

Defusing the social minefield of gold sites in Kamituga, South Kivu. From legal pluralism to the re-making of institutions?¹

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Abstract

DRC's 2002 Mining Code has attracted Large-Scale Mining (LSM) through favorable fiscal conditions, but is detrimental to Artisanal and Small-scale Mining (ASM). The Code specifies that ASM should take place in Artisanal Exploitation Zones (AEZ), but far too few AEZ were created to accommodate the large number of artisanal miners. This has triggered an explosive situation, as many artisanal miners operate in mining concessions granted to LSM companies. While LSM companies justify their operations referring to statutory law, miners claim traditional rights to the land. We study how this situation of legal pluralism plays out in Kamituga, a gold mining area in South-Kivu. To what extent do the artisanal miners and the LSM company stick to their opposing frames of reference? To what extent do they look for compromises? Can these compromises give way to the re-making of institutions?

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1. Introduction

South-Kivu – located in eastern DRC and bordering Rwanda, Burundi, and Tanzania – holds important deposits of gold. In the colonial period, these gold deposits came to be dominated by industrial mining (Geenen, 2014; Kyanga Wasso, 2013; Vlassenroot and Raeymaekers, 2004). From the 1960s onward, Artisanal and Small-scale Mining (ASM) resurged – first in the margins, but then more prominently. ASM really boomed after 1982, when President Mobutu liberalized the production and trade in minerals.⁵ During the two Congo wars (1996-1997 and 1998-2003) Large-Scale Mining (LSM) came to a standstill, while ASM continued to expand.

Presently, ASM is an important livelihood strategy in DRC. A (gu)estimate by the World Bank (2008, p.56) puts employment in DRC's artisanal mining sector in the range of 0.5 to 2 million miners.⁶ The ASM-based livelihood is however under pressure, as the pendulum is swinging back to LSM. Over the past decade, mining companies have shown renewed interest in DRC – triggered first by increasing world prices for minerals, and later by a stabilization of the security situation in eastern DRC. Since ASM cannot easily be taxed,⁷ the Congolese state is eager to further stimulate LSM-development. A revised Mining Code, issued in 2002, aimed to attract more investments from private companies, among others by offering an advantageous fiscal regime (Mazalto, 2005).

While the 2002 Mining Code has helped in attracting Foreign Direct Investment to the sector⁸, it may prove detrimental to the sector's ASM segment. Although the code recognizes ASM as a valid production mode, it specifies that artisanal activities should take place in clearly demarcated Artisanal Exploitation Zones (AEZ). In practice, very few AEZ were created and the DRC Mining Code provides the possibility to close them down if “a new deposit which

⁵ Law n°82/039 of November 5th 1982.

⁶ Other estimates are provided by Spittaels et al. (2014) and Geenen (2014). In collaboration with the Congolese mining administration, the International Peace Information Service counted 1,088 mining sites in the two Kivu provinces, Maniema, North Katanga, and the Ituri District of Province Orientale. Because of security reasons, only half of these sites were visited, yielding a count of 221,500 artisanal miners (Spittaels et al., 2014: 8). Geenen (2014: p.95) estimates the number of artisanal miners in two of South-Kivu's mining sites, and finds a number in between 6,000 and 12,000 out of a population of 65,000 inhabitants in Twangiza; and between 10,000 and 15,000 out of a population of more than 100,000 in Kamituga in 2013.

⁷ The bulk of the ASM produce is smuggled out of the country (World Bank, 2008, p.56).

⁸ In 2012, mineral rents accounted for an estimated 23.4% of GDP, up from 10.6% in 2006 and 0.3% in 2002 (World Bank, 2013).

does not lend itself to artisanal mining has been discovered”.⁹ Consequently, LSM companies have the upper hand, while artisanal mining largely takes place outside the state’s regulatory framework (Geenen and Claessens, 2013; van Puijenbroek and Schouten, 2013).

Where mining concessions have been granted to LSM companies, artisanal miners become *de jure* invaders engaged in illegal activities. But, the miners see things differently. Taking recourse to customary rules and traditional rights, they perceive their claims to the land as legitimate (Geenen and Claessens, 2013). Furthermore, mining is often perceived by artisanal miners as the only way to make ends meet (Matthysen and Zaragoza Montejano, 2013; Morisho and Rutinirwa, 2015). In practice, the production mode is therefore characterized by a duality and tension between LSM and ASM.

We study how this tension plays out in Kamituga, a gold mining concession in South-Kivu, owned by Banro – a Canadian multinational. To what extent do the artisanal miners and the LSM company stick to their opposing frames of reference? To what extent do they look for compromises? Can these compromises give way to the re-making of institutions?

In answering these questions, we add to the literature on artisanal mining (Bryceson and Jønsson, 2010; Campbell, 2009; Fisher et al., 2009; Grätz, 2009; Hilson, 2009; Siegel and Veiga, 2009); in particular to studies looking at its relation with large-scale mining (Banchirigah, 2008; Bush, 2009; Carstens and Hilson, 2009; Geenen, 2014; Geenen and Claessens, 2013). Our specific contributions are threefold. First, on the methodological front, we take a mixed methods approach, in which we combine quantitative and qualitative data. Importantly, the data collection does not capture just one snapshot in time, but was collected during four consecutive visits in a 2-year time span, allowing to monitor actions and reactions of the artisanal miners and the LSM company through time. Second, on the conceptual front, we propose a simple payoff-matrix that provides insight into the key factors that shape the strategic interaction between these two players. Although a simplification of the complex situation on the ground, this initial abstraction helps us to situate the concrete actions and reactions that we observe in the field. Third, studying the case of Kamituga is highly relevant at this point in time. Although the war in eastern DRC has formally ended, peace remains fragile, among others because many young people cannot find productive employment, thus

⁹ Mining Code, Title 4, Chapter 1, Art. 110.

receiving the label “high-risk youth” (Blattman and Ralston, 2015). Kamituga, being the third largest city in South-Kivu, with a population that depends almost entirely on artisanal mining, has the potential to greatly contribute to the army of high-risk youth. Furthermore, in response to calls for a revision of the 2002 Mining Code¹⁰, a new revision process may be launched in 2017.¹¹ We hope that our research may contribute to better informed decisions.

The next section provides a background on the DRC Mining Code and the mining site of Kamituga. In Section 3, we present our conceptual framework. In Sections 4 and 5, we move to the empirics, discussing the methodology and results of our data collection process. Section 6 provides a discussion of our findings and their policy implications.

2. Background

DRC’s 2002 Mining Code defines artisanal exploitation as “any activity by means of which a person of Congolese nationality carries out extraction and concentration of mineral substances using artisanal tools, methods and processes, within an artisanal exploitation area limited in terms of surface area and depth up to a maximum of thirty meters” (DRC, 2002 :3).¹² According to the Code, artisanal miners should operate in designated AEZ, located outside LSM concessions.¹³ The Congolese state however has few incentives to create such zones, because striking deals with a limited number of LSM companies brings in much easier money than trying to regulate and tax hundreds of thousands of artisanal miners.

The 2015 update of the Congolese Mining Registry (CAMI) indicates that, in Eastern Congo¹⁴, there are 177 AEZs that cover only 1% of the mineral concessions surface area. Among those 177, seven are located in the province of South-Kivu, where they also represent

¹⁰ The Civil Society’s memorandum to the Congolese prime Minister is available at <http://cern-cenco.cd/?p=2334> (last consulted on May 28, 2016)

¹¹ In June 2017, the bill of revision of the Mining Code was discussed in the DRC’s national Assembly. See e.g. <http://www.radiookapi.net/2017/06/07/actualite/societe/rdc-la-revision-du-code-minier-en-discussion-au-parlement> (last consulted on June 20, 2017). The bill of the revision can be found at: <http://www.congominer.org/reports/765-projet-de-loi-2015-sur-la-revision-du-code-minier> (last consulted on July 25, 2017)

¹² English version of the 2003 Mining Regulation: Title1, Chapter 1, Section 1, Art. 1; available at: http://mines-rdc.cd/fr/documents/codeminer_eng.pdf (last consulted on May 25, 2016).

¹³ Mining Regulation, Title 4, Chapter 1, Art. 223.

¹⁴ Eastern Congo encompasses eleven of the country’s 26 provinces, namely Bas-Uele, Haut-Uele, Tshopo, Ituri, North-Kivu, South-Kivu, Maniema, Tanganyika, Haut-Lomami, Lualaba and Haut-Katanga.

only 1% of the mineral concessions surface area. When combining this dataset with the latest information wave (2009-2015) about artisanal mining sites from the International Peace Information Service (IPIS), we find that less than 1% of the artisanal miners registered by IPIS operates in an AEZ. The large majority operates in concessions held by LSM or in areas that are not covered by a mining permit (For more details and maps, see Stoop et al., mimeo).

Regarding industrial exploration, the 2002 Mining Code applies, except in cases where a mining convention between the company and the Congolese government was signed before 2002.¹⁵ The Mining Code specifies that an exploration permit is valid for 4 years, and renewable twice for a period of two years.¹⁶ An exploration permit is considered to be ‘dormant’ if the holder has not started exploration activities within 4 years or if the license has not been renewed. If an LSM company wishes to proceed from the exploration to the production phase, an exploitation permit needs to be obtained. Within two months of issue, the title holder has to provide a clear demarcation of the concession: the perimeter has to be surveyed, and corner markers have to be placed.¹⁷ Furthermore, since the demarcation and start of production activities are likely to entail important consequences for local communities and individuals living or working within the demarcated zone, a ‘Cahier de Charge’ or Memorandum of Understanding (MoU) between the affected populations and the company should be agreed upon.¹⁸

Agreeing on a MoU only at the time of the production may however be quite late from the viewpoint of the population, which already faces restrictions and large uncertainty during the exploration phase. Moreover, the 2002 Mining Code nor its related 2003 Mining Regulations provide a model for such MoU. Although the Mining Regulations mention that companies should “improve the well-being of the local population”, this objective is not further

¹⁵ Mining conventions are regulated by the Legislative Order nr. 81-013 of April 2, 1981. This Legislative Order is available at:

http://www.leganet.cd/Legislation/Droit%20economique/Code%20Minier/OL.81.013.02.04.1981.htm#_ftn2
(last consulted on July 25, 2017)

¹⁶ Mining Code, Title 3, Chapter 1, Art. 52 (English version, available at: http://mines-rdc.cd/fr/documents/codeminier_eng.pdf (last consulted on May 18, 2016).

¹⁷ Mining Code, Title 2, Chapter 2, Art. 31.

¹⁸ Title 10, Chapter 4, Art. 285 & 217, Bill of revision of the DRC Mining Code (May 2015). Also see the summary of the discussions to revise the Code (CEPAS, 2014).

detailed by any standards or criteria, giving companies large room for manoeuvre (Mazalto, 2009).

Banro first acquired mining titles under the reign of Mobutu. More precisely, in 1997, they started the SAKIMA company (Société Aurifère du Kivu et du Maniema) under the umbrella of the mining convention of 13th February 1997.¹⁹ This mining convention granted Banro (via SAKIMA) the right to explore minerals in the gold concessions of Kamituga, Lugushwa, and Twangiza for a period of 25 years (Banro, 2014a). They lost these rights when Mobutu was ousted from power, and SAKIMA was dissolved by Laurent Kabila (Geenen, 2014). During the war, they negotiated with the government as well as with armed groups to re-gain access to the mines. Eventually – after a legal struggle – they regained the titles in 2002.²⁰ In 2007 the company acquired an additional 14 exploration permits, covering large areas around their concessions.²¹ Banro first focused its exploration activities on Twangiza, where they entered the production phase in October 2011 (Banro, 2014a). Exploration activities are still ongoing in both Lugushwa and Kamituga.

Regarding Twangiza, Geenen (2014, 2012) and Geenen and Claessens (2013) have analyzed how Banro's development of the Twangiza mine has led to the displacement of local communities, and left artisanal miners with few alternative livelihoods. Although Banro set up a community forum – to discuss issues of resettlement and compensation – and organized training and employment programs, Geenen and Claessens (2013) argue that these measures have only benefitted a relatively small part of the affected population and are unlikely to bring relief in the long run. Lacking alternative livelihood options, artisanal miners have resisted the dispossession, both in words and actions. For instance, 500-900 artisanal miners reoccupied sites within the Twangiza concession in April 2011 (Geenen, 2014; Geenen and Radley, 2014).

¹⁹ This convention was signed between the Congolese government and the representatives of SOMINKI (Société Minière et Industrielle du Kivu-Maniema) and SAKIMA. At present, there have already been two addendums (in 2002 and 2010) and one revision (in 2009) of this mining convention (personal correspondence with Crispin Mutwedu, a senior Banro officer in charge of Community Relations). The 2002 Mining Code authorizes Companies which were already under a conventional regime, to continue working under that regime until its end date (Title III, art. 336). The initial mining convention is available at : http://www.congomines.org/system/attachments/assets/000/000/471/original/Convention_miniere_zr_SOMINKI_BANRO_1997.pdf?1430928883 (last consulted on July 25, 2017)

²⁰ Banro also gained the right to exploit minerals in the gold mining concession of Namoya which is located in Maniema province, just across the border with South-Kivu.

²¹ So far, less than 12% of the 2,638 square kilometers covered by these 14 exploration permits has been explored using modern techniques (Banro, 2014b: p.2).

Also at Banro's other concessions, negotiations with local communities are expected to pose a huge challenge. In its 2013-2014 Annual Information Form, Banro describes this challenge as follows: *"Some or all of the Company's properties are inhabited by artisanal miners. These conditions may interfere with work on the Company's properties and present a potential security threat to the Company's employees. There is a risk that operations of the Company may be delayed or interfered with, due to the conditions of political instability, violence and the inhabitation of the properties by artisanal miners. The Company uses its best efforts to maintain good relations with the local communities in order to minimize such risks"*. (Banro, 2014a: p. 16).

In 2011, Banro started its exploration activities in Kamituga. Different from the largely rural site of Twangiza, Kamituga is a city with close to 190,000 inhabitants (Interview 25, 2015)²²; it is located at about 180 kilometers southwest of Bukavu, in the territory of Mwenga. Its gold deposits were first discovered in the 1920s, and the Belgian company Minière des Grands Lacs Africains (MGL) started commercial gold production in the 1930s (Geenen, 2014; Kyanga Wasso, 2013; Vlassenroot and Raeymaekers, 2004). In 1976, MGL merged into SOMINKI with eight other mining companies. SOMINKI invested considerably in Kamituga, employing 2,000 to 3,000 workers, constructing local infrastructure and providing social services (Geenen, 2014; Vlassenroot and Raeymaekers, 2004).

From the 1960s onwards, artisanal mining and informal trade networks gradually developed in Kamituga. During the two Congo wars artisanal mining further expanded. A sense of relative security and the hope to find economic opportunities in the informal mineral trade intensified the migration from rural areas to Kamituga, which saw its population more than double over the course of the wars (Geenen, 2014; Vlassenroot and Raeymaekers, 2004).²³ At

²² According to the local administrator of Kamituga, the latest population census estimates the number of inhabitants at 187,000 (Interview 25, 2015).

²³ Although the center of Kamituga was considered to be a relatively safe place during the two Congo wars, the UN has documented several atrocities committed by different armed actors: *"In October or November 1996, Burundian Hutu armed units from the FDD (Forces de Défense de la Démocratie) publicly executed between 12 and 20 Banyamulenge/Tutsis in the village of Kamituga"*(UN, 2010: p.76); *"Over the course of November 1996, FDD and FAZ [Forces Armées Zaïroises] units killed around fifty Tutsi civilians by Zalya River, a few kilometres from Kamituga-Centre."* (UN, 2010: p.76); *"On 5 March 1999, elements of the ANC [Armée Nationale Congolaise] killed more than 100 people in the town of Kamituga"* (UN, 2010: p.179); *"In Kamituga and Walungu (South Kivu), the [Mayi-Mayi] militia allegedly cut off women's breasts and forced them to eat them before executing them as punishment for their alleged support of the RCD-G or their refusal to undertake forced labour."* (UN, 2010: p.305).

present, close to 15,000 artisanal miners are (illegally) operating in its concessions.²⁴ Yet, the town and its surrounding mining sites are entirely located on three exploitation permits owned by Banro. The company hopes to move to the production phase in the (near) future, a prospect that creates a palpable tension between the company and the artisanal miners.

3. Conceptual framework

Our research setting is characterized by legal pluralism. The relevant formal law is embodied in the DRC Mining Code, the accompanying Mining Regulations, and the mining conventions. The relevant informal law consists of customary arrangements of land access as well as practical norms that regulate the activities of the artisanal miners (Geenen, 2014, provides a detailed overview of these norms and practices). Both legal systems seek to regulate access to and exploitation of the same mining sites. They are therefore in competition, with the statutory law intended to replace rather than complement the customary law. Several authors have documented that, while a pure replacement of one legal system by the other is possible, most commonly, systems interact and evolve to a hybrid system. Some authors propose that this evolution is characterized by ‘bricolage’ or an improvised erratic adaption process that is mostly *non-reflective* (e.g. Cleaver, 2002). This process is not totally arbitrary however, as it is shaped by agency and constrained by social life and culture. Other authors instead argue that a hybrid system arises out of the *reflective* actions of agents that act purposively, based on a cost-benefit calculation that takes into account the others’ strategic (re)actions (e.g. Aldashev *et al.* 2007).

These two models seem radically different. They can however co-exist in the specific circumstance of a conflicting situation with large uncertainty. In a conflicting situation,

²⁴ Although it is hard to accurately estimate the total number of artisanal miners, the available estimates seem to corroborate each other. Geenen (2014: p.95) estimates the number of artisanal miners between 10,000 and 15,000. During fieldwork in 2015, we learned from the representatives of several local mining committees that a census undertaken in 2013 counted 13,600 artisanal miners; and we counted 15,250 artisanal miners on the combined membership lists of two local committees of artisanal miners (COKA and CRC) (see Stoop *et al.* 2016). Finally, when combining the most recently available IPIS estimates (2013-2015) for the number of artisanal miners for all mining sites located on the concessions of Banro Kamituga Mining (Spittaels *et al.*, 2014) we count 14,695 artisanal miners (Stoop *et al.*, 2016). IPIS’ estimations are available at: <http://www.ipisresearch.be/mapping/webmapping/drcongo/v2/#3.06295313080611/28.192720413208008/13/terrain,21,22,1,2/1,2,3,4,5,6,7,8,9,10> (last consulted on June 6, 2016).

bricolage will likely occur in a more calculated way, simply because the usual non-reflective behavior yields an unexpected confrontational result, causing the agent to reflect on his behavior and rethink what is feasible and desirable (Rubinstein, 1997). And, in a situation of large uncertainty, rational calculations may not be particularly useful or easy to perform, and – to save on cognitive energy – may therefore make way to routinized and non-reflective processes, such as simple rules of thumb (Kahneman, 2011).

Our setting shares these two specific features: conflict and uncertainty. It hosts two conflicting legal systems that oppose two parties, i.e. the multinational company and the artisanal miner. Since the parties are ex-ante largely unfamiliar to each other, uncertainty reigns about the opponent's actions. In this setting, actions and reactions are likely to occur through a mix of reflective and non-reflective processes, rather than through one-or-the-other process.

In what follows, we sketch this interaction in a stylized manner. In particular, we explicate the potential actions and reactions of our two main actors in a pay-off matrix. The downside of the pay-off matrix is that, by greatly simplifying a complex reality, nuances get lost. For instance, we talk about two actors: the company and the artisanal miner. In reality, there are more actors on the scene (we will mention some of them later on) and the artisanal miner that features in our pay-off matrix does not do justice to the large heterogeneity that actually exists among miners.²⁵ The upside, however, is that making abstraction from the complexities, can help in distilling the essence of what we want to capture. In the words of Dani Rodrik (2015, p. 44): “A modeler builds an artificial world that reveals certain types of connections among the parts of the whole—connections that might be hard to discern if you were looking at the real world in its welter of complexity”. This is in the spirit of Thaler (2015), who – while making a plea for mixed methods studies – argues that “a formal model would make it very easy to specify the expected behavior of actors given the constraints and opportunities they face” (Thaler, 2015, p. 11). He also points out that “while formal models are associated primarily with rationalists, models can extend beyond material rationality to noneconomic goals and preferences” (Thaler, 2015, p. 10). We will indeed take into account both material and non-material gains and losses in our pay-off matrix.

²⁵ Some miners are local, others are migrants. Some miners are ordinary diggers, others are pit managers, or supervisors, or have some specific technical expertise (Geenen, 2014).

The two opposing parties in our pay-off matrix are the multinational company (denoted by ‘c’) and the artisanal miner (denoted by ‘a’). The statutory law favors the multinational, whereas the customary law favors the artisanal miner. We assume the following: Both parties can choose between a *hardliner* approach and a *tolerant* approach. If both choose a hardliner approach, the two law systems will continue to ‘co-exist’ as unintegrated conflicting systems. If one party takes a tolerant approach and the other a hardliner approach, only the law system associated with the hardliner will survive. If both parties take a tolerant approach, the two systems can potentially be transformed into one hybrid system. These choices and their corresponding states of the world can be summarized as follows:

		Customary law put forward by artisanal miners	
		Hardliner	Tolerant
Statutory law put forward by Banro	Hardliner	Legal pluralism	Statutory law only
	Tolerant	Customary law only	Hybridity

Each choice comes with costs and benefits. For instance, if the company takes the hardliner approach, it will have to bear policing costs (P) to enforce statutory law. If the miners take the hardliner approach, they will bear sabotage costs (S), to prevent that the company gains terrain. The costs have to be weighed against the benefits they entail. The benefits of sabotage and policing can be expressed in the gold production shares accruing to the artisanal miners (G_a) and to the company ($G_c = G_t - G_a$), respectively (with G_t total gold production). Suppose the costs P and S are also expressed in gold, then – if both parties take a hardliner approach – the net payoff for the mining company is $G_t - G_a - P$ (or total gold, minus the gold going to the artisanal miners, and minus the policing cost) and the net payoff for the artisanal miners is $G_a - S$.

Initially, the exact costs and benefits are unknown. In the absence of these inputs required for a rational calculus, initial actions and reactions will largely be driven by non-reflective action, relying on routine or habits. In the case of the company, the routine would be to abide by statutory law. Since the entire mining site is part of the company’s concession, this means expelling the miners, thus incurring the policing cost P. This hardliner approach on the part of the company disrupts the normal course of things for miners. They may react to the

expulsion, driven by feelings of injustice or by a rational calculation of monetary costs and benefits, or a combination of both. Below we consider feelings of injustice, but we first illustrate the simple case of merely material pay-offs: if the miners take a hardliner approach, and react to the expulsion, their net payoff is G_a-S . This will only be an equilibrium if the net benefits of reacting outweigh the net-benefits of accepting the expulsion, or $G_a-S > G_a'''$, with (G_a) the gold production accruing to miners when they engage in sabotage (which, net of Sabotage costs, amounts to G_a-S), and G_a''' the gold production accruing to miners when they accept the expulsion. These and other trade-offs are illustrated in the following pay-off matrix:

		Customary law put forward by artisanal miners	
		Hardliner	Tolerant
Statutory law put forward by Banro	Hardliner	(G_t-G_a-P, G_a-S)	$(G_t-G_a'''-P, G_a''')$
	Tolerant	$(G_t-G_a'', G_a''-S'')$	(G_t-G_a', G_a')

Where: G_a , G_a' , G_a'' and G_a''' correspond to the *gross* gold production accruing to miners in the four different states of the world. It is plausible to assume that $G_a''' < G_a'$, $G_a < G_a''$, or the gold production accruing to miners is smallest when only statutory law prevails and largest when only customary law prevails, but we are agnostic about the rank order of G_a' and G_a , i.e. a priori we make no assumption about whether gold production accruing to the artisanal miners is larger in the case of a two-sided hardliner or a two-sided tolerant approach.

Which state of the world will prevail in equilibrium, depends on the concrete pay-offs, taking into account the cost side, and therefore *net* gold revenues. In the concrete case where $G_t=5$, $P=P'''=1$, $S=S''=1$, $G_a=2$, $G_a'=2$, and $G_a''=5$, and $G_a'''=0$, we obtain the following pay-off matrix:

		Customary law put forward by artisanal miners	
		Hardliner	Tolerant
Statutory law put forward by Banro	Hardliner	(2, 1)	(4, 0)
	Tolerant	(0, 4)	(3, 2)

In this case, the two-sided hardliner approach is the single Nash equilibrium²⁶, because for each player the hardliner strategy is optimal regardless of the strategy of the other player. From the company's point of view: regardless of the position taken by miners, the hardliner approach yields the highest pay-off ($2 > 0$ and $4 > 3$). From the miner's point of view: regardless of the position taken by the company, the hardliner approach yields the highest pay-off ($1 > 0$ and $4 > 2$). The single Nash equilibrium is however inferior to cooperation, i.e. the two-sided tolerant approach: both players would be better off if they both choose the tolerant instead of the hardliner approach. However, as long as there is no credible commitment to this approach, the cooperative approach will not be reached because each player could improve its own situation by breaking the mutual cooperation. Arguably, negotiations – possibly with the mediation by a third player (e.g. the State or an NGO) – could help establish the cooperative equilibrium.

Several realistic complications can be added to the pay-off matrix. For instance: 1) besides policing costs, a hardliner approach on the part of the company may entail international reputation loss (R); 2) Ceding (part of) the mining sites to the company, may leave the miners with a feeling of injustice (I); and 3) Cooperation implies negotiation costs (N), which may be higher on the part of the miners because they are a heterogeneous group of agents ($N_c < N_a$). These add-ons enter the pay-off matrix in the following ways:

		Customary law put forward by artisanal miners	
		Hardliner	Tolerant
Statutory law put forward by Banro	Hardliner	$(G_t - G_a - P - R, G_a - S)$	$(G_t - G_a''' - P''', G_a''' - I)$
	Tolerant	$(G_t - G_a'', G_a'' - S'')$	$(G_t - G_a' - N_c, G_a' - N_a)$

The game can be further complicated, e.g. by taking into account the provision of social services and infrastructure by the company, or even employment (for some).²⁷ These may be

²⁶ In game theory, the Nash equilibrium is a solution concept of a non-cooperative game involving two or more players in which each player is assumed to know the equilibrium strategies of the other players, and no player has anything to gain by changing only his or her own strategy (Osborn & Rubinstein, 1994).

²⁷ "In its sustainable report of 2014, Banro indicated that they "provided temporary employment for 875 people during the mine construction phase" (Banro, 2014a: 12). In the same report, Banro mentioned that "People from the nearby Luhwindja community represent 32% of the total number of Congolese employed directly or through contractors" (Banro, 2014a: 8). However, among others, Geenen and Claessens (2013) have argued that it is a

costly for the company ($-E_c$), but are beneficial for the miners ($+E_a$), and – if sufficiently high – can thus be used to compensate miners for the loss of gold production, and move them towards a more tolerant strategy. For instance, instead of relying on policing, social provisions and employment can be used to make the company’s hardliner approach feasible without the backlash of sabotage. In our pay-off matrix, this gives the following:

		Customary law put forward by artisanal miners	
		Hardliner	Tolerant
Statutory law put forward by Banro	Hardliner	$(G_t - G_a - P, G_a - S)$	$(G_t - G_a''' - E_c, G_a''' + E_a)$
	Tolerant	$(G_t - G_a'', G_a'' - S'')$	$(G_t - G_a', G_a')$

Depending on the concrete pay-offs and additional complications, the game will take on different solutions. For instance, the pay-offs of other actors could be taken into account, such as the various political players, who stand either on the side of LSM or ASM, depending on which production mode provides them with rents. Moreover, in the real world, there are many greyscales in between the pure hardliner and the pure tolerant approach. It is impossible to discuss all additional complications and greyscales. But, our simplified discussion already yields the following useful insights:

- The hardliner approach is more likely to be chosen by the company the lower the policing costs P , the lower the reputation costs R , and the higher the negotiation costs N_c ;
- The hardliner approach is more likely to be chosen by the artisanal miners the lower the sabotage costs S , the higher the feelings of injustice I , and the higher the negotiation costs N_a ;
- When miners can be compensated with benefits E_a , social peace can be bought, and statutory law can prevail without policing costs.

In what follows, we turn to real-world data, and discuss the actual interactions between the multinational company and the artisanal miners in Kamituga.

select group of miners that stands to benefit (directly or indirectly) from such jobs, in particular local and educated miners and those closest to customary power.

4. Data collection

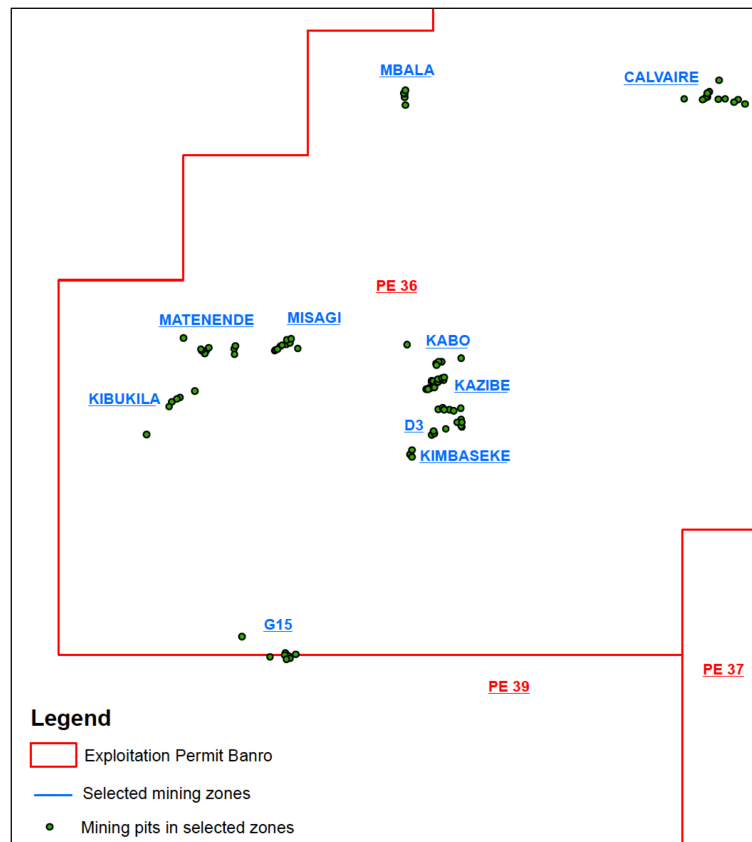
The interaction between the two main players is a learning process, in which both players learn about the costs and benefits of different actions, and the exact reactions they trigger. Any snapshot in time cannot do justice to this dynamic interaction. One of the strengths of our data collection process is that we traced actions and reaction through time, in a series of snapshots. In particular, we conducted four waves of fieldwork: in June-July 2013, May-June 2014, December 2014 and April-May 2015. Another strength is that we used a combination of quantitative and qualitative methods: a structured survey among a stratified random sample of miners, complemented with individual interviews and focus group discussions.

In our first wave, in July 2013, we conducted a micro-level census of the Kamituga mining site; implemented a structured survey among 96 miners; conducted field observations; organized discussions with 4 focus groups of miners; and engaged in 8 individual interviews with members of mining committees and Banro employees to assess Banro's presence and interest in specific zones across the mining site.

The objective of the census was to give us an overview of the different zones ('carrières'), pits, pit managers ('PDG' – 'Président Directeur Général') and artisanal miners.²⁸ Such overview is a first necessary step for drawing a stratified random sample. In collaboration with COKA (Comité des Orpailleurs de Kamituga - a local committee of artisanal miners) and the International Peace Information Service (IPIS) we counted 40 mining zones within Banro's Kamituga concessions where artisanal miners were digging gold. In order to stratify our sample across the tangible presence of Banro, we gathered information on the perceived presence of Banro in each zone (relying on interviews with both COKA-members and Banro-representatives). Among the mining zones, we asked COKA to distinguish zones where they often encountered Banro's employees from zones where Banro's employees were (almost) never seen.

²⁸ Artisanal mining sites in DRC are generally divided in different zones, which consist of a number of mining pits; pits are initiated and run by pit managers, so-called PDGs.

Figure 1. Location Mining pits visited during the micro-level census in Kamituga in 2013



Source: authors' own compilation based on IPIS data and on GPS coordinates collected during the 2013 fieldwork

In a next step, we drew a maximum variance sample. We selected 7 zones with a relatively high presence of Banro (D3, Kabo, Kazibe, Kibukila, Kimbaseke, Matenende and Misagi) and 3 zones with a low presence of Banro (Calvaire, Mbala and G15). Figure 1 presents an overview of the different zones. For these 10 selected mining zones, we compiled a complete list of pit managers. Seeking variation in terms of geographical location and the presence of Banro as reported by COKA and Banro, we targeted 100 pit managers from the list. Four selected pit managers were absent when we visited their pits and could not be reached, leaving us with 96 observations for our structured survey, 65 in zones with high and 31 in zones with low presence of Banro.

The survey of June-July 2013 included questions on the socio-demographic characteristics of pit managers as well as an opinion poll on the perceived benefits of ASM and LSM. To cross-check the information about Banro's presence, the survey further included a

question asking pit managers about the number of times they saw Banro representatives in their mining zone in the four weeks prior to the interview. In a more qualitative part of the survey, we asked the pit managers to explain their reactions to Banro's actions and activities.

The opinion poll included 10 statements, which are presented in Table 1.²⁹ Pit managers were asked to indicate their level of agreement with each of these statements on a 5-point scale ranging from 'I do not agree at all' to 'I totally agree'. From the ten statements, we created an index which measures pit manager's overall attitude with respect to ASM-LSM. Whenever a question is answered in favour of ASM, the index is increased by 1 point. If a question is answered in favour of LSM, 1 point is subtracted. The index remains unchanged when the respondent answered neutrally. The index thus potentially ranges from -10 (all questions are answered in favour of LSM) to 10 (all questions are answered in favour of ASM).

Table 1. Statements to measure artisanal miners' opinion on Banro's activities

1.	People earned a lot in ASM
2.	ASM created a lot of employment
3.	ASM is important for the population
4.	LSM will contribute more to development in the long run
5.	Working in ASM is not a real job
6.	The Government can give all concessions to LSM companies
7.	I would accept a job in LSM, whatever the salary would be
8.	Living conditions for Banro workers are better compared to those of artisanal miners
9.	LSM creates employment
10.	LSM creates more jobs than ASM

²⁹ We used the same statements as Geenen (2014) in her survey among 217 artisanal miners in Twangiza, Lugushwa, Mukungwe and Kamituga. Overall, our findings are comparable (see Section 5).

Table 2. Waves of fieldwork and activities conducted

Fieldwork wave	Fieldwork type	Fieldwork activities
July 2013	Census of artisanal miners; Survey with pit managers; Focus group discussions with miners and pit managers; Individual open-ended interviews	List of 40 mining zones in Kamituga
		Survey with 96 Pit managers
		4 focus group discussions with pit managers and cooperatives (5 persons per focus group)
		8 individual interviews with members of mining committees and Banro employees
June 2014	Qualitative fieldwork to complete information gathered in July 2013	2 focus group discussions (5 persons per focus group)
		7 semi-structured interviews with ordinary miners, COKA, local NGOs and Banro
December 2014	Focus group discussions, and individual interviews	2 focus group discussions with pit managers and with ordinary miners (5 persons per focus group)
		5 semi-structured interviews with Banro, local NGOs and civil Society members
April- May 2015	Focus group discussions and individual interviews	1 focus group discussion with 5 pit managers and ordinary miners
		6 semi-structured interviews with Banro, local NGOs and civil Society members

Source: authors' compilation

Our three waves of follow-up fieldwork – conducted in May-June 2014, December 2014, and April-May 2015 – allowed us to trace the dynamics of the interaction between miners and Banro. This was mainly done through qualitative fieldwork.³⁰ In May-June 2014, we conducted 2 focus group discussions (one with pit managers and one with ordinary miners) and 7 semi-structured interviews with a wide range of informants, including public officials and representatives of mining cooperatives, civil society organizations and Banro. In December 2014, we added new fieldwork observations, 2 focus group discussions and 5 semi-structured individual interviews. Finally, in April-May 2015, we conducted one focus group discussion and 6 semi-structured individual interviews. Table 2 summarizes the activities from our four

³⁰ In April 2015, we also conducted a quantitative survey, but these results are discussed elsewhere, in Stoop *et al.* (2016).

waves of fieldwork. Annex 1 lists the interviewees selected in 2013, 2014 and 2015, respectively.

5. How the game plays out in the field

5.1. Banro's actions and reactions

The actions and reactions of Banro in Kamituga are characterized by elements of both the hardliner and the tolerant approach. On the one hand, Banro tolerates artisanal miners in its concession. On the other hand, this tolerance is restricted to certain areas and certain activities.

Regarding the spatial restriction, Banro prohibits the opening of new pits in mining areas of Kibukila Mountain³¹, which is considered as the most promising area in terms of gold reserves. In an attempt to enforce this rule, Banro's agents closely work with the mining police to regularly check the mountain for new pits. Furthermore, Banro expects miners to follow the instructions summed up in the Mining Regulations. For instance, it forbids miners to dig deeper than 30 meters (interview 26, 2015).³² In April 2015, Banro asked the Mining Police to close down 10 mining pits which violated the prohibition on opening new pits. Miners who tried to enter the pits would be arrested by the Mining Police. In May 2015, a tent occupied by Banro guards was set on fire. The circumstances under which this happened are unclear, as is the exact motive. As a repercussion, Banro closed down three mining pits in the vicinity of the tent in Kibukila mountain.

Regarding the limitation of activities, Banro seeks to prevent any evolution of ASM towards small-scale mining.³³ During a personal interview, the Public Relations Manager of Banro Kamituga Mining mentioned: “... *we continue to tolerate the presence of miners up to*

³¹ This mountain is located underneath the city. Industrial exploitation of Kibukila would therefore strongly affect the population, entailing the dispossession and displacement of a large number of people (Tрист, 2013). According to representatives of the Sub-Contracting Organization LIMA, “Banro counts on all the mining zones located at Kibukila Mountain to cover their investments when they decide to move to the production phase” (Interview 8, 2013).

³² Annex V, Art.2 of the Mining Regulations. Also see Title 1, Chapter 1, Section 1, Art. 1 of the Mining Code on ‘good practices of artisanal miners’.

³³ The DRC Mining Code defines *small-scale mining* as “any activity by means of which a person carries out permanent small-scale exploitation, requiring a minimum amount of fixed installations, by using semi-industrial or industrial processes, after a deposit has been found” (Title 1, Chapter 1, Section 1, Art. 1, n°22)

now, but this under the condition that they remain in artisanal mining only” (interview 18, 2014). In concrete terms, this implies the restriction on the use of explosive substances, mechanized production and electricity.³⁴ The main mechanized production targeted by Banro are crushing mills, that are used to turn large rocks containing ore into a fine gold powder. These effectively replace the much less productive manual work done by ‘mamans twangaises’, who use metal mortars or wooden pounders with a metal cover. Electricity is mainly used to operate water and oxygen pumps, which make ASM significantly more productive by allowing artisanal miners to dig deeper tunnels, by pumping water out of the pits and bringing in oxygen.³⁵

In the actual enforcement of these rules, Banro balances between a hardliner and a tolerant approach. For instance, the company anticipated that completely banning crushing mills would have led to costly social unrest. Banro therefore decided to allow the use of the mills in a single mining zone ‘Calvaire’³⁶, and to prohibit the transportation of rocks from other mining zones to Calvaire. When artisanal miners continued to use crushing mills outside Calvaire, Banro called for the Mining Police and the Forces Armées de la République Démocratique du Congo (FARDC – or the Congolese national army) to enforce the measure. In September 2013, about 40 mills were seized and taken to Bukavu and 60 were allegedly hidden by artisanal miners before the police arrived (interview 18, 2014). During our fieldwork in 2014, crushing mills were only present in Calvaire, while other mining zones had resorted again to the manual crushing of rocks by ‘mamans twangaises’. During daytime, Banro’s agents monitored the road to enforce the prohibition on the transportation of rocks. Some miners however confided to secretly transport rocks to Calvaire at night (while bribing the Mining Police). During our fieldwork in April 2015, Banro noticed an intensification in artisanal miners' use of electricity to operate pumps. The Public Relations Manager of Banro Kamituga Mining reported: “*There is now a new phenomenon: intensification of electrical*

³⁴ These restrictions are in line with the Mining Regulation: Annex V, Art. 2.

³⁵ Without access to electricity, miners can still operate the pumps using fuel-powered generators. This comes however with two large disadvantages. First, it is much more expensive. Second, it is not uncommon that (deadly) accidents occur when diesel-fumes are mixed with the oxygen that flows into the pit, causing carbon monoxide poisoning.

³⁶ Artisanal mining started in *Calvaire* before other mining sites when SOMINKI was still operational after 1985. SOMINKI authorized ASM in their concession except in the “High Surveillance Zone” (Interview 18, 2015).

connection. For us (Banro), it is about the mechanization of mining exploitation. Thus, we decided to cut down electricity in D3, Bipasi and Calvaire” (Interview 26, 2015).

As these accounts demonstrate, during the current exploration phase, Banro tolerates ASM within its concession as long as artisanal miners abide by a number of rules. To enforce the rules, Banro relies on policing, mainly by the Mining Police and at times also by the FARDC. The enforcement of these rules often leads to friction, incidents and a subsequent revision of the rules. Such enforcement is expensive, and the costs will likely increase when Banro moves to the production phase. Hence, Banro also looks for other means through which it can establish a secure environment to exercise its statutory rights.

As such, Banro has teamed up with a large donor (USAID) to address the challenge of reorientation, i.e. to provide miners (and their family members) with start-up capital and training that will allow them to engage in income generating activities outside the mining sector (USAID, 2013). In our interviews, miners have expressed that they expect Banro to organize training, as well as provide financial assistance during the start-up phase of a new activity. In addition, it is expected that Banro invests in public goods such as schooling, healthcare and infrastructure. These expectations may be unrealistically high: accommodating Kamituga’s population and its artisanal miners largely surpasses the capacity and responsibility of a private company. Hence the public-private partnership with USAID, which is “*designed to support economic opportunities for artisanal miners and community residents and to help reposition artisanal miners in sustainable mining activities or alternative livelihoods*” (Banro, 2014a).³⁷

Reorienting all artisanal miners towards other economic activities is a daunting task. This may explain why Banro envisages a two-track strategy, in which the second track provides room for some miners to continue artisanal mining.³⁸ The idea is to relocate these artisanal miners to areas within Banro’s concession which are less suited for industrial exploitation but still interesting for ASM-exploitation (interviews 17 & 18, 2014 and interview 26, 2015). At present, this possibility cannot be accommodated by statutory law, as the current Congolese

³⁷ The partnership was announced on December 17, 2013 (see <https://www.usaid.gov/news-information/press-releases/dec-17-2013-us-government-and-banro-corporation-partnership-responsible-minerals-trade>).

³⁸ In fact, to appease miners, Banro already took such a two-track approach in Twangiza. Six years after the start of their production activities, which was met with fierce resistance of miners, Banro agreed to tolerate artisanal miners in certain areas, such as the largest site Kadumwa where a few thousand miners are operating (we thank an anonymous referee for this comment).

mining legislation does not allow LSM and ASM activities to take place in the same concession, unless Banro and the State agree upon an addendum to Banro's current mining convention. To gain access to part of the concession, miners should in any case be organized in a cooperative.³⁹ However, such cooperative formation is not possible in the absence of an AEZ in the first place. In this regard, Banro regrets the lack of support: “*we are providing these solutions and presenting them to the state, but actually it should be the other way around. The state should provide assistance in these issues. The current situation causes difficulties and delays.*” (Interview 17, 2014). Awaiting such amendments, Banro already plans to reinforce artisanal miners’ cooperatives through its public-private partnership with USAID (interview 17, 2014; Interview 26, 2015).

In sum, Banro tolerates artisanal miners to some extent. It relies on policing to enforce rules that restrict the activities of artisanal miners, but it also seeks to buy social peace by engaging in a public-private partnership that tries to reorient some artisanal miners to non-mining activities, and to relocate others to zones within their concession that are less suited for industrial mining. In the pay-off matrix, Banro’s actions are situated as follows:

		Customary law put forward by artisanal miners	
		Hardliner	Tolerant
Statutory law put forward by Banro	Hardliner	Restrictions on miners’ activities; Policing	Collaboration with USAID to reorient artisanal miners to non-mining activities
	Tolerant	n.a.	Plans to relocate artisanal miners to specific areas within Banro’s concession

5.2. Artisanal miners’ actions and reactions

During individual interviews conducted in May 2015, representatives of Banro signaled an increased intrusion of artisanal miners in off-limit zones. Together with the continued

³⁹ Article 39 of the 1981 legislative order.

clandestine use of several forms of mechanization, this indicates that miners defy Banro's restrictions. One reason why miners do not simply tolerate Banro is that Banro's restrictions reduce their gold production, such that $G_a - S > G_a$ '. In other words, even net of 'sabotage' costs (e.g. transporting rocks at night or bribing the Mining Police), the benefits of the hardline approach outweigh the benefits of the tolerant approach.

That gold production is much reduced by Banro's restrictions, is clear from our interviews. During the focus group discussions of our last round of fieldwork, artisanal miners reported that it has become increasingly difficult to attain gold in the existing pits, without access to more advanced equipment such as more powerful digging tools, pumps, and electricity. An often heard remark was "*the presence of the company suffocates us*". Also pit managers indicate decreasing revenues: according to our structured survey conducted in 2013, pit managers estimate that their mining revenue had decreased by more than half compared to the situation before the arrival of Banro. Pit managers in zones with a high presence of Banro indicated a slightly stronger decrease in revenues (56%) compared to pit managers in zones with a low presence of Banro (50%). The small difference is due to miners migrating from zones with high presence to zones with low presence, causing increased competition in the latter zones.

During the focus group discussions with miners, we also learned about some specific reasons underlying the decreased revenues. First, pit managers and artisanal miners mainly blamed the removal of crushing mills (in mining sites other than *Calvaire*) for the perceived drop in production. Now that they have to crush the rocks manually, it takes about 24 hours (3 days of work) to complete a job which could be done in 3 hours when using crushing mills (focus group discussions). Secondly, pit managers struggle a lot with uncertainty about the future. It often takes several thousands of dollars of investment before a pit starts producing⁴⁰, and thereafter it may take several months and sometimes years before the start-up capital pays off. Pit managers in Kamituga are worried that they may be forced to leave their pits before they can complete the production phase, leaving them with debts (interview 4, 5 & 6, 2013). This uncertainty reduces the level of investment, thus lowering productivity (also in areas

⁴⁰ Geenen (2014) estimates that investments in pits may require tens of thousands and even more than 100,000 USD before the pit eventually produces gold.

where the presence of Banro currently is still low, but where uncertainty reigns about the future).

In our opinion-poll, pit managers indicate a clear preference for ASM, not only in the short run, but also in the longer run, and taking into consideration not just income but also broader development issues. The index which measures pit manager's overall relative appreciation of ASM versus LSM has a mean value of 7.3, indicating a clear preference for ASM. Overall, the large majority of pit managers expressed a positive attitude with respect to the contribution of ASM to employment creation and local development, while they were negative about the contributions of LSM (See Annex 2). The vast majority of pit managers strongly agree that artisanal mining is important for the population, that ASM creates a lot of employment opportunities and allows miners to earn higher wages than they would if working for Banro. In terms of living conditions, only 10% agrees that Banro workers are better off compared to artisanal miners. These results are similar to those reported by Geenen et al. (2013) for a sample of 398 artisanal miners, located in several sites, belonging to either Banro's Concession (in South-Kivu) or the Concession of Anglo-Gold Ashanti Kilo (AGK) in Ituri.

The (semi-)hardliner stance of Banro thus entails a cost for miners, and feeds a negative perception of LSM. But, does the presence of Banro also come with benefits, that could (in the longer term) possibly outweigh these costs? When talking about recent changes in Kamituga, artisanal miners frequently compared the current presence of Banro with the presence of SOMINKI in the past (from 1976 to 1995). In general, they voiced a relatively positive opinion of SOMINKI, arguing that the company tolerated artisanal mining – also when it entered the production phase – and that it even opened an export office which bought gold from artisanal miners (Interview 4 & 13, 2013).⁴¹ The hope exists that Banro could take a similar approach, but so far what dominates is the fear that this hope will not materialize.

One factor fuelling this fear is the lack of information on Banro's MoU with Kamituga's community of miners and other inhabitants. Although miners seem to be aware that the DRC Mining Code⁴² nor Banro's mining convention require specific interventions by LSM in the

⁴¹ SOMINKI did open an export office in 1984 but it closed down quickly because the prices could not compete with those on the black market. Most miners were moreover supposed to sell their minerals to their financial supporters (Geenen, 2014 : p. 112).

⁴² Title3, Chapter 1 of the Mining Code does not say anything about LSM's interventions during the exploration phase.

form of social services and infrastructures prior to the production phase, almost all interviewed artisanal miners are eager to start discussions on the MoU as soon as possible. In collaboration with GECOMISKI (Général des Coopératives Minières du Sud Kivu), an overarching organization of cooperatives in South-Kivu⁴³, the community organisation of the Lega ethnic group ‘Lusu Lega’ organized consultations with the wider population to design the MoU’s terms of reference (Interview 20, 2014). Without any new legal basis in the form of an addendum to its mining convention, or a revised version of the current Mining Code, Banro hesitates to engage in such discussions. However, should Banro be willing to commit to a MoU in the exploration phase, it would inform miners about their potential future payoff (in terms of an increase in E_a , i.e. compensations and other social and economic benefits). As illustrated in our pay-off matrices above, such information could nudge miners towards a more tolerant approach, even if the company claims its full rights based on statutory law.

Another situation in which miners could adopt a tolerant approach, is when the company frees up space for an AEZ in its concession. As mentioned above, creating a AEZ within Banro’s concession will require either a revision of the Mining Code or an addendum to Banro’s mining convention. NGOs such as OGP (Observatoire, Gouvernance et Paix) and PIAP (Pain aux Indigents et Appui à l’Auto-Promotion) support this approach. They occasionally organize seminars and radio discussions in which they advocate for AEZ within companies’ areas that are not suitable for industrial production. In dialogue with the Congolese mining authorities, an AEZ could also be negotiated elsewhere, as long as it is not too far from Kamituga, e.g. in Wamuzimu chiefdom. In our various rounds of focus group discussions, miners indicated that moving to a more distant mining area was not a preferred option. Miners prefer to continue digging nearby, as many of them have invested not only in bulky mining equipment, but also in a house in which they are settled with partner and children.⁴⁴ Currently, both artisanal miners and civil society organizations advocate for an AEZ to be located in the vicinity of Wamuzimu chiefdom, for instance by converting dormant LSM titles into AEZs (Interview 12, 2014).

⁴³ GECOMISKI is a federation of mining cooperatives in South Kivu. It focuses on lobbying and advocacy for the interests of artisanal miners, as well as providing training and information on principles and laws related to ASM in DRC.

⁴⁴ This result is also borne out by our structured survey (Stoop et al., 2016).

In sum, on the ground, there is a mix of strategies that miners adopt. While, by defying the rules set by Banro, they take a hardliner approach, at the same time, they seek openings that would make a more tolerant approach possible, such as the negotiation of a MoU and the creation of an AEZ nearby.

		Customary law put forward by artisanal miners	
		Hardliner	Tolerant
Statutory law put forward by Banro	Hardliner	Defy Banro's prohibitions on the use of crushing mills, explosive substances, and electricity.	Advocate for a MoU during the exploration phase.
	Tolerant	n.a.	Advocate for an AEZ within Banro's concession or within the Wamuzimu chiefdom.

6. Discussion

The choice for the promotion of LSM in the 2002 Mining Code has led to a situation of legal pluralism on the ground. With the number of AEZs nowhere near what is required to accommodate the large number of artisanal miners, the miners operate within concessions designated for LSM. This is illegal from the point of view of statutory law, but considered as legitimate from the miner's point of view. The opposite is true for LSM companies: their operations are legal according to statutory law but illegitimate in the eyes of many artisanal miners. We raised three questions: To what extent do the artisanal miners and the LSM company stick to their opposing frames of reference? To what extent do they look for compromises? Can these compromises give way to the re-making of institutions?

From the previous section, it is clear that a two-sided tolerant approach is absent, and that both Banro and the miners take a semi-hardliner approach. The hardliner approach could become more pronounced, or make way for more tolerance. Above, we described two trajectories towards more tolerance. First, Banro could 'buy social peace' by providing social services and by facilitating the reorientation of miners towards activities outside the mining sector. Second, additional AEZs nearby could be created, even within Banro's concessions.

Given the large number of miners that needs to be reoriented or relocated, a two-track approach has the highest chances of success.

In both approaches Civil Society and the State have an important role to play, and large donors, such as USAID, can subsidize the buying of (social) peace. Civil Society can mediate between the miners and Banro, thereby greatly reducing the negotiation costs required to evolve to a more tolerant approach. NGOs such as OGP and PIAP are already taking up this task. However, to make credible commitments to the outcome of the negotiations, the State needs to step in. For instance, if a MoU is to be signed already in the exploration phase, the stipulation in the Mining Code needs to be modified, or an addendum has to be added to the mining conventions (Interviews 16, 2014; Interview 21, 22 & 23, 2015). Likewise, if AEZs are to be created within Banro's concession, this possibility needs to be included in its current mining convention, and later on in the Mining Code (Interview 12 & 16, 2014; Interview 20 & 23, 2015). Other solutions, such as the creation of new AEZs just outside Banro's concession or the conversion of dormant titles into AEZs also require action on the part of the State. So far, the State has remained however largely absent (Interviews 2, 3, 4 & 5, 2013; Interviews, 17, 2014; Interview 21 & 25, 2015).

In fact, as we write, a proposal for revisions to the Mining Code is on the table. Around the table are the State, the Mining Companies as well as Civil Society organizations, working together to find common ground in the revision process. The proposed revisions provide scope for more precise and timely formulated MoUs. As such, Art. 285 of the Bill of revision required that the holder of the mining rights has to contribute to the definition and implementation of socio-economic development projects for the affected local communities in order to improve their living conditions. Moreover, the Bill of revision included the possibility to sign a MoU during the exploration phase, as well as a provision for the withdrawal of the company's title should it not comply with its socio-economic commitments vis-à-vis the affected local community (CEPAS, 2014, Democratic Republic of Congo, 2015). In February 2016, the State justified the abandonment of the Mining Code revision by the declining international prices of minerals, which were creaming off profits of LSM companies. The recent relaunch of the process is an opportunity, not only for miners but also for LSM companies, to adapt the

statutory laws to the reality on the ground, thereby facilitating a two-way tolerant approach and thus the re-making of institutions.

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Annex 1. Interview overview

Annex 1.1. Interviews in the round of fieldwork of June-July 2013

Type of organization	Interviewee	Field of expertise	Location of interview	Round of fieldwork
1 public	Representative of the mining ministry	DRC mining sector	Bukavu	2013
2 public	Representative of the provincial mining division	South-Kivu mining sector	Bukavu	2013
3 public	Director and responsible for research & statistics of the Bukavu division of SAESSCAM (Service d'Assistance et d'Encadrement du Small-Scale et Artisanal	Small-scale and artisanal mining in South-Kivu	Bukavu	2013
4 public	Administrator of Kamituga ("Chef de poste")	General information about Kamituga	Kamituga	2013
5 cooperative	President of COKA (Comité des Orpailleurs de Kamituga)	Cooperative of artisanal miners	Kamituga	2013
6 cooperative	President of CPACAM (Coopérative Principale des Associations des Creuseurs Artisanaux)	Cooperative of artisanal miners	Kamituga	2013
7 cooperative	President of ALEFEM (Association de Lutte contre l'Exploitation des Femmes et Enfants dans les mines)	Female emancipation, human rights, rights of women and children in mining sites	Kamituga	2013
8 NGO	LIMA: Subcontracting organization working with Banro	Employment of artisanal miners in Banro during the exploration phase in Kamituga	Kamituga	2013

Annex 1.2. Interviews in the round of fieldwork of June and December 2014

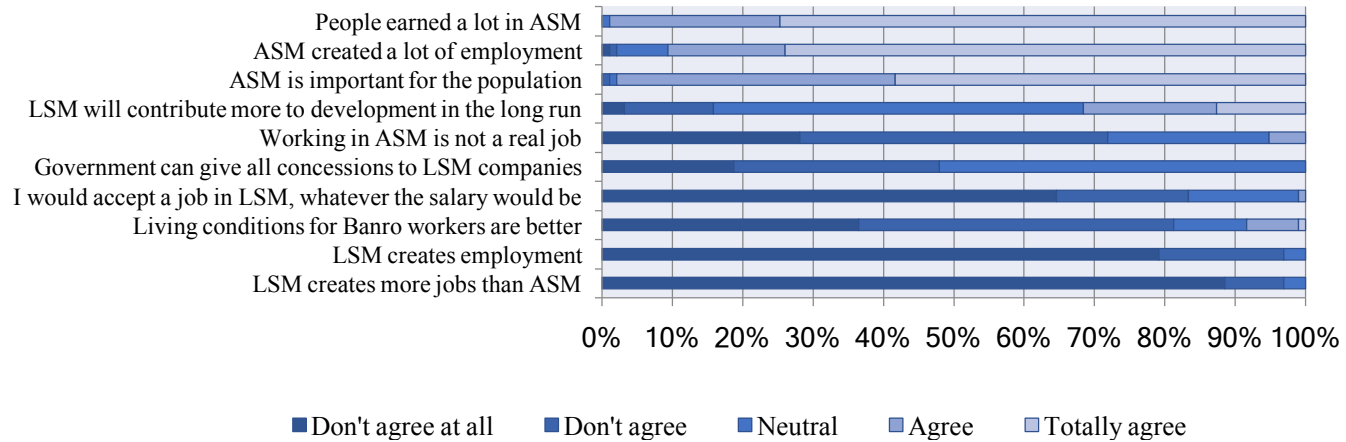
Type of organization	Interviewee	Field of expertise	Location of interview	Round of fieldwork
9 public	Director and responsible for research & statistics of the Bukavu division of SAESSCAM (Service d'Assistance et d'Encadrement du Small-Scale et Artisanal Mining)	Small-scale and artisanal mining in South-Kivu	Bukavu	2014
10 public	FARDC colonel	Conflicts and rebel movements in vicinity of mining sites in South-Kivu	Bukavu	2014
11 public	Police chief of Kamituga	Conflicts and crime in Kamituga	Bukavu	2014
12 cooperative	President of GECOMISKI (Générale des Coopératives Minières du Sud Kivu)	Overarching organisation for all cooperatives of artisanal miners in South-	Bukavu	2014
13 cooperative	President of COKA (Comité des Orpailleurs de Kamituga)	Cooperative of artisanal miners	Kamituga	2014
14 cooperative	President of CPACAM (Coopérative Principale des Associations des Creuseurs	Cooperative of artisanal miners	Kamituga	2014
15 think tank	Director of CRESA (Centre de Recherche et d'Etudes Stratégiques en Afrique Centrale)	Governance, conflict resolution, mining sector	Bukavu	2014
16 NGO	Director of OGP (Observatoire Gouvernance et Paix)	Sustainable management of mineral resources, governance, peace	Bukavu	2014
17 private	Banro's vice president of stakeholder relationships	Banro, relationship ASM – LSM in South-Kivu	Bukavu	2014
18 private	Public relations manager of Kamituga mining, Banro's subsidiary operating in Kamituga	Banro, relationship ASM – LSM in Kamituga	Kamituga	2014
19 Private	Representative of Banro Foundation in Kamituga	Banro Foundation, relationship ASM-LSM in Kamituga	Kamituga	2014
20 Community organisation	LUSU LEGA: representative of commission doing research on development of Mwenga territory and terms of cahier de charge	(Economic) development in the territory of Mwenga	Bukavu	2014

Annex 1.3. Interviews in the round of fieldwork of April-May 2015

Type of organization	Interviewee	Field of expertise	Location of interview	Round of fieldwork
21 NGO	Focal Point of RIO in Kamituga (Mr. Léonard Kabungulu)	LSM and ASM: comparing Banro to Sominki	Kamituga	2015
22 NGO	PIAP (Pain aux Indigents et Appui à l'auto-Promotion)	Liquidation of SOMINKI and Livelihood of sons of former Sominki workers and the population of Kamituga	Kamituga	2015
23 NGO	Coordinator of PIAP (Pain aux Indigents et Appui à l'auto-Promotion) and GCAS (groupement minier des Creuseurs Artisanaux des anciens de la Sominki)	Local development (PIAP) and claims on the rights of children of former SOMINKI's workers (GCAS)	Kamituga	2015
24 Cooperative	President of COKA (Comité des Orpailleurs de Kamituga)	Cooperative of artisanal miners	Kamituga	2015
25 Public	Administrator of Kamituga ("Chef de poste")	General information about Kamituga	Kamituga	2015
26 Private	Public relations manager of Kamituga mining, Banro's subsidiary operating in Kamituga	Banro, relationship ASM – LSM in Kamituga	Kamituga	2015

Annex 2. Pit manager's opinions on ASM-LSM

Annex 2.1. Opinions of the overall sample of 96 pit managers



Annex 2.2. Comparison of opinions between zones with a high and zones with low presence of Banro

