps be explained by the fact that they did not have any alternative means of getting water. Also – as rumours have it – some of them may have accepted small bribes and favours from the mine (Community advisor, 2011, 2012). A statement from one affected peasant water user association which signed an agreement with Yanacocha illustrates the ease with which they went along with the mine's proposals:

[t]he water users agreed to renew our previous request about the nullity of our water rights issued by the water authority on 2004 [ATDRC, 2004a]. The permit gave us the right to use 63.28 l/s for agriculture and livestock production, benefiting 70 farmer families... Currently our water user association does not use this given water flow. On the contrary, *it is convenient for us* to use water from the San José reservoir owned by the Yanacocha mining company, which is supplied by treated water from the mining operations. The agreement with this company is to receive 42 l/sec from its reservoir into our canal and 21.28 l/sec from the other natural springs... We also ask for the closing of the aqueduct of our canal and its right of way (700 m) and we give the permission to Yanacocha to use this part of the canal and land for the its own purposes with the condition of receiving water from San José²¹ (Community Act, 2008; Solicitud, 2008).

The net result was a relatively smooth handing over of water rights from peasant associations to the mine, with the former giving up their previous water rights licences and rights over infrastructure and accepting new rights from the reservoir. Also, through these agreements and with the full acknowledgment and authorisation of the state water authorities, Yanacocha became the de facto

¹⁷ Since there was this ongoing legal process, information about this case was restricted.

¹⁸ *Transacciones extra judiciales*.

¹⁹ ATDRC, 2004a, 2004b.

²⁰ The yearly maximum amount of water to be provided by Yanacocha to this canal was agreed on: 1.357 Mm³.

²¹ Our own emphasis.

water provider for five peasant canals, supplying water to about 1000 users. The mine is responsible for releasing and allocating a total amount of about 3 Mm³, especially during the irrigation period from April to September. To assume its new duties as a water manager for the region, the mine temporarily hires some workers from the affected communities. These workers, however, just operate the installations following the technical and operational instructions from the mine and have nothing to say about how or when water is released or allocated. Formally, the water authority remains in charge of establishing how much water each of the canals should receive. However, from the time the mine has taken over water provision and distribution, there has been no involvement whatsoever from the water authorities in terms of instructions or inspections.

The agreement between the mining company and the affected communities also stipulated that the company would compensate the communities in financial terms for giving up their water rights. Already, although not meant as direct compensation, the mine was financing various investment projects such as the construction of schools and roads to communities, the implementation of drinking water systems, reforestation, and employment. The more direct compensations make the transactions between the communities and the mine closely resemble a water market, in spite of the fact that the Water Law 29338 (Water Resources Law, 2009) expressly forbids water trading. Yanacocha paid about US\$30,000 to every user of a community of about 230 users. Comparing the compensations given in 2006 with the income of peasant families, the amounts are equal to ten times the minimum income, about US\$200, of what an urban worker in Cajamarca (in 2008 and 2009) could earn (INEI, 2010). In addition, the mine established a trust fund aimed at guaranteeing the continued operation and maintenance of the San José reservoir once mining operations are finished, by 2018. This fund is about US\$2.9 million (Agreement, 2009). However it is not clearly defined how and by whom this fund will be managed, and in particular whether actual water users will be involved or trained to do that.

Not all affected communities entered into negotiations with the mine, or signed the agreement. Some communities that were affected as well did not receive any attention because they refused to receive treated water. Others who were also affected lacked the necessary documents to prove their water use, flows and official water rights, which is why their complaints were dismissed by the mine and the water authorities.

The implementation of Yanacocha's proposal to deliver treated water to the affected communities implied a shift in the responsibility for water allocation. Now, this responsibility came to lie with the mining company. To the people receiving water, it was unclear how allocation would happen and who would monitor and control this. They thus requested the water authority, ATDRC, to assume this task by checking how Yanacocha released water. ATDRC never did this; it just issued water rights or licences to the communities, allowing them to use water from the reservoir, and to the mine for providing water. De facto, the mine thus controls how water is used and allocated, and it does this without informing or being checked by the users of the water authority: "the only one which knows and controls is Yanacocha"²² (Former employee, 2010). That users do not know how and if they can hold the mine accountable for its water services is also shown in the fact that for about 2 years, (2010-2012) the reservoir has not been functioning. Against the agreement, Yanacocha is therefore releasing water directly from its La Quinoa treatment plant. To date, the water authorities have not done anything to hold Yanacocha to its promises, and to have the reservoir repaired. Yet, the current local water authority of Cajamarca, is critical of how water management is changing in the region:

Water has become an element of pressure and negotiation,... in some places where mines impacted people, they paid to avoid more problems. It is a mistake [from the mines] to proceed like this,... because when negotiation take place, it is very difficult to approach [water related] problems from a different perspective... I criticised that both, the mine and the communities, negotiate with resources that are not yours (Puicán, 2010).

²² Former employee of Yanacocha responsible for releasing water.

In 2009, the ATDRC²³ decided to enact a resolution acknowledging the negotiations between the communities and the mine:

Yanacocha, a private mining company that developed exploration and exploitation activities, between 2000 and 2002 and since that time there is not water flow of about 56 l/sec in an irrigation canal that used to come from two water creeks [nearby mining operations]. Because of the extraction of groundwater and surface water in the open pit, the water level has reduced [and the canals cannot take it]... Now the water flows from these creeks are captured by Yanacocha and constitute part of its mining operations. [After a treatment process done by the mine, this water] is finally stored in the San José reservoir. Because of the impacts on those [flows] and with the purpose to guarantee water provision to the canal, Yanacocha constructed the San José reservoir to store water and then provide it in a controlled basis during dry seasons (ALA-C, 2009).

This statement was part of the new resolutions that the water authority enacted to the affected canals issuing their new water rights over water flows from the San José reservoir.

Yanacocha proudly mentions this plan in its annual reports as reflecting its contributions to local water management (Yanacocha, 2009). During the opening of the reservoir, in 2008, the former President Alan García also celebrated and congratulated the initiative from the mine. He emphasised that such private-sector initiatives were crucial also for the further development of agriculture, and he mentioned the reservoir as an example.

CONCLUSIONS

Our analysis elicits three important conclusions. One, large-scale mining operations such as that of Yanacocha entail major shifts in how water is used, owned and managed. Perhaps different from how most land grabbing occurs, the shifts in these cases do not occur through the open and outright sale of water. Instead, they involve long-winding, fuzzy and opaque processes of negotiation and sometimes struggle on a playing field that is far from level, with the political and financial powers of mining companies far outweighing those of the local peasant and indigenous communities. The net effect nevertheless is a thorough reconfiguration of water governance, with the mining company controlling water in the region and local communities being effectively dispossessed by losing their water rights.

Second, these shifts in water use and tenure relations imply an irreversible transfer over the control of water from local communities and government agencies to a large and wealthy private transnational corporation. This transfer not only occurs through the company's acquisition of water rights but also through its de facto responsibility of releasing and allocating the upstream water sources to downstream users. The mining company partly 'earned' the power to do this by making huge investments in hydraulic infrastructure, such as the San José reservoir. As La Ramada case shows, this creation of hydraulic property may go accompanied with the material and discursive destruction of existing hydraulic properties. The damage to, and blocking of, a canal constructed by farmers, and the active denial of its very existence were clear strategies of the mine to assert its control over the waters in its area of operation. In this sense, what happens in Yanacocha resembles a form of primitive accumulation, with water that used to be publicly or collectively owned becoming enclosed into private ownership by expelling existing claimants (Hartsock, 2006). However, and different from many other documented cases of primitive accumulation (for instance in reports of land grabbing), the appropriation of water in these cases is a subtle process, with its implicit privatisation serving the extraction of gold rather than water itself becoming a commodity. In the Yanacocha case, this involves a partly implicit process as formal rights to transfer water continue to be vested in the regional water authorities. However, in actual fact and practice, these authorities leave all responsibilities and powers to the company who thus becomes the de facto water management authority. The troubling question

²³ By 2009, the former water authorities or ATDR changed into ALA which stands for *Autoridad Local del Agua*.

of course is how this company, whose actions are guided by transnational trade relations and capital flows rather than by localised questions of environments and livelihoods, can and will be held accountable for its actions.

And third, the impacts of these changes in water use and control are potentially devastating for local livelihoods and for future water availability. Water previously used for irrigating pastures and growing subsistence crops is now increasingly used for producing gold for export, an activity the local gains of which are likely to be short-lived, in spite of the enormous contributions of the mining company to local development. The mining company indeed destroys an existing waterscape. The longer-term social and environmental impacts of this remain poorly understood as yet. What is generally clear, however, is that many people in the rural areas of Cajamarca are left in an even more persuasive condition of vulnerability than they were before the arrival of the mine. This may suggest that for mining companies, the place and the resources are useful, but the people are not – turning them into "a surplus population" (Li, 2009). On the other hand, the entrance of Yanacocha has opened up new opportunities for civic action, protest and resistance and has triggered new ways for indigenous groups to assert their rights and claim environmental justice (e.g. Perreault, 2006). The La Ramada case is still unresolved. This shows the mining company does not automatically win and that those farmers who are still struggling may yet succeed in re-claiming their water rights.

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REFERENCES

- Agreement. 2009. Acuerdo final celebrado entre Minera Yanacocha S.R.L. y usuarios. Cajamarca. ALA-C (Autoridad Local del Agua). 2009. N. 004-2009-ANA-ALA-C. Cajamarca.
- ANA (Autoridad Nacional del Agua). 2011. N. 0201-2011-ANA-AAA VI MARAÑÓN. Cajamarca.
- Armijos, M.T. 2005. Mount Quilish: Social movements, environmentalism and development. MSc thesis. University of Oxford, Oxford.
- ATDRC (Administración Técnica del Distrito de Riego de Cajamarca). 2001. Resolución N. 118-2001-CTAR-CAJ/DRA-ATDRC. Cajamarca.
- ATDRC. 2004a. Resolución Técnica del Distrito - N. 008-2004-GR-CAJ/DRA-ATDRC. ATDRC de Cajamarca.
- ATDRC. 2004b. Resolución Técnica del Distrito - N. 009-2004-GR-CAJ/DRA-ATDRC. ATDRC de Cajamarca.
- ATDRJ (Administración Técnica del Distrito de Riego de Jequetepeque). 2003. Resolución N. 036-2003-MA-ATDRJ. San Pedro de Lloc.
- ATDRJ. 2008. Informe N. 021-2008-GA-GRLL-ATDRJ. San Pedro de Lloc.
- Bakker, K. 2002. From state to market: Water *mercantilización* in Spain. *Environment and Planning A* 34(5): 767-790.
- Bebbington, A. 2007. Elementos para una ecología política de los movimientos sociales y el desarrollo territorial en zonas mineras. In Bebbington, A. (Ed), *Minería, movimientos sociales y respuestas campesinas: Una ecología política de transformaciones territoriales*, pp. 23-46. Lima: Instituto de Estudios Peruanos, Centro Peruano de Estudios Sociales.
- Bebbington, A. and Williams, M. 2008. Water and mining conflicts in Peru. *Mountain Research and Development* 28(3/4): 190-195.
- Bebbington, A.; Hinojosa, L.; Humphreys Bebbington, D.; Burneo, M.L. and Warnars, X. 2008. Contentious and ambiguity: Mining and the possibilities of development. *Development and Change* 39(6): 887-914.
- Borras, S.M. and Franco, J. 2012. Global land grabbing and trajectories of agrarian change: A preliminary analysis. *Journal of Agrarian Change* 12(1): 34-59.

- Budds, J. 2010. Water rights, mining and indigenous groups in Chile's Atacama. In Boelens, R.; Getches, D. and Guevara Gil, A. (Eds), *Out of the mainstream*, pp. 196-211. Londres, Washington, DC: Earthscan.
- Budds, J. 2011. Relaciones sociales de poder y la producción de paisajes hídricos. In Boelens, R.; Cremers, L. and Zwarteven, M. (Eds), *Justicia hídrica: Acumulación, conflicto y acción social*, pp. 59-69. Lima: Instituto de Estudios Peruanos, Fondo Editorial Pontificia Universidad Católica del Perú.
- Budds, J. and Hinojosa, L. 2012. Restructuring and rescaling water governance in mining contexts: The co-production of waterscapes in Peru. *Water Alternatives* 5(1): 119-137.
- Bury, J. 2004. Livelihoods in transition: Transnational gold mining operations and local change in Cajamarca, Peru. *The Geographical Journal* 170(1): 78-91.
- Bury, J. 2005. Mining mountains: Neoliberalism, land tenure, livelihoods and the new Peruvian mining industry in Cajamarca. *Environment and planning A* 37(2): 221-239.
- Community Act. 2008. Acta de asamblea. 20. November. 2008. Cajamarca.
- Community advisor. 2011. Personal communication. 2 February 2011.
- Community advisor. 2012. Written communication. 27 April 2012.
- De Echave, J.; Diez, A.; Huber, L.; Revesz, B.; Ricard Lanata, X. and Tanaka, M. 2009. *Minería y conflicto social*. Lima: Instituto de Estudios Peruanos; Centro de Investigación y Promoción del Campesinado; Centro Bartolomé de las Casas; Consorcio de Investigación Económica y Social.
- del Castillo, L. 2009. Nueva ley de aguas que no convence. *Páginas* 34: 15-21. Lima: Centro de Estudios y Publicaciones.
- de Soto, H. 2000. *The mystery of capital: Why capitalism triumphs in the West and fails everywhere else*. New York: Basic Books.
- Defensoría del Pueblo. 2011. *Reporte de conflictos sociales No. 94*. Lima: Adjuntía para la prevención de conflictos sociales y la gobernabilidad.
- Deza, N. 2008. Impactos socio económicos de la minería aurífera por lixiviación de pilas a tajo abierto en Cajamarca. 1992-2007. Phd thesis. Escuela de Postgrado, Universidad Nacional de Trujillo, Trujillo, Perú.
- DJ-Cajamarca (Distrito Judicial-Cajamarca). 2002. Oficio 005-2002-MP-FSD-DJ-Cajamarca. Cajamarca.
- DRA (Dirección Regional Agraria). 2004. Resolución Regional Agraria N. 099-2004-GR-CAJ/DRA. Cajamarca.
- Elizalde, B.; Whellams, M. and Sabater, C. 2007. *Reseña de las relaciones de Newmont con la comunidad: Mina de Yanacocha, Perú*. Cajamarca: Canadian Business for Social Responsibility; Avanzar.
- Fairhead, J.; Leach, M. and Scoones, I. 2012. Green grabbing: A new appropriation of nature? *Journal of Peasant Studies* 39(2): 237-261.
- Farmer 1. 2009. Personal communication. 9 April 2009.
- Farmer 2. 2009. Personal communication. 1 May 2009.
- Farmer 3. 2010. Fieldwork inspection. 17 December 2010.
- Farmer 4. 2011. Personal communication. 7 February 2011.
- Farmers 1. 2009. Personal communication. 3 April 2009.
- Farmers 2. 2009. Personal communication. 9 April 2009.
- Farmers 3. 2011. Written communication. 14 April 2011.
- Former employee. 2010. Personal communication. 17 February 2010.
- Golder Associates. 2008. *International cyanide management code ICMC gold mining operation verification audit Yanacocha mine, Peru*. Summary Report. Colorado, USA.
- Granja Porcón. n.d. Granja Porcón: Mostrando nuestra imagen al mundo. www.granjaporcon.org.pe (accessed 2 September 2011)
- Grufides. n.d. *Mapa minero de Cajamarca*. Cajamarca: Grufides.
- Hartsock, N. 2006. Globalization and primitive accumulation: The contributions of David Harvey's dialectical marxism. In Castree, N. and Gregory, D. (Eds), *David Harvey: A critical reader*, pp: 167-190. Oxford, UK: Blackwell.
- INEI (Instituto Nacional de Estadística e Informática). 2010. Censos poblacionales. www.inei.gov.pe (accessed 20 October 2010). Lima.
- INEI. 1997. Censos poblacionales. www.inei.gov.pe (accessed 20 October 2010). Lima
- IPE (Instituto Peruano de Economía). 2011. *La Tributación minera en el Perú: Contribución, carga tributaria y fundamentos conceptuales*. Enero 2011. Lima: Sociedad Nacional de Minería, Petróleo y Energía. Lima.
- IRH (Intendencia de Recursos Hídricos). 2008. Resolución 769-2008-INRENA-IRH. Lima.
- Kuramoto, J. 1999. Las aglomeraciones productivas alrededor de la minería: El caso de Minera Yanacocha. GRADE Documento de Trabajo No. 27. Lima: Grupo de Análisis para el Desarrollo.

- Li, T.M. 2009. To make live or let die? Rural dispossession and the protection of surplus populations. *Antipode* 41(S1): 66-93.
- Luna Córdova, H.J. 2009. Minería sostenible en el Perú. Semana Forestal. Ministerio de Energía y Minas. Lima: Ministerio de Energía y Minas.
- MEF (Ministerio de Economía y Finanzas). 2012. Artículo Especial: Los 993 distritos más pobres del Perú. www.mef.gob.pe/contenidos/inv_publica/docs/boletines/boletines_pi/boletin1/boletin_1_articulo_especial.pdf (accessed 7 May 2012)
- Mining engineer. 2010. Fieldwork inspection. 17 December 2010.
- Mining manager 1. 2010. Personal communication. 25 October 2010.
- Mining manager 2. 2009. Personal communication. 6 April 2009.
- Ministerio de Agricultura. 1989. N. 065-89-AG_DGAS. Lima.
- Ministerio de Agricultura. 2006. Resolución Ministerial N. 0407-2006-AG. Lima.
- MWH PERU (Montgomery Watson and Harza). 2006. *Estudio de impacto ambiental: Proyecto Yanacocha suplementario*. Resumen ejecutivo. Febrero 2006. Preparado para Minera Yanacocha S.R.L.
- Newmont. n.d. www.newmont.com/south-america (accessed 22 September 2008)
- Perreault, T. 2006. From the guerra del agua to the guerra del gas: Resource governance, neoliberalism and popular protest in Bolivia. *Antipode* 38(1): 150-172.
- Preciado, R. 2012. El agua y las industrias extractivas en el Perú: Un análisis desde la gestión integrada de recursos hídricos. In Urteaga, P. (Ed), *Agua e industrias extractivas: Cambios y continuidades en los Andes*, pp. 171-215. Lima: Instituto de Estudios Peruanos; Concertación.
- Prudham, S. 2009. Commodification. In Castree, N.; Demeritt, D.; Liverman, D. and Rhoads, B. (Eds), *A companion to environmental geography*, pp. 123-142. London, UK: Wiley-Blackwell.
- Puicán, J.F. 2010. Personal communication. 15 February 2010.
- Representative drinking water. 2007. *Carta La Ramada*. Cajamarca.
- Sarmiento, J. and Ravines, T. 2009. *Cajamarca. Historia y cultura*. Cajamarca: Martínez Compañón Editores.
- SCG (Social Capital Group). 2004. *Sistematización y evaluación del programa de atención a expropietarios*. Cajamarca, Perú.
- Solicitud. 2008. *Caducidad de resolución administrativa N. 008-2004-GR-CAJ/DRA-ATDRC y otorgamiento de nueva licencia de uso de aguas con fines agropecuarios*. 23 October 2008. Cajamarca.
- Sosa, M. and Zwartveen, M. 2011. Acumulación a través del despojo: El caso de la gran minería en Cajamarca, Perú. In Boelens, R.; Cremers, L. and Zwartveen, M. (Eds), *Justicia hídrica: Acumulación, conflicto y acción social*, pp. 381-392. Lima: Instituto de Estudios Peruanos, Fondo Editorial Pontificia Universidad Católica del Perú.
- Torres, V. 2007. *Minería artesanal y a gran escala en el Perú: El caso del oro*. Lima: Editora Cooperación Solidaria.
- Transacción extrajudicial. 2004. Transacción extrajudicial. 19 October 2004. Cajamarca.
- Water Law. 1969. Water Law 17752. Lima: República del Perú.
- Water Resources Law. 2009. Water Resources Law 29338. Lima: República del Perú.
- Yanacocha. 2007a. Yanacocha. Balance social y ambiental Cajamarca 2006. Lima: Yanacocha.
- Yanacocha. 2007b. Certified letter from Yanacocha 17.10.2007, Cajamarca: Yanacocha.
- Yanacocha. 2008. Cajamarca Tierra Fecunda. Balance Social y Ambiental. Lima: Yanacocha.
- Yanacocha. 2009. Reporte de Sostenibilidad 2009. Lima: Yanacocha.
- Yanacocha. 2010. Observaciones de Minera Yanacocha a reporte de Consultor (23.11.2010). Cajamarca: Yanacocha.
- Yanacocha. n.d. www.yanacocha.com.pe (accessed 22 September 2008)
- Yopla, E. 2009. Personal communication. 29 January 2009.
- Younger, P.; Wolkersdorfer, C. and The Ermita Consortium. 2004. Mining impacts on the fresh water environment: Technical and managerial guidelines for catchment scale management. *Mine Water and the Environment* 23(Supplement 1): S2-S80.

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