Underground dreams. Uncertainty, risk and anticipation in the gold production network

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Abstract: Gold, precious yet painstakingly extracted, fuels the dreams of diggers, traders, managers, investors and consumers at the local and the global level. But gold extraction and trade are characterized by much uncertainty, related to the commodity's fixity in the underground, its embeddedness in national states and local institutions and its connections to markets. Focusing on the gold production network in Eastern Democratic Republic of Congo, this article reinforces earlier arguments about risk: first, it operates 'at the intersection of capital and rule'; second, it obscures the uneven distribution of capitalism's negative impact, as well as corporate actors' active role in producing such impact. Moreover, it argues that the production of risk (expected costs) and anticipation (expected gains) by corporate actors conceals and devalues the ways in which other actors in the gold production network deal with the extreme uncertainty that characterizes the market and the institutional environment in which they operate, as well as the resource's materiality. It concludes that an analytical focus on uncertainty, risk and anticipation enhances our understanding of relations and conflicts in the gold production network.

Keywords: gold mining; uncertainty; risk; anticipation; artisanal mining; mining companies; global production network (GPN); Corporate Social Responsibility (CSR).

Introduction

During my first visit to an artisanal gold mine in Eastern Democratic Republic of Congo (DRC) I took a picture of two gold miners standing in front of their mine shaft. Above the entrance, a piece of corrugated sheet with the slogan: *Qui cherche, trouve*/Those who seek, shall find. Other shafts were named *Kitumainiya kesho*/Tomorrow's hope[1], or *Bana Espoir*/They have hope[2]. Seven years later I recorded the words of a village chief in an industrial gold concession in the same region:

> "I was the first to ask my children [the villagers, including artisanal miners who had been working on the concession] to leave. They asked me: But how are we going to live? I told them: Banro [the multinational mining company operating the concession] will take you as workers. They made a lot of promises when they arrived. But they haven't taken them as workers"3.

Banro Corporation is a Canada-based mid-tier gold company operating two concessions in Eastern DRC: Twangiza and Namoya. Four months after I recorded the words of the village chief, the company

[1] Fieldnotes, Mukungwe, 31/05/2012.
[2] Fieldnotes, Kamituga, 09/04/2008.
[3] Interview chief, Namoya, 10/09/2015.

announced it was moving into commercial production in Namoya. About fifteen months later a series of violent attacks prompted Banro to evacuate its staff and suspend its operations[4].

This article is about 'underground dreams' – dreams fueled by mineral riches - in a context of profound uncertainty. It is about how people deal with this uncertainty; how they hope, anticipate and fear the future. The case I am presenting is the gold production network. I look at this network, following Henderson et al's (2002: 445) global production network (GPN) approach, as "the nexus of interconnected functions and operations through which [gold] is produced, distributed and consumed". The global gold production network involves, among others, artisanal miners, producer organizations, multinational mining companies, traders, refineries, jewelers, consumers, and e-waste workers, but also national and regional economies embedded in concrete socio-political contexts. 'Underground dreams' drive all actors in this network: artisanal miners hoping to strike it rich, community members awaiting employment, mining corporations advertising new discoveries to investors, consumers tempted by the promise of wealth, and African governments celebrating mineral-led growth. But these dreams can also turn into nightmares: forced displacement, environmental pollution, armed mobilization against large-scale mining, the resource curse.

My empirical endeavor is to combine a GPN lens with an in-depth case-study. First of all I want to move beyond the common rigid analytical distinction between the artisanal and industrial production modes in gold mining and consider market actors as well as state actors, but also the resource's materiality itself – which I take from GPN theory. I also frequently refer to global network dynamics. Yet at the same time the issues under study require in-depth qualitative data – hence the case study approach. The case of Eastern DRC is a textbook example of a place where underground dreams turn into nightmares (think about the coltan boom and the role mineral resources played in the 1998-2003 war, Vogel and Raeymaekers, 2016). The region has historically known periods of colonial industrial mining, post-colonial nationalized mining, artisanal mining, militarized mining and neoliberal industrial mining (Geenen, 2015). The current situation is characterized by very high degrees of uncertainty in several domains, including security (continuous presence of armed groups and new armed mobilization), politics (president clinging on to power and an uncertain transition period) and economy (sharp inflation since 2016) (Nyenyezi et al, 2017; Berwouts, 2017). In the mining sector, artisanal and industrial production are in many ways entangled and boundaries – physical as well as legal, social, economic and political – are difficult to draw. Therefore I study the actors and activities involved as part of one gold production network. My analysis is based on a range of interview data, documents and observations, collected during more than 18 months of fieldwork in five different gold mines. I will draw upon the empirical material gathered over the years (2008 to 2015) to illustrate my argument.

My argument speaks to the literature on uncertainty, risk and anticipation. Uncertainty is defined as when something is not fixed, not determined, vague, subject to change, ambiguous or dependent on unpredictable factors. It is an inherent feature of life. In this article I show how different actors in the Congolese gold production network deal with the extreme uncertainty that characterizes the market and institutional environment in which they operate, but also the production process and the gold itself. I demonstrate how this shapes practices, norms and relations between people. Corporate actors, however, tend to 'calculate' this uncertainty in terms of expected costs or gains. In doing so, they force other actors to operate under the conditions they set. In making this argument I draw on the existing literature on risk, more particularly the *Geoforum* articles by Emel and Huber (2008) and Stanley (2013). These authors argue that risk operates at the intersection of capital and rule, masking the uneven distribution of the negative impacts of production as well as capital's active role in producing these impacts. I add that not only 'risk', but also 'anticipation' is produced and used as a mode of rule by corporate actors. If risk is about calculating the probability of costs or losses, anticipation is about measuring and making concrete expected gains. In addition I argue that the production of risk and

[4] Press release, Banro reports incident at its Namoya mine site, 18/05/2017.

anticipation by corporate actors conceals and devalues the way in which other actors in the gold production network deal with uncertainty. Focusing on this helps to better understand network relations, more particularly between mining corporations and local communities. In this sense, this article also speaks to the growing literature on conflicts between artisanal and large-scale mining, company-community conflicts and social mobilization against large-scale mining (Bebbington, 2012; Larmer and Laterza, 2017; Conde and Le Billon, 2017).

In the next section I position these arguments within the literature on risk and anticipation. Section three develops the case of Eastern DRC, analyzing a) how uncertainty shapes practices, norms and relations in the gold production network, b) how risk and anticipation are produced by corporate actors and c) how this is used to mask the uneven distribution of negative impacts as well as corporate actors' active role in producing these. Section four concludes.

Conceptualizing uncertainty, risk and anticipation

Risk

The uncertainty, unpredictability, unreliability and unknowns of life are generally taken as a given, yet social scientists from disciplines as diverse as psychology, behavioural economics, sociology, anthropology, geography and political economy have all addressed the question how people deal with this. If 'uncertainty' is just a neutral and inherent feature of life, it can have a positive connotation (when we speak of luck or good fortune), or a negative one (when we speak of risk) (Boholm, 2003: 167).

In mathematical terms, risk is defined as the "statistical probability of an outcome in combination with severity of the effect construed as a 'cost'" (Boholm, 2003: 160). By using sufficient data and statistical models, the likelihood of (un)desired outcomes can be predicted and hence made 'manageable'. Calculated uncertainty in the form of 'risk' thus informs most current prevention or management strategies, for example in environmental (Stanley, 2013) or security governance (Amoore, 2013). Yet psychologists and behavioural economists have since long acknowledged that decision making is not merely informed by rational choice and cost/benefit calculations (Tversky and Kahneman, 1986). Moreover, anthropologists have shown that risks are socially and culturally constructed (Alaszewski, 2016). Much of this latter research is tributary to Mary Douglas' work (1966; Douglas and Wildawsky, 1982) in which she distinguishes between 'danger' (which all societies face) and 'risk' as those dangers societies choose to worry about and respond to through the use of magic and supernatural forces. In the literature on risk in modern societies sociologist Ulrich Beck's (1992) concept of 'risk society' has been most influential. Beck argues that the complex nature of modern industrial development produces more unforeseen (often disastrous) consequences than ever, exposing us to a high level of risk. Although compelling as a notion, the flaw in Beck's argument seems to be the universal, inevitable and almost apocalyptic character that is ascribed to the global market in producing these risks.

In response to this, critical geographers and political economists have focused their attention on *who* produces these risks and *for what purpose*. Citing Dillon (2008) and Martin (2007) who made the argument in the domain of security studies, Anna Stanley (2013) sees environmental risk as operating at the intersection of capital and rule. It is a knowledge practice

> "integral to the workings and arrangements of power and legitimacy present in liberal capitalist political economy, as well as a mode of rule onto itself—a technique for enabling, managing, and producing populations, bodies and circumstances that helps to constitute the forms of action associated with liberalism and capitalism" (idem: 7).

As a knowledge practice, risk also obscures uneven geographies and "accounts for unevenness and dispossession as natural facts of aleatory phenomena" (idem: 13), the lives that become dispossessed, or that bear the most detrimental health effects, being seen as "existence's unlucky numbers" (idem: 10). In their *Geoforum* article on the mining sector, Jody Emel and Matthew Huber (2008) argue that the prevalence given to 'neoliberal risks' (financial and market risks borne by corporations) in contract negotiations leads to a highly uneven distribution of benefits. This is a political decision, prompted by the World Bank pushing African governments to offer attractive fiscal conditions to corporate capital. As Emel and Huber (2008: 1397) put it:

> "Capital takes risks and it has the numbers to prove it. Meanwhile, those commonly experienced, but stubbornly unquantifiable and un-price-able, social and ecological risks borne by local communities are seen as merely the 'externalized' costs of doing business."

In other words, only capital's expected costs are framed as risks in need of an anticipatory response. The potential social and ecological costs for local communities, which cannot be easily quantified, is not framed as a risk (for those communities), but as an inevitable negative externality.

With the burgeoning of risk audit firms and consultancies, the handling of risk itself has become big business (Skinner, 2000). Even more, some forms of risk are seen as positive, an "opportunity for innovation and accumulation that cannot only be managed, but profited on" (Emel and Huber, 2008: 1397). As research by Miyakazi (2003; 2006) and Garsten and Hassenström (2003) shows, financial traders build their status by taking and handling risks. Garsten and Hassenström point to the distinction traders make between risks taken while trading (which can be handled), and risks associated with the functioning of the global market (for which they do not believe they are responsible, as per Beck's interpretation). This enables them, for example, to blame 'the market' for the financial crisis. So risk is being produced in ways that are very useful to capital.

In brief, risks are objects of political struggles, whereby financially and politically powerful actors get to define what is risky and what not, how and to what extent the risks should be managed, who is accountable and who is to blame. This article positions itself in this view of risk as being politically produced.

Anticipation

If life is uncertain, unpredictable, unreliable and unknown, imaginations about the future become sites where dreams or fears can be projected, where hope or doubt can be expressed, where positive or negative outcomes can be anticipated. For Adams et al (2009: 247) anticipation is

> "the palpable effect of the speculative future on the present. (…) Anticipatory modes enable the production of possible futures that are lived and felt as inevitable in the present, rendering hope and fear as important political vectors."

But here too, statistical techniques are being applied in an attempt to manage hope and fear. Probabilities are calculated and prediction models are developed in order to better anticipate. If the production of risk sensitizes individuals and society to the probability of a hazard occurring, anticipation fuels individual and collective dreams of a better future, and makes them concrete. In this article 'underground dreams' refer to the dreams (of a better life, of national development, of soaring profits) that are fuelled by mineral riches. I use the term following Miyakazi's 'Economy of Dreams' (2006) and Cross' 'Dream Zones' (2014). Writing about special economic zones in India, Cross coins such places as dream zones for corporate, political and activist dreams (of growth, market freedom, mass employment or labour struggles), but also for more 'modest' dreams of farmers and workers (of a good life, economic security and social mobility) (idem: 5). In his ethnographic account of Japanese

financial traders, Miyakazi demonstrates how global financial trade is not merely shaped by risk calculation or statistical modelling, but also by individual fantasies about soaring profits.

In the extractive sector, speculation is the quickest way to earn money as the production process itself is very slow (going from exploration over construction to extraction)[5]. But as the famous Bre-X example has highlighted, speculative dreams may just as quickly turn into nightmares (Tsing, 2004: 56)[6]. New geological findings indeed attract a particular form of speculative capital (Dougerhty, 2011), but also set in motion a whole series of anticipatory practices by governments, civil society, domestic firms and so on. Weszkalnys (2008), Cross (2014), Gleiberman (2016) and Witte (2016) have called this 'economies of expectation' or 'economies of anticipation'. Weszkalnys for example describes how constant rumors about the presence of oil in Sao Tomé e Principe set in motion a whole institutional infrastructure designed by the government and international donors to capture and channel the oil rents and to prepare civil society to play a role in transparent governance, although until today, oil has not been discovered in commercially exploitable quantities (McTernan, 2017).

Expectations may differ considerably between groups in society. Owen and Kemp (2013) describe an 'expectations gap' as local communities, governments and companies have diverse expectations of what minerals-led development should look like and how rents should be distributed. But even within communities, governments and companies, individuals have different interests and expectations. Yet at the macro-level governments and policy-makers seem to broadly converge on the potential of the extractive sector to contribute to growth, job creation and development, despite the (governance) challenges ahead (World Bank, 2014). In Africa the discovery of oil reserves (e.g. Ghana's Jubilee Field, the Lake Albert Rift Basin in the DRC/Uganda or Kenya's Turkana region) or natural gas (such as on the coasts of Mozambique and Tanzania) "could transform Africa's place in the global energy economy", as the Africa Progress Panel (2013: 42) suggests. In artisanal and small-scale mining (ASM) on the other hand, discoveries of gold, diamond or coltan deposits have attracted thousands of people to promising sites in very short time spans, recalling the American and Australian gold rushes. Although in the past decade researchers have provided nuanced accounts of the motivations and profiles of people engaging in ASM (Hilson, 2009), gold rushes are seen to be animated by extremely mobile fortune seekers who act on rumours rather than concrete, verified information (Bush, 2009; Jønsson and Bryceson, 2009). The next section empirically illustrates how all these actors navigate a context of uncertainty, driven by underground dreams.

Uncertainty, risk and anticipation in the gold production network

Bridge (2008) identifies 'materiality' and 'territoriality' as the two distinguishing features of extractive production networks. Materiality refers to the depth, size and location of the deposit and the quality of the resource. Territoriality relates to the way in which the resource is "embedded in the proprietorial, institutional and cultural-political structures of the nation-state" (idem: 413), what Henderson et al (2002) have called 'territorial embeddedness'. In what follows I use this GPN lens to structure my analysis. Next to markets and states, I also consider 'the underground' as an important space where the resource's materiality is formed, and from where this materiality shapes above-ground relations. So although markets, states and the underground are obviously all part of, and connected, in the gold production network, I segregate them here for the sake of empirical clarity.

[5] Here I am inspired by Gavin Bridge's keynote speech at the Conference on Extraction and Exclusion, University of Oxford, 19 October 2017.

[6] In 1994 Bre-X, a small Canadian junior, announced a major gold find in Kalimantan, Indonesia, sending its stock price to a record height. By 1997 it had become clear that the whole discovery was a fraud and that reports and samples had been falsified. Bre-X came to be known as the biggest scam in the history of mining and paved the way for the introduction of some new regulations.

Markets

The international gold price (London Gold Fixing) is set twice a day by auction at the London Bullion Market. For investors, gold is an excellent hedge against inflation as it holds or even increases value when the value of the dollar decreases (such as after the 2008 financial crisis, Bloomfield, 2017). Gold also provides a hedge against geopolitical uncertainties and is a safe haven in times of political unrest and instability. Still, the industry frames price fluctuations as one of the most important risks for their operations. Every year Ernst&Young lists the "top-10 business risks facing mining and metals" – the list in itself being an illustration of how risks are framed, calculated and ranked. For 2016-2017, price and currency volatility has been ranked as risk number one for gold miners (Ernst&Young, 2016). The drop in gold prices in 2013 (decline of 27%, which was the commodity's biggest annual decline in 30 years) led to a severe crisis with major gold producers experiencing a USD 20 billion loss in net profits (PWC, 2014: 7). According to a PWC survey companies adjusted their expectations with respect to future price evolutions and accordingly, the estimations of their reserves' value (PWC, 2013: 5). Not surprisingly, PWC's (Price Waterhouse Coopers) annual 'global trends in gold mining' report for 2014 was titled "Realigning expectations".

Major companies responded to this by lowering operation costs and increasing efficiency (PWC, 2014: 18). Figures on employment are hard to come by, but evidence from Ghana and South Africa shows that lowering costs also means laying off workers and putting stops on new hires. In South Africa "employment could drop by 43 percent over the next ten years, halving gold mining sector employment to 68.000" (Aboobaker, 2015). In Ghana, young mining engineers reproduced the corporations' discourse about the 'crisis', while several laid off workers returned to artisanal mining[7]. In other words, companies' responses to falling prices and their anticipatory strategies in the face of price-related risks produce new, or increased risks (unemployment) for those people who are directly and indirectly dependent upon them. This is intrinsically related to dynamics in ASM as workers in large-scale mining may shift to small-scale mining and vice versa. Indeed, ASM emerged in some countries during the 1980s as the most viable livelihood activity in the wake of structural adjustment, deteriorating employment opportunities and increasing pressure on land (Hilson, 2011). While the sectoral dynamics in ASM are complex and beyond the scope of this paper (Hilson, 2009; Bryceson and Geenen, 2016), they should be seen as structurally linked to large-scale mining (Verbrugge, 2015).

Price volatility also plays a role in local markets for artisanal gold. Local prices are based on the London Gold Fixing, about which miners and traders are generally well-informed thanks to internet and mobile phones. But aside from this, local prices are also influenced by personal relationships and loans given out. Some master traders (based in the regional trade hubs) have easier access to financial capital and can build up a reserve stock of gold, allowing them to play upon fluctuations in the world market price by selling when prices are high[8]. But for most gold traders this is not an option.

Yet aside from price fluctuations, gold traders in the region have to navigate many more uncertainties. I illustrate this by looking at trust and smuggling. For sociologists like Luhmann (1988), trust is a solution for specific problems of risk. It presupposes the incorporation of risk (considering potential losses and gains) in the decision whether or not to interact, based upon information gathered from repeated interaction with a person. But in the Congolese gold network trust has become more generalized, responding to economic and institutional as well as political uncertainties, which go beyond individual

[7] Figures are hard to come by, but anecdotal evidence suggests that there were many. Fieldnotes, Ghana Western Region, 10-20/04/2015.

[8] Interview trader, Bukavu, 27/03/2008.

transactions and cost/benefit analyses. It has become part of the prevailing professional ethic. When asked about what qualities a 'good gold trader' should have, a Bukavu based trader declared:

> "We are all men of trust : we give trust, we receive trust and we deserve trust. That is how we do our business"[9].

The importance of trust can be related to dysfunctional public services, high amounts of illegal taxes levied by individual state agents, absence of banking systems, bad road conditions and the constant threat of being robbed. In this context trustwothiness appears to be a *conditio sine qua non* to make a long career in the business, although this does not (at all) mean that cheating and stealing do not occur[10]. But if you work with people 'from the network', as a master trader from Bujumbura (in neighbouring Burundi) insisted, chances of being cheated are slim[11]. This network consists of a whole chain of patron-client relationships, linking master traders in regional centres to small traders in the mines, the latter operating as commission agents who work with the master traders' financial capital (Geenen, 2011). In this way large sums of cash are being transferred, but formal contracts are absent.

Up to 98% of artisanally produced gold in Eastern DRC is smuggled across the border to Burundi or Uganda, from where most of it is taken to Dubai and traded for electronic goods, computers and cars. Gold, one of the most important sources of foreign exchange in the DRC, is used here as a hard currency and a hedge against soaring inflation, which was common before 2005 and again since 2015. Smuggling has become part of a wider cross-border political economy, which involves corrupt border officials and clientelistic relations with high-level security people and politicians. The master traders can afford to make costly arrangements with these officials in return for protection. This actually illustrates the point that something is never a risk in itself. If large traders can use their political connections to make sure the risk of confiscation does not apply to them, if they can actively produce the *absence* of such a risk, this means that the *presence* of this risks is also produced, by specific people (border officials, security agents, politicians) for specific people (smaller traders without the necessary connections).

In this part I have provided some illustrations of how different actors in the gold production network deal with uncertainties in markets. I have shown that uncertainty shapes practices (such as downsizing in mining companies), norms (such as trustworthiness in the Congolese gold trade) and relationships (such as those between large-scale and artisanal mining). When one condition of uncertainty is calculated and ranked vis-à-vis other uncertain conditions, it is framed as a 'risk' and is supposed to become 'manageable'. For example, companies manage the risk of falling gold prices by adjusting their reserves estimates or by cutting costs. But this produces other risks, *in casu* the risk for workers to loose their job. As Emel and Huber (2008) have pointed out, governments and companies generally do not have much consideration for the latter risk. Concretely, the financial, political and geological risks borne by companies are believed to be much more important than the social, economic, political, environmental and cultural risks borne by host governments and communities. In addition to that, corporations attempt to externalize the risks they are facing to local populations (Alexandrescu, 2012).

States

[9] Interview trader, Bukavu, 29/07/2009.

[10] Interview trader, Bujumbura, 17/03/2010.

[11] There are many ways in which traders may cheat. Master traders normally put financial capital at the disposal of smaller traders. The latter have an incentive to run away with the money, which sometimes happens, but which ruins the small traders' career in gold trade. Gold is transported and smuggled by middlemen. They may as well have an incentive to steal the gold. Finally, traders may sell false material, or gold with a lower purity.

Bridge (2008) reminds us about the particular territoriality of mineral resources. As in most countries governments are the owners of whatever can be found below the surface, mineral production networks are much more embedded in state structures than, for example, manufactured goods, which can be produced in networks of firms relatively disconnected from state structures. When arriving in a territory where the state holds the underground reserves and communities hold access or property rights to the surface land, companies thus have to negotiate with both, which causes "all kinds of frictions, controversies and possibly confrontations", which may turn violent (Mommer, cited in Bridge, 2008: 405). Therefore, when making an investment decision, corporations consider the host country's regulatory environment. This shows in the prevalence of global rankings scoring countries on their 'investability', such as the Global Mining Survey (Le Billon and Sommersville 2017).

Banro's financial information form for the year 2015 includes an impressive twelve page long list of 'risk factors' (Banro Corporation, 2016). The first factor is: "The assets and operations of Banro are subject to political, economic and other uncertainties as a result of being located in the DRC" (idem: 17). More specifically, the following risks have been identified:

> "the risks of war and civil unrest, expropriation, nationalization, renegotiation or nullification of existing licenses, permits, approvals and contracts, taxation policies, foreign exchange and repatriation restrictions, changing political conditions, international monetary fluctuations".

And the list goes on to include issues of dispute settlement, regional conflict, artisanal miners' presence, physical and institutional infrastructure and HIV/AIDS.

Banro Corporation acquired its research and exploitation permits in a context of political instability and war. In the 1990s Banro was a junior company, speculating on the promising gold concessions that Sominki[12], which was on the verge of bankruptcy, sought to sell. After negotiations with both the dying Mobutu regime as well as with the AFDL[13] rebels led by later president Laurent Kabila, all Sominki's titles were transferred to Banro[14]. However, one year after coming to power, Laurent Kabila deprived Banro of these titles and created a new state-owned company, Somico[15]. In line with this nationalist move, Kabila also appointed Luhwindja's chief Philemon Naluhwindja, who portrayed himself as the legitimate rights holder as opposed to the 'foreign occupier', as director of Somico. Just two days after this, the RCD[16] rebellion broke out and large parts of Eastern DRC were seized. During the war that lasted until 2003, Banro took the side of the RCD rebels, whereas Somico supported local defence groups and was backed by the Kabila government. Thus the access to the gold mines was at stake in a highly politicised and militarized power struggle. At the local level, the conflict between Banro and Somico was exemplified by a succession conflict after Philemon Naluhwindja's death in 2000. Philemon's brother Justin continued to support Somico and nourished the popular narrative that Somico had been created to mine gold on the 'people's land' for the good of Luhwindja's inhabitants. Yet Somico was never operational due to lack of investors. In practice, Justin effectively controlled and derived rents from artisanal mining and contracted FDLR rebels as personal security guards[17].

[12] *Société Industrielle et Minière du Kivu*.
[13] *Alliance des Forces Démocratiques pour la Libération du Congo.*
[14] *Convention minière entre la République du Zaïre et la Société Minière et Industrielle du Kivu 'Sominki' et Banro Resource Corporation*, 13/02/1997.
[15] *Société Minière du Congo* was created on 31/07/1998.
[16] *Rassemblement Congolais pour la Démocratie*. Kabila's former allies Uganda and Rwanda turned against him in 1998 and supported the RCD rebellion in the East, which managed to occupy a large part of the entire Congolese territory.
[17] *Forces Démocratiques pour la Libération du Rwanda* was a rebel group composed of Rwandan Hutu fighters. Interview community leaders, Luhwindja, 11/2011.

In January 2001 Laurent Kabila was murdered and succeeded by his son Joseph who turned to collaborate with Banro and concluded a 'gentlemen's agreement' restoring all gold titles to Banro[18]. But Banro was not able to actually access the concession because of the continued presence of FDLR. In July 2005 the Congolese army launched a military operation chasing the rebels, installing Banro and taking violent action against community members accused of sympathizing with FDLR. Justin fled to Kinshasa and Banro relied on Philemon's widow (mwamikazi) to appease and convince the population of welcoming the company. The company, evolving from a junior to a mid-tier company (Dougherty, 2011), had just announced a massive exploration programme and had listed its shares at the New York and Toronto stock exchange, so investors needed reassurance. A strategic alliance with loyal factions of the local elite was believed to simplify this. but eventually turned out to create major tensions as excluded elite factions turned against the power holders. This local conflict became entangled with provincial and national politics and affects the company's operations until today (see Geenen, 2015; Geenen and Verweijen, 2017).

Uncertainties regarding mining titles also shape practices, norms and relations in ASM. While the Congolese Mining Code provides for 'artisanal mining zones' in which miners can legally carry out their activities, the actual number and scope of these zones is very limited. In practice, almost all artisanal gold miners are working in areas that have officially been given in concession to industrial companies, which contributes to their uncertain position. This is also the case in Kadumwa mine, which is actually very close to Banro's processing plant in the Twangiza concession (Luhwindja chiefdom). Faced with artisanal miners' resistance to their forced displacement and the government's inability or unwillingness to relocate the miners to artisanal mining zones, the company has been tolerating artisanal miners in this pit. This very much reflects an older practice, as Sominki had abandoned the mines around Twangiza already in the 1970s and had left these pits to be exploited by artisanal miners. Sominki accepted, if not encouraged, the fact that the local chief (mwami) levied monthly fees and taxes on the production (amounting to 10%)[19], because the company had an interest in maintaining good relations with the customary authorities.

From the artisanal miners' point of view, access to land is uncertain. Since their property rights are not protected by the state, they use various other mechanisms to maintain access to the pits. These mechanisms include making illegal payments to state representatives; paying customary fees to the chiefs who have traditionally been in charge of managing access to land[20]; and legitimizing access by referring to a first settler's right. As one interviewee told me in Kamituga, another one of Banro's concessions: "We only take what is ours; it's the land of the Congolese"[21]. However, such access mechanisms remain precarious. Suppose that Banro makes a new discovery in an area where artisanal miners are currently tolerated, or that Banro decides to frame their presence as a security risk, the company has the power (and alliance with the government) to use repression and forcefully displace the artisanal miners, as has happened in the past.

Summing up, in this part I have given examples of how uncertainty in states shapes practices (such as the de facto cohabitation of a company with artisanal miners), norms (such as the way in which artisanal miners try to secure resource access) and relationships (such as the company's strategic alliance with local elites) in the gold production network. I argue that by attempting to 'calculate' this uncertainty and framing it as 'risk', the company forces other actors to operate under the conditions they set. The risks (as shown here in Banro's example) are presented as being exogenous to corporate

[18] *Avenant n.1 à la convention minière du 13 février 1997*, 18/04/2002.
[19] Interviews former miners, Luhwindja, 08/01/2011.
[20] Interview former miners, Burhinyi, 26/10/2011.
[21] Interview miner, Kamituga, 04 and 11/04/2008.

actions. They are the 'result of being located in the DRC', hence inevitable consequences of the territoriality of the gold production network. The company thus discursively sheds responsibility and accountability. However, issues such as artisanal miners' presence, war and civil unrest, changing political conditions and even HIV/AIDS are not necessarily external to company actions. On the contrary, actions (or inactions, in the sense of not doing something) taken by corporate actors may play a role in shaping social, political and security events (see also Le Billon, 2001). In our case, practices such as the co-optation of local elites and strategic alliances with contested leaders created new political conflicts and exacerbated existing ones. Moreover, uncertainty surrounding attitudes vis-à-vis artisanal miners – switching from acquiesence to collaboration, repression and forced displacement – may be one factor explaining violent mobilization against the company (Geenen and Verweijen, 2017). These practices should not necessarily be seen as intentional though, nor are they emanating from a monolithic, *homo economicus* type of corporation (Welker, 2014). As Marina Welker (2014) convincingly argued, corporations are 'enacted' by individuals and these individual actions are crucial in the production of risk and anticipation, as the next section will further clarify.

Underground

In this part I analyse how uncertainty related to 'the underground' plays out in the gold production network. The focus on the underground, next to markets and states, reflects the typical nature of gold production that heavily depends on the depth, size and locations of underground deposits. This, as well as the properties of the resource itself, is what Bridge (2008) called materiality. The first example I give relates to the unpredictability of gold earnings in artisanal mining; the second to companies' investments in community development through Corporate Social Responsibility (CSR).

In my research sites gold is extracted from underground pits. Some are abandoned pits left behind by industrial companies; others have been opened by artisanal miners who may follow different sources of information: discoveries by colleagues, knowledge of former company workers, maps made by companies, traces left behind by geologists, colour and composition of the soil or presence of thin veins close to the surface. Still, artisanal miners have a hard time predicting the exact location and orientation of gold veins as their means for exploration are limited. As a consequence, the outcomes of an underground gold mining project are always uncertain. In most cases it takes a long time before a mining team hits the gold-bearing vein and considerable investments are needed in manpower, equipment and working tools. These investments are made by the 'pit manager', who in turn borrows money from small traders, who borrow it from master traders. The first period during which the shaft is opened up, is called the 'preparatory period'. Once the team reaches the gold vein, a 'high production period' starts. But mining teams may be hindered by material factors such as cave-ins or mounting groundwater during the rainy season. As such, high production periods are always alternated with preparatory works and low production periods, and earnings are unpredictable. But all the time miners are driven by the hope to 'strike it rich'. This is actually a crucial factor in understanding the attractiveness of gold mining, although it does not fully explain people's motivations to enter and stay in the sector[22]. In the case of Tanzania, Bryceson and Fisher (2014: 187) argue that

> "over time, this belief is tempered by the experience of the real probabilities and risks involved in mining, the exceptionally hard work it entails and the market practices and price fluctuations that can undermine the miner's earnings. Nonetheless, even at the stage of greater awareness of the pitfalls, an imaginary of 'anyone can get rich', may continue to prevail because it is observed that some do succeed".

[22] These are also related of course, to poverty, lack of formal jobs, low attractiveness of agriculture and so on.

As mentioned in the introduction, the names of some of the shafts reflect these 'underground dreams' (see also Pijpers, 2017). They are also nourished by the stories about miners earning thousands of dollars and spending them the same night, about miners returning to their home village after striking it rich and being punished for becoming too arrogant, about rich gold deposits guarded by a venomous snake, or about treasures the colonial agents have buried in mountains and houses. Miners often talk about their earnings in terms of luck (*Kazi yetu ni bahati* or "Our work depends on luck"[23]), God's will ("Everything depends on your chance, on the way in which God will bless you"[24]), magic ("This work is like magic")[25], or lottery. But luck can also be enforced by prayers, customary practices or witchcraft[26].

Another factor contributing to the unpredictability of earnings is the distribution of ore among the members of a mining team. As I have described for underground gold mining in Eastern DRC (Geenen 2013, 2015, but see also Jønsson and Fold, 2009 for Tanzania and Grätz, 2003 for West-Africa) artisanal miners are not paid in cash, but in a quantity of ore or sand, or more precisely a number of bags containing ore or sand. First, the pit manager takes the largest share (commonly one third or up to half of the mined ore), which reflects him having taken the greatest risk by making the investments mentioned above. The remaining ore is distributed among the workers (with specific arrangements for workers with particular ranks and specializations), who then need to process the ore so as to extract the gold particles. This means that individual earnings will always be unpredictable and depend on the ore concentration and the losses incurred during processing.

What is in the underground is shaping relations, practices and norms above the ground. This is not only the case in artisanal mining, but also in large-scale mining. Companies generally spend years and hundreds of thousands of dollars on exploration. This not only creates uncertainties regarding ore concentration, efficiency of the extraction process and quality of the refining; it also produces expectations and anxieties on the side of the population surrounding the mine. Among the 'risk factors' identified in Banro's financial information form (Banro, 2016: 17-29), many relate to the reserve estimates, geological characteristics of the deposits and physical characteristics of the ore. Estimates are inevitably imprecise and depend on interpretation and statistical inference drawn from drilling and sample analysis. Positive feasibility studies do not guarantee anything: "It is not unusual in new mining operations or mine expansion to experience unexpected problems during the start-up phase. Delays often can occur in the commencement of production" (idem: 19). In the case of Namoya, after Twangiza the second concession where Banro Corporation has started commercial production (since January 2016), production was indeed delayed because of technical problems.

But the company also had to deal with numerous community protests, including violent manifestations in Namoya in September 2012 and January 2014. Artisanal miners for example demanded compensation of around 28,000 USD per pit[27]. The General Director of Namoya Mining responded that Banro was willing to compensate, but only for those pit managers with an official land title. As explained above, artisanal miners lack such titles, but use various other access mechanisms to maintain access to their mining pits. Still, in 2014 a negotiation process was initiated between a representation

[23] Interview miner, Kamituga, 07/04/2008.
[24] Group interview miners, Lugushwa, 26/01/2011.
[25] Interview miner, Burhinyi, 18/01/2012.
[26] A large-scale survey (not yet published) carried out by colleagues Marijke Verpoorten, Nik Stoop and Janvier Kilosho among 469 miners in Kamituga revealed that 3 out of 4 miners believe in witchcraft; 28% categorize witchcraft as a very important threat to their mining activities, 13% consider the threat important, 10% of little importance, 8% of very little importance and 41% not at all important. In the latter category, many believe that prayer is an effective protection against witchcraft and the belief in a monotheistic God as the only supernatural belief that is permissible.
[27] Letter by *Association des filoniens creuseurs d'or de Namoya* to the Provincial Governor, 29/07/2013.

of community members through the Community Forum, and Banro's Department for Community Relations. This led to the Salamabila Chief presenting a *Cahier de Charges*[28] and both parties signing a Memorandum of Understanding (MoU)[29] in September of the same year. The *Cahier de Charges* gives a good idea about community expectations, including improvements in the domain of education, health, infrastructure, sports and employment. In the MoU Banro indicates a few activities from the *Cahier de Charges* that will not be possible to execute, but leaves other possibilities open. For example, it is made clear that the Salamabila-Kindu road (300km) cannot be tarred, but "this does not exclude other interventions in road rehabilitation"[30]. With respect to the hydraulic plant, Banro states that "if Namoya Mining has an excess of electricity itself, it will "consider the possibility of channelling it to the community"[31]. The document clearly states that "it will not be possible to meet all expectations"[32]. But on the other hand it still leaves considerable room for interpretation and hence, for underground dreams:

> "The '*Cahier de Charges'* has been signed by both parties. But until today Banro has not kept one promise. And still, they continue making promises and saying that we have to await the production phase. But we are waiting in vain. This creates discontent in the community. Instead of feeling fortunate we now feel more exploited"[33].

One of the chiefs said that Community Relations staff "did a customary ceremony, offered four goats, rice and drinks. We ate and we talked. They told us that once the mine would start producing, they would bring us our 'customary share'. But nothing"[34]. In this case actions taken by Banro staff to acknowledge customary authority have created high expectations. Staff members acknowledged that managing these expectations is one of the biggest challenges, because "these people want everything, and now, and for free"[35].

The MoU came with a roadmap specifying projects that will be executed in the short, medium and long run. More specific time frames were not set, nor was there an explicit mentioning of priorities. Communities are not sufficiently aware of the fact that execution of these projects depends on company performance, a Banro staff member said[36]. All this created misunderstandings and frustrations, and eventually resulted in violence. In January 2016 the police dispersed a protest match and killed one civil society leader[37]. In September of the same year six trucks were burned in an attack on a convoy transporting fuel and mining equipment. In December a similar attack targeted two vehicles of Banro's subcontractor CIVICON. In March 2017 five workers were kidnapped. In May police and military around the mine were attacked and there was an attempt to invade the camp, prompting the company to evacuate its staff and suspend its operations (Geenen and Verweijen, 2017).

Sadly, these kinds of events are quite typical of what a mining company encounters when it starts operating (Bebbington et al, 2008; Conde and Le Billon, 2017). Local communities are internally divided and do not respond in homogeneous ways. Company staff, and especially the department of Community Relations, plays into this by co-opting some groups (customary chiefs, economic elites, civil

[28] *Cahier des Charges des communautés locales versé à la Société Namoya Mining filiale de Banro Corporation par les forces vives sous le patronage du Chef de Secteur des BB/Salamabila.*
[29] *Protocole d'Accord signé entre la société Namoya Mining Sarl et le Secteur de Bangubangu Salamabila.*
[30] *Protocole d'Accord*, p.3.
[31] *Protocole d'Accord*, p.4.
[32] *Protocole d'Accord*, p.4.
[33] Group interview religious leaders, Namoya, 09/09/2015.
[34] Interview chief, Namoya, 10/09/2015.
[35] Interview Banro staff, Namoya, 10/09/2015.
[36] Interview Banro staff, Namoya, 11/09/2015.
[37] *Memo adressé aux organisations non gouvernementales internationales intervenants dans le secteur des ressources naturelles en RDC*, Maniema Libertés MALI, 16/02/2016.

society and ASM leaders) and feeding into their expectations, while other groups are excluded (Geenen and Verweijen, 2017). For companies, these co-optation strategies are important in gaining a 'social license to operate' (SLO). Indeed, in the abovementioned Ernst&Young (2016) ranking, SLO was considered to be the 4th most important risk. Another study reported that 'stakeholder-related risks' (broader than just local communities) account for nearly half of the total risks faced by major extractive companies (Davis and Franks, 2014). However, all this completely obscures the fact that by reaching out to certain local stakeholders (and thereby inevitably excluding others), companies actually play into existing local conflicts, or even produce new ones.

In this part I have analysed how uncertainties related to the materiality of gold shape practices (such as the vague planning of CSR interventions), norms (such as those concerning output sharing) and relationships (such as those between companies and communities). In the case of company-community relations, many tensions and conflicts around CSR, resettlement or compensation can be ascribed to the production of risk and anticipation, as well as the denial of the ways in which communities and artisanal miners deal with uncertainty. In the conclusion I further reflect on this.

Conclusion

I have built upon the idea of risk as being produced to serve the interests of capital and being used as a mode of rule. My case study shows that Banro's financial reports include detailed lists of risk factors, which fuel the idea that if risks can be named and calculated, they can also be prevented or managed. But this obscures the company's active role in producing new risks and conflicts. For example, a company may lay off workers to anticipate falling gold prices, but this may pressure artisanal miners to forcefully occupy the company's concession, constituting a security risk. For those artisanal miners, the risk of losing their livelihoods is larger than the risk of being caught as an intruder in the concession. Yet such (livelihood) risks are largely invisible to the companies. The latter put a lot of effort in making it very concrete what can 'go wrong' for the company as compared to what can go wrong for communities (Emel and Huber, 2008). CSR brochures, for example, frequently mention alternative livelihoods programmes for artisanal miners, but remain relatively silent on the livelihoods that have been destroyed. The endless listing of risk factors may serve at the same time as a safeguard vis-à-vis investors and an excuse for potential negative externalities of company presence, as if these externalities are completely independent from corporate actions. When such negative externalities occur, it is easier to blame contextual factors than corporate agency.

Paradoxically, for some of my informants (both on the side of the company and on the communities' side) the solution to company-community conflicts lies in even more specific information about what to expect, for example a more specific roadmap accompanying the MoU, or in the case of a resettlement very clear timelines. Indeed, once could argue that the more concrete information is available, the better outcomes can be anticipated. Moreover, it seems like a moral imperative to inform communities about how the mining project will evolve, what its future effects will be, when a resettlement process will start and end (and indeed this is what is required in community participation instruments such as Free, Prior and Informed Consent). This is why staff in the Community Relations Department occupied such a crucial position. But on the other hand, this recommendation also shows how management discourses shape our ideas about how development problems can be 'fixed', if only we have the right numbers and our mitigation plans are good enough.

Although space constraints in this article have not allowed me to do so, this focus on uncertainty and risk should be extended to other nodes in the global gold production network. E-waste workers, for example, are part of this network as they recycle gold from used computers and mobile devices. By far

most policy and research attention has, rightly, gone to the health and environmental risks they are exposed to. But this framing has for a long time obscured the reality that most e-waste is not just dumped but recycled, that value is created and livelihoods are built (Wong, 2015). The perceptions of NGOs and policy makers on the risks e-waste workers are facing may thus considerably differ from the workers' own perspectives. Another example is Fairtrade gold. As for other Fairtrade products, the price premium is presented as a major incentive for producers to join, a safety net for fluctuating world market prices. However, research in different countries has shown that prices paid locally amount to about 85-90% of the London Gold Fixing[38]. Moreover, the practice of miners taking credit from the traders to whom they later sell, is what sustains local investments in mining shafts (Geenen, 2011). Hence the price premium for Fairtrade gold appears not to be particularly attractive (Fischer and Childs, 2014). Miners are more interested in increasing productivity and acquiring financial and material support to deal with the unpredictability of gold deposits, underground water and geological conditions such as the presence of hard rocks that make excavation difficult. Once again, the framing of what constitutes the major risk for producers may vary.

Just like risk, anticipation is built on the basis of data (geological information, feasibility studies, financial projections), but also on previous experiences and promises. In Eastern DRC community expectations are fed by the historical experience of colonial mining companies, which functioned according to a paternalistic model and organized education, health care and even leisure facilities for workers and families (Geenen, 2015). But as Cross (2014) observed for India's special economic zones, people's dreams are not only shaped by past experience, but at least as much by imagined and desired futures. Artisanal miners' hopes are thus fuelled by the omnipresent stories about fellow-miners striking it rich. For communities around industrial mining sites, the presence of a multinational mining company fuels the hope to benefit from infrastructures, social projects and most importantly, jobs – especially in a context where the government is unable to provide all of this. Often, people's dreams are turned into more concrete anticipatory actions through interactions with company representatives. Company staff, especially Community Relations people, frequently make promises, be it formally (for example in MoU's), informally, or implicitly. They may not even intend to make promises, but local people interpret their words otherwise. People's expectations are fed by these promises, and their frustrations generally result from unfulfilled promises – even if these were never formal or explicit.

Finally, I have argued that the production of risk and anticipation by corporations conceals and devalues the ways in which other actors in the gold production network deal with uncertainty. As has been illustrated, the extreme uncertainty that characterizes the market and the institutional environment in which Congolese actors operate as well as the resource's materiality, shapes many of the practices, norms and relationships in the network. This is easily overlooked, for example when only artisanal miners with an official license are entitled to compensation, when attempts to formalize the gold supply chain fail because of the resilience of informal norms, or when companies try to deal with armed mobilization against their operations. My intent is not to claim that the production of risk and anticipation can fully explain company-community conflicts. As I have shown elsewhere (Geenen and Claessens, 2014; Geenen 2014, Geenen and Verweijen, 2017) such conflicts have complex socio-economic, cultural and political dimensions. But I do believe that it helps to see how all actors and activities in the gold production network are linked, how they influence each other, and how all are chasing underground dreams in a context of extreme uncertainty.

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