

**The future of artisanal gold
mining and miners under an
increasing industrial presence
in South Kivu and Ituri, eastern
Democratic Republic of Congo**



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ABSTRACT

While the Congolese government is actively promoting large-scale industrial mining since it provides easy rents, artisanal mining seems to escape most attempts to control and regulate it. Yet artisanal mining provides employment and livelihoods to an estimated million people. This paper presents original research on artisanal gold miners in Province Orientale (Ituri district) and South Kivu. In both locations, the start of industrial gold mining operations threatens to displace artisanal mining from some of the areas where the soils and rocks have the highest gold concentrations. The research findings presented in this paper thus provide an understanding of artisanal miners' perceptions on their work, income and livelihoods, at a time of transition, when local economies are shifting from purely artisanal production to a mix of industrial and artisanal production. They demonstrate that artisanal miners are strongly committed to their jobs and livelihoods. Even if they are displaced by industrial mining operations, artisanal miners are likely to remain within the sector, moving to new or existing mining sites. Thus, the success of state- or corporate-sponsored resettlement programs and alternative livelihood schemes may be affected by the desire of artisanal miners to retain their livelihood. While academics and policymakers debate whether industrial or artisanal mining can lead to long-term economic development, the survey results suggest that from the point of view of those engaged in artisanal mining, the artisanal livelihood is seen as more likely than large-scale mining to promote development, in part because it provides large numbers of relatively-good paying jobs.

RÉSUMÉ

Tandis que le gouvernement congolais est en train de promouvoir le secteur minier industriel, qui lui rapporte aisément des rentes, le secteur artisanal semble échapper à plusieurs tentatives de contrôle et de régulation. Néanmoins, l'exploitation minière artisanale procure de l'emploi et des moyens d'existence à un nombre estimé à un million de personnes. Ce papier présente une recherche originale sur les creuseurs d'or en Province Orientale (district de l'Ituri) et au Sud-Kivu, République démocratique du Congo. Dans ces deux régions le démarrage des opérations de production industrielle de l'or risque de déplacer les creuseurs artisanaux loin des endroits où les réserves aurifères sont plus grandes. Notre recherche met en lumière les perceptions des creuseurs artisanaux eux-mêmes concernant leur travail, leurs revenus et leurs moyens d'existence dans une période de transition : les économies locales sont effectivement en train de glisser d'une production purement artisanale à une production mixte industrielle et artisanale. L'enquête montre que les creuseurs sont fortement dévoués à leur travail. Même s'ils sont déplacés par les opérations industrielles, ils préfèrent rester dans le secteur artisanal, émigrant vers d'autres sites si nécessaire. Par voie de conséquence, le succès des programmes de 'réinsertion' et 'activités génératrices de revenus alternatives', appuyés par l'État ou par des entreprises privées, peut être sérieusement affecté par le désir de ces creuseurs de maintenir leurs moyens d'existence. Pendant que les scientifiques et décideurs politiques sont en train de discuter pour savoir si c'est l'exploitation minière industrielle ou l'exploitation artisanale qui peut contribuer au développement économique à long terme, les résultats de notre recherche suggèrent que, du point de vue des acteurs concernés, le mode de vie de creuseur artisanal est plus approprié à contribuer à un réel développement, notamment parce qu'il procure un bon nombre d'emplois relativement bien payés.

1. DIGGING UP THE ISSUES: MINING AND DEVELOPMENT

In spite of a general feeling that the extraction of and trade in mineral resources are important to foster growth and development, several cases illustrate that this link is not always positive. On the contrary, the presence or heavy reliance on mineral resource extraction may hinder growth and development for some countries (Grauau, 2008: 139-149). The most outspoken denouncers of these adverse effects on growth are the advocates of the 'resource curse' thesis (Auty, 1993; Sachs and Warner, 1995). The thesis suggests that the abundant presence of natural resources generates a number of economic (Dutch disease, revenue volatility, enclave economies) and political effects (bad governance, rent-seeking behaviour, corrupt institutions), which will eventually undermine a country's development. Nevertheless, investments in the mining sector are still widely applied as a development strategy and are encouraged by for example the World Bank.

The structural adjustment programmes of the 1980s forced African countries to reduce state regulation and privatize their mining companies. In its 1992 publication 'Strategy for African mining' the World Bank stressed that industrial mining activity could provide "important benefits in terms of exports, foreign exchange earnings and tax receipts to support economic recovery in Africa" (World Bank, 1992: x). In order to realize mining's full potential, governments needed to introduce regulatory and institutional reforms aimed at attracting foreign capital. The role of the state became that of a 'regulator' and 'promoter', whereas the private sector was the 'owner' and 'operator' (Campbell, 2004: 20). In the mid-1990s many African countries rewrote their mining and investment codes along these lines (the 'second generation of mining codes': Campbell, 2009; Bebbington et al, 2008: 889). A 'third generation' of mining codes was drafted in the late 1990s, with more consideration for the importance of social, environmental and human rights issues, but the main goal of attracting foreign investment was hardly abandoned. Campbell (2004: 81) demonstrates that all these reforms put a lot of emphasis on technical issues, neglecting the more substantive issues relating to "under whose control, and for whose benefit extractive industries operate." According to her this illustrates how the World Bank, which claims to work towards poverty reduction and sustainable development, is often "caught between contradictory and sometimes incompatible logics – promoting foreign private investment as opposed to promoting the social and economic development of countries and their populations" (idem).

In these reforms there was little consideration as well for the sector of artisanal and small-scale mining (ASM) which in the 1990s directly employed some 13 million people worldwide¹. From the 1970s onwards, the ASM sector had continued to grow, further stimulated by the disastrous effects of structural adjustment programmes and neoliberal policies on employment and poverty in many developing countries. It may actually be argued that the neoliberal reforms directly fed into the growth of the artisanal mining sector, as many people who were left unemployed as a result of privatizations in the mining and other key industries found a job in artisanal mining (Banchirigah, 2006: 167). But in the mid-1990s more and more negative aspects of the artisanal mining boom were highlighted, such as environmental, health and safety issues, social problems, poverty and issues related to women's and child labour (Barry, 1996).

[1] In the absence of better or more recent data, the ILO estimates (1999: 3) of 13 million people are repeated in most of the literature.

In the 2000s the increasing recognition of the importance of ASM for people's livelihoods encouraged some researchers to look deeper into the sector's organizational dynamics (Hilson, 2009: 4). Thus, over the last decade, a multifaceted picture of ASM has emerged, stressing the fact that it is poverty related, but also looking at its income generating opportunities and its embeddedness in local economies. A much debated issue, for example, are miner's motivations to engage in the sector, for which Hilson (2009: 3) differentiates between 'push' and 'pull' factors. The 'demand-pull' view claims that people choose to go into mining in order to generate higher economic returns. This view is informed by accounts of 'rushes' and fortune-seekers and calls attention to possibilities for accumulation and investment (Bush, 2009; Grätz, 2009) and rational risk/reward calculations (Jønsson and Bryceson, 2009). In Tanzania research has confirmed that incomes from small-scale mining are significantly higher than farmer's incomes (Bryceson and Jønsson, 2010: 7) and that working in mining or related services reduces the likelihood of a household to be in poverty (Fisher et al., 2009: 34). The 'distress-push' view argues that people engage in artisanal mining because they are desperate to escape poverty and compelled to search for alternative livelihoods (Heemskerk, 2003; Tschakert, 2009). In some regions ASM has emerged as the only viable activity in the wake of structural adjustment, deteriorating employment opportunities and increasing pressure on land. Smallholder farming has become less attractive as a livelihood, and artisanal mining may substitute for revenues from agriculture, but may also complement them, for example as a seasonal activity (Andrew, 2003; Banchirigah, 2008; Banchirigah and Hilson, 2010; Hilson, 2010 and 2011; Maconachie and Binns, 2007).

In other regions, artisanal mining has become a permanent segment of the rural economy; a "deeply-rooted industry [...] which offers a range of economic opportunities for people from all walks of life" (Hilson, 2009: 3; see Banchirigah and Hilson, 2010; Hilson, 2010). Indeed, mining not only provides livelihoods for the miners themselves, but also for a range of actors working in related services like transport, catering, leisure, prostitution, tool making, petty trade and so on. This way mining boosts local and rural economies and generates a big economic and social return (Bush, 2009: 61). In line with this last view, mining may not just be a temporary livelihood, but a full career, as Bryceson and Jønsson (2009) have demonstrated. They argue that career paths in ASM emerge from the miner's own organizational constructs and individual decision making which guides them towards labor specialization.

The literature thus highlights the importance of artisanal mining activities for individual livelihoods, and for local economies through linkages with other sectors. Yet ASM is believed not to contribute (enough) to development, since it generally takes place in the 'informal' sphere. This means that it does not provide significant benefits to governments (through taxation and access to foreign exchange) (Hentschel et al, 2002: 52). Therefore, policy makers tend to argue that artisanal mining must be formalized, which means registered, organized and governed by a central state system (Siegel and Veiga, 2009: 51). The critical issue here is the implementation and enforcement of the law, because many countries have legal provisions for ASM activities, as we will also demonstrate in this paper for the DRC, but in practice most ASM activities remain 'illegal' (not in accordance to these legal requirements) or 'informal' (unregistered).

One important reason for this is the fact that few zones are legally open to artisanal mining. As Hilson (2009: 2) says in an overview article on ASM in Sub-Saharan Africa, "mineralized areas are now in short supply, and many large-scale miners are unwilling to cede unused portions of their concession. This has caused significant agitation in rural communities, at times precipitating violent clashes between mine management and encroaching artisanal

miners". Indeed, many cases of confrontations between large companies and artisanal miners have been reported, although academic authors argue that a peaceful coexistence of the two production modes should be possible. The condition to achieve this, would be that the artisanal sector is formalized and regulated, and that governments or companies would put concessions at the disposal of the artisanal miners (see Andrew, 2003 and a number of case studies on Ghana: Aubynn, 2009; Hilson, 2002b; Hilson and Yakovleva, 2007). The World Bank (2009) also proposed concrete strategies to facilitate a peaceful coexistence of ASM and LSM, including formalization and segregation of mineral concessions, as well as technical assistance programmes, alternative livelihood plans, resettlement action plans, community development, purchasing programmes for ASM products and employment of ASM workers.

The conflicts between LSM and ASM actors can, in our view, be understood in different ways. First of all, these are disputes over access to land, and more specifically about who holds the rights to access the land. Artisanal miners often base themselves on customary rights, and they assert that they have the traditional right to access and to work the land (Andrew, 2003; Bush, 2009; Hilson, 2002a). The large-scale companies, on the other hand, tend to insist on the fact that they have legally acquired permits and concessions, and they base themselves on state law. In this bargaining fight, large-scale actors seem to be advantaged by the formal legal framework, as many Mining Codes prioritize large-scale mining, but also by their superior financial resources and access to information, technology and geological knowledge (Fisher, 2007). On a different level, these conflicts can be interpreted from the artisanal miner's side as being struggles "against development oriented towards economic growth, and for development as a process that fosters more inclusive (albeit smaller) economies, respects citizenship rights, demonstrates environmental integrity, and allows for the co-existence of cultures and localized forms of territorial governance" (Bebbington et al, 2008: 901). Bebbington et al, in their article on "mining and the possibilities for development" advance this view, referring to the concept of 'accumulation by dispossession' (Harvey, 2005: 145). They argue that artisanal miners protest against their 'dispossession' by large companies and against the commodification and privatization of natural resources, the displacement of populations and the loss of livelihoods (see also Bush, 2009). In brief, they adhere to a particular notion of 'development' that is different from the growth and efficiency-based definition used by large-scale actors. Here lies the particular contribution and relevance of this discussion paper.

2. DIGGING OURSELVES IN: QUESTIONS, METHODS AND LIMITATIONS

This paper focuses on artisanal mining in the eastern Democratic Republic of Congo (DRC). More particularly we look at two cases: artisanal miners in the concession of Banro Corporation in South Kivu province, and in the Anglo-Gold Ashanti Kilo (AGK) concession in Ituri district (Province Orientale). Ituri district and South Kivu province are the two main areas for gold exploitation in the DRC². The main questions guiding our study are the following: What is the contribution of artisanal mining for miner's livelihoods? And what are the implications of the increasing presence of industrial mining on artisanal mining and on the livelihoods of individual miners? Both questions are analyzed from the perspective of the miners themselves, based on qualitative and quantitative data (see below). In the paper we argue that, apart from their distinct conception of access to land and legitimacy – which we will not address in this paper, but see Geenen and Claessens, 2013 – there are other dimensions in which artisanal miners clash with the discourses and practices of large-scale miners. These dimensions include perspectives on artisanal mining as a way of life in addition to a livelihood, and opinions that place greater value on artisanal mining as a way to address unemployment, meet community needs and promote local development than on large-scale, industrial operations. The main argument of the paper is that artisanal miners view their livelihood as viable and profitable, as well as preferable to industrial mining for promoting long-term development. This relates to the abovementioned concepts of 'accumulation by dispossession' and 'more inclusive development'. It also highlights the importance of including the miners' perspectives in theoretical and policy debates about the merits and drawbacks of both artisanal and industrial mining.

All authors of this study have done extensive fieldwork in the studied areas³. A lot of our research has been qualitative, based on interviews, focus groups, observations during numerous site visits and analysis of documents. In this paper we also introduce the results of our recent quantitative survey, which was funded by the Institute of Development Policy and Management (IOB) at the University of Antwerp⁴. In South Kivu, a team of students and researchers of the CEGEMI (Centre d'Expertise en Gestion Minière) of the Catholic University of Bukavu carried out the survey in October-November 2011. We surveyed 258 male individuals in four mines (47 in Kamituga, 127 in Lugushwa, 18 in Mukungwe and 66 in Twangiza)⁵. Since Lugushwa is estimated to be most important in terms of production and number of miners, we interviewed more people here. In terms of production and employment Kamituga seems to come second, Mukungwe third (Kamundala Byemba, 2012). Twangiza also used to be an important artisanal site, but some large sites here have been taken over by Banro (Geenen and Claessens, 2013). This advanced industrial presence also made the case especially interesting to us. In Ituri, a team of researchers carried out surveys during February-March 2012. The survey team visited 20 distinct mining sites⁶ all of which are near the mining center of Mongbwalu and within the project area planned for industrial mining operations. The surveyors interviewed 140

[2] See map in annex 2.

[3] Sara Geenen has done qualitative fieldwork for her Ph.D research in South Kivu from 2008 onwards; Dan Fahey in Ituri from 2007 onwards; Francine Iragi Mukotanyi has coordinated the survey in South Kivu in 2011-2012 and analyzed the data in her master dissertation. See Geenen, 2011, 2012, 2013; Geenen and Claessens, 2012, 2013; Fahey, 2008, 2010 and 2011; Iragi Mukotanyi 2012.

[4] The survey can be found in annex 1 of this Discussion Paper. The survey questions were drafted on the basis of previous qualitative research done by two of the authors, as explained in footnote 3.

[5] While Twangiza, Kamituga and Lugushwa officially lay within the borders of Banro's concession, Mukungwe is still disputed by Banro and the artisanal miners.

[6] These sites are: Aeroport, Belgika, Chantier de Jiba, Desert, Dragaline, Gangala, Jida, Kandate, KGK, Kok, Kombokombo, Kpanderidjo, Kpangba, La Folie, Masuwa, Mayi Baridi, Paradiso, Soufrance, Togo, and Usine.

miners (all men) in total, ranging from 1 to 17 respondents per site. The targeted population in both South Kivu and Ituri consisted of site or shaft managers, because they are known to have the best ‘overview knowledge’ about the production and the organisation at the level of the mining site or shaft.

In the sample we included underground shaft mines (‘puits’), open pit mines (‘ciel ouvert’) and alluvial mines. In Ituri the majority of the sites surveyed were open pit or alluvial mines (130), with only 10 underground shafts. In South Kivu 40 alluvial, 5 open pits and 213 underground shafts were included in the sample. In underground shaft mining the artisanal miners dig horizontal tunnels and vertical shafts, for which the total length can go up to several hundreds of meters, and total depth may reach 100 meters, despite the legal provision in the Mining Code stipulating that artisanal mines have a maximum depth of 30 meters. These tunnels are often shored up with wooden trunks, a task carried out by the ‘boiseurs’, or specialized wood workers. Other categories of workers include the ‘foreurs’ who extract the rocks from the gold-bearing veins using chisels and small tools, and the ‘peleteurs’ who transport rocks and gravel out of the shaft. Still others are involved in the processing of the rocks, which includes crushing, washing and panning. Depending on the size of the shaft, between five and 150 miners work in one shaft (Geenen and Kamundala Byemba, 2009; Geenen, 2013). Some open pit mines are dug at tailings sites, and involve workers sifting through dirt to look for pieces of gold or gold bearing rocks. Other pit mines are dug out of fresh ground, and involve people digging large holes to reach underground quartz veins. Alluvial mining normally involves diverting rivers or streams to enable workers to sift through dirt and mud for gold, but may also include the use of dredgers to suck up mud from river bottoms, which is then sifted for gold. Each site – underground shaft, pit or alluvial – normally has a manager in charge of day-to-day operations (Fahey, 2008; Fahey, 2011).

Given the absence of a sample frame for our population of shaft and site managers – the public services in charge of mining do not dispose of sufficient means and human resources to keep reliable records of all miners and miners are reluctant to officially register (Geenen, 2012) – data were obtained on the basis of non-probability sampling. All respondents were found at the work place itself or in the immediate surroundings of the mining site or shaft. Interviews however were as much as possible conducted in private, either inside the mining shaft – to hide away the respondents and researcher from curious spectators – or at a quiet place nearby. The main sampling technique was snowball sampling, according to which surveyed respondents were asked to identify other potential respondents belonging to the target population. After cleaning the data we received from the surveyors, we analyzed the statistics and descriptive data using Stata. In the interpretation of these data, we also made use of the available qualitative information. The interview quotes in this paper come from the research in South Kivu, where the first author has done in-depth fieldwork and transcribed about 150 qualitative interviews with artisanal miners. These data have been included in order to give an idea about miners’ opinions in general, and not to restrict ourselves to the survey sample of shaft managers.

This study is among the few studies so far on artisanal gold mining in eastern DRC that includes quantitative data. Indeed, gathering quantitative data on artisanal mining, especially on incomes and production, is challenging, first of all because miners are reluctant to provide this information as their activities are often – strictly speaking – illegal and they mistrust outsiders, and second because their revenues are extremely volatile and they do not keep detailed records (see also Geenen, 2013). This does also mean that this study presents some limitations. First, one should keep in mind that most respondents are site or shaft managers,

who have, as we have argued, more accurate information on the artisanal mining project, but who may have distinctive individual characteristics in terms of socio-economic profiles. Yet the site and shaft managers included in the survey were all professional miners themselves and were present at the work place. So despite the fact that they may have more responsibilities and more access to capital than others, they cannot be considered as being absent, or detached from realities at work. The qualitative data also show that they have built up their career in mining and that there is not much difference between their 'lifeworld' and the lifeworld of 'ordinary' miners, who have not (yet) achieved the status of shaft manager. We have also collected very little personal information (socio-demographic characteristics) about our respondents. Whereas this may have enabled us to refine some aspects of our analysis, it also implies a risk. On the basis of our previous qualitative research, and the fact that our respondents were all in a more or less direct way threatened by displacement, we considered that asking personal details would scare them off, seeing us as surveyors working for the company or for the state and collecting this census information with the aim of controlling and displacing them. Therefore we thought it was better to direct our questions to their work activities and their mining operations, instead of to their personal backgrounds.

Second, since it was a survey and not a primary observation over a longer time period, some costs and profits of the mining project may be over- or underestimated. In the cleaning and the interpretation of the data we have tried to take this into account as much as possible, not including the obviously incorrect extremes. The study is also not a classical impact study, in the sense that we did not intend to measure the impact of industrial mining on artisanal mining or to do an economic cost/benefit analysis of both production modes. We have used a variety of parameters to assess the impact the industrial presence has on artisanal activities and we try to triangulate this information. But our focus lies on the miners' perceptions of this impact. If we take our argument that we need to take into consideration the views of the artisanal miners seriously, then analyzing their perceptions may be at least as relevant as merely measuring an impact. In this sense, the study gives an idea about miners' motivations and perceptions, but some data must be interpreted with caution. The study should also be carefully contextualized, since distinct historical trajectories play out in one way or another in current practices. That is why the next section sketches the historical context of mining in our two study areas respectively.

3. DIGGING DEEPER: THE HISTORY OF GOLD MINING IN ITURI AND SOUTH KIVU

Gold mining has been taking place in Ituri and South Kivu since early in the colonial era. Control over the production and trade in gold has shifted across space and time, involving various actors including the national government, corporations, and local businessmen. Both Ituri and South Kivu experienced a shift from industrial mining to artisanal mining, although both areas are also currently on the verge of having large-scale, industrial operations resume after several decades of absence. This may be attributed to three factors: the end of the war (officially in 2003), the rising gold price at the world market, and the government policies that favour large-scale industrial mining. Since 2002 a new Mining Code has been in place. Just like other African Mining Codes (see introduction), the DRC Code gives priority to industrial companies⁷, since large-scale mining provides the state, and individual politicians, with rents that are easier to generate than those from artisanal mining (Geenen and Hönke, forthcoming).

Yet the Code does recognise artisanal mining in ‘artisanal exploitation zones’, or areas where “the technological and economic factors are not suited for the site to be industrially exploited”⁸. These ‘factors’ are not spelled out in the Code. In practice, it is left to the companies to do their feasibility studies and assess whether a certain deposit can be profitably exploited by them. In the artisanal exploitation zones individual miners need to buy cards and to comply with all regulations on security, hygiene, water use and environmental protection⁹. Cooperatives can apply for research and exploitation permits. But the law also provides a possibility to close down the zones if “the factors justifying its creation ceased to exist”, or if a “new deposit necessitating large-scale exploitation has been discovered”¹⁰. In this case an industrial company may chase away the artisanal miners (within 60 days) and take over the concession to start a (semi) industrial exploitation. This provision clearly decreases tenure security for artisanal miners. Over the last few years several initiatives have been taken to formalize and better organize the artisanal mining sector, both by international and national actors¹¹, but most reforms are proceeding difficultly and have failed to achieve the expected outcomes. Many legal provisions mentioned above are also disregarded. This can be attributed to the lack of knowledge and of incentives to comply from the side of the miners and to the weak implementation and enforcement capacities from the side of the state and its public services (see also Pact, 2010: 5).

3.1. Industrial and artisanal gold mining in Ituri

Gold mining began in 1905 in Ituri. From 1905-1919, gold mining in the so-called Kilo belt in Ituri involved ‘skimming’ gold from rivers and topsoil (Bakonzi 1982: 115). Starting in 1920, a new company (known as Kilo-Moto) industrialized its operations to enable underground reef mining, excavation, and rock crushing. After several labor revolts, the Kilo-Moto company also improved working conditions, leading to a more permanent labor force and increased production. The Kilo-Moto company managed dozens of pits and a few underground mines in the Kilo belt. By the 1940s, the town of Mongbwalu had become the center of the company’s activities in Ituri, due to its proximity to the highly productive Adidi underground mine.

[7] We cannot go into detail here, but see World Bank, 2008; Mazalto, 2005.

[8] Mining Law, T. 4, Ch. 1, Art. 109.

[9] Mining Law, T. 4, Ch. 1, Art. 111 and 112.

[10] Mining Law, T. 4, Ch. 1, Art. 110.

[11] There is a whole range of initiatives aimed at stopping the trade in ‘conflict minerals’ (for an overview see Verbruggen et al, 2011), but also broader reform initiatives for mining sector governance, such as the ‘growth with governance programme’ (World Bank, 2008) and the World Bank and DFID-sponsored ‘Promines’ (Pact, 2010). For a critical discussion see also Geenen, 2012.

After Congo's independence in 1960, industrial mining in Ituri's Kilo belt steadily declined. This was related to the loss of trained engineers, lack of capital investment, degradation of the mines and mining equipment, and declining research and prospecting (Bedidjo, 2007). To address this situation, on 15 July 1966, President Mobutu Sese Seko nationalized the Kilo-Moto company, which was called OKIMO (Office des Mines d'Or de Kilo-Moto). During the 1970s, OKIMO was unable to halt the decline in gold production, but many out of work miners started to illegally mine for gold. In 1982, Mobutu legalized artisanal mining, which led to a vast expansion in the number of people pursuing this livelihood, and the creation of a local gold trade. Butembo (North-Kivu) businessman Kambale Kisoni emerged as the main trader in Ituri's gold, which he sold in Bujumbura to Belgian businessman Antoine (Tony) Goetz. By the mid-1990s, conflict in the Kivus and Burundi, as well as a liberalization of the gold trade by the Ugandan government, made Kampala (Uganda) the main destination for Ituri's gold (Fahey, 2008).

From late 1998 until late 2002, the Ugandan army (UPDF) and the RCD-ML (Rassemblement Congolais pour la Démocratie- Mouvement de Libération) rebel group managed the exploitation and trade of gold in Ituri. Between November 2002 and March 2003, various rebel groups backed the Rwandan or Ugandan government's fight for control of Mongbwalu, in the process killing approximately 2,000 civilians (HRW, 2005). When the UPDF left Ituri in May 2003, Mongbwalu was in the hands of its ally FNI (Front des Nationalistes et des Intégrationnistes), which retained control over the area until the UN Mission in Congo (MONUC) finally dislodged them in late 2005. During the war years, the Congolese government signed a contract with South African-based mining company AngloGold Ashanti (AGA) for rights to the Kilo gold concession. AngloGold entered into a partnership with the state-owned with the state-owned OKIMO; the resulting firm was called Ashanti Goldfields Kilo (AGK)¹². The war prevented AGK from undertaking operations in Ituri, but in November 2003, AngloGold Ashanti negotiated access with the FNI group to prepare for exploration operations around Mongbwalu. This controversial decision led the company to provide a house to then-FNI leader Floribert Njabu, treat FNI soldiers at the AGK health clinic, and pay small taxes and fees to FNI (UNSC, 2005).

In 2005, AGK started exploration and feasibility studies of mining sites around Mongbwalu (concession 40). Based on the results of the exploratory drilling, AGK completed a conceptual economic study in late 2007 that confirmed an initial open-pit mine inferred resource of 83,000 kg of gold at Mongbwalu. The initial resource area is centered on the Adidi sector and the Socumoto sector (which is located about 1km to the south-east of the Adidi mine), close to Mongbwalu town (AGA, 2007). On 8 December 2007, then Governor of Province Orientale, Médard Autsai Asenga, ordered the closure of the Adidi mine, ostensibly for the health and safety of the miners (Fahey, 2008). The closure of Adidi resulted in considerable discontent and tension in and around Mongbwalu. Local mining leaders and civil society organizations estimated that approximately 5,000 people lost their livelihoods (Fahey, 2008). The closure of the Adidi mine also deepened local suspicions about AGK's motives and actions.

In 2007, the Congolese government announced it was reviewing the AGK contract (as well as many other mining contracts). In February 2010 OKIMO signed a new contract with AGA that split the concession into an area of roughly 6,000 km² for AGK, and 2,000 km² for OKIMO (Fahey, 2011: 181). AGK retained control of the key mining areas around Mongbwalu, and

[12] AngloGold Ashanti controls 86.22 percent of AGK, and the Kilo-Moto company (currently called SOKIMO) owns 13.78 percent.

OKIMO started selling rights to sites in its new area of control. In December 2010, the government changed OKIMO's name to SOKIMO (Société des Mines d'Or de Kilo-Moto). SOKIMO has tried to formalize the production of gold by selling rights through a system of sous-traitance (subcontracting), which sells rights to plots of land in exchange for a share (30 percent) of production (Matthysen et al, 2011: 29). This system has suffered, however, due to SOKIMO selling artisanal rights to areas within the AGK concession, and subcontractor efforts to understate their production in order to pay less to SOKIMO (Ibid.). The system is now technically illegal, although SOKIMO continues to sell mining rights in Ituri (SRK, 2011: 223).

There are several widely-varying estimates of how many artisanal miners work in the AGK and SOKIMO concession areas, and therefore how many miners are likely to be affected by planned industrial operations. In 2010 in Djugu territory, there were an estimated 100,000 artisanal miners, the majority of who worked within the AGK and SOKIMO concession areas (Fahey, 2010: 14; Matthysen et al 2011, 58)¹³. As mentioned above, the initial site of AGK's planned mining operation is around Mongbwalu town. In 2010, a consulting company working for AGK estimated that 50,293 people lived within the project area, of which 72 percent (38,000) were dependent on artisanal mining for their livelihoods (SRK 2011: 211, 223). The consulting firm's study shows that mining is the primary livelihood strategy in the target communities, although many households engage in other livelihoods including farming, pastoralism, and petty commerce (SRK, 2011: 222). The study also found that "the majority of the miners are between the ages of 21 and 40 (60%) and 22% are below the age of 20 [and] approximately 70-80% of the artisanal gold miners in the project area are demobilised soldiers" (SRK, 2011: 225).

There are no reliable estimates of the levels of artisanal gold production in Djugu territory, or within the area of planned industrial operations. Matthysen et al (2011: 58) estimated an annual production of 7,000 to 8,000 kg in Djugu territory, where the vast majority of sites are within the AGK and SOKIMO concessions. This entire amount is attributable to artisanal mining and small-scale mining involving small machines including generators and dredges. These small scale operations were not part of our study.

3.2. Industrial and artisanal gold mining in South Kivu

Since the 1920s several industrial companies have been operating cassiterite (tin ore) and gold concessions in South Kivu (de Faily, 2001). These concessions were governed as private domains, in which access was restricted to the workers and their families, and the company provided housing, health care, education, food and leisure activities (Geenen, 2011). In the aftermath of independence in 1960, political uncertainties, rebellions and a deteriorating public administration negatively impacted upon mineral production. In the 1970s, nationalization and 'Zairianisation' measures even aggravated the economic situation. To address this situation, in 1976 nine mining companies from the colonial era merged under the name of Sominki (Société Minière et Industrielle du Kivu, 28 percent government and 72 percent private shares), which prospered thanks to high tin prices (de Faily, 2001). The fall of the tin prices around 1985 however forced Sominki to concentrate on its gold mines, Kamituga and Lugushwa being the most important ones. As a response to the economic crisis, many Congolese had also started to extract minerals in abandoned shafts or riverbeds in an artisanal way (MacGaffey, 1991). Despite the liberalization of artisanal exploitation and trade in gold and diamonds, the informal economy boomed and parallel and illegal trade networks developed, efficiently linking the local mines to

[13] IKV Pax Christi and RHA (2012: 68) estimate a dry season workforce of 34,000 to 45,000 miners in Djugu territory; however, this seems low, particularly given the numbers provided by SRK (2011) for Mongbwalu town (see above).

cross-border trading hubs in Rwanda, Uganda and Burundi. At the end of the 1980s industrial mining production was in a deep crisis, and Sominki sought to sell its shares to private investors.

The Canadian junior company Banro Corporation, aiming at exploration and speculation on promising deposits, showed an interest. But they only aspired to gold concessions, as was demonstrated by a feasibility study presented in January 1996 after a technical mission had been sent to the four main gold sites (Twangiza, Lugushwa, Kamituga and Namoya). In first instance Banro concluded an agreement with the British Cluff Mining, which brought in most of the financial capital, but after months of pressures and power play Banro managed to get rid of Cluff and in February 1997 all Sominki's concessions were transferred to Banro¹⁴. Sominki was liquidated on 29 March 1997. This was only a month before the seizure of Kinshasa by AFDL (Alliance des Forces Démocratiques pour la Libération du Congo) forces and the installation of a new regime under Laurent Kabila. On 31 July 1998 the latter deprived Banro of its mining titles and created a new state-owned company: Somico (Société Minière du Congo). Two days after Somico's creation, the RCD (Rassemblement Congolais pour la Démocratie) rebellion broke out, and large parts of South Kivu were seized. During the war, Banro was close to the RCD, whereas Somico allegedly supported Mayi-Mayi and later FDLR (Forces Démocratiques pour la Libération du Rwanda) groups and was backed by the Kabila government. During this period the gold mines were alternatively occupied by one of these military groups.

In January 2001 Banro filed a lawsuit in the United States against the Congolese government, disputing the loss of Sominki's concessions and demanding a compensation of USD 1 billion under the 'Foreign Sovereign Immunities Act'. However, on 16 January President Laurent Kabila was murdered and succeeded by his son Joseph. Banro invited the Congolese government to negotiate a 'gentlemen's agreement', which was eventually signed on 18 April 2002. The agreement stipulated that Banro may exploit the gold concessions of Twangiza, Kamituga, Lugushwa and Namoya. The gentlemen's agreement extended the duration of the contract from 25 to 30 years and preserved extensive tax breaks¹⁵. Yet a 2010 amendment to the agreement, a result of a renegotiation demanded by a government commission that evaluated the mining contracts, limited the tax holidays, and required Banro to pay 4 percent on its net revenues and 1 percent royalties annually to the Congolese state, starting from the production phase¹⁶.

Banro's exploration activities started in the site of Twangiza, situated 41 kilometres from the provincial capital Bukavu and stretched out over the chiefdoms of Luhwindja, Burhinyi and Ngweshe. Sominki had prospected here, but industrial production had already ended in the mid-1970s. Since then all production had been artisanal and was controlled by the chiefs (mwa-mi) of the respective chiefdoms. Before Banro's arrival an estimated 6,000 to 12,000 miners were working in the artisanal sites. Banro first of all targeted some sites in Luhwindja, especially Mbwege hill, but artisanal miners felt threatened by the revival of industrial exploitation and resisted the company's actions. After a period of confrontations and negotiations, agreements were eventually concluded on resettlement, compensation and reintegration of artisanal miners. Mbwege hill was closed for all artisanal exploitation. But in 2011 artisanal miners occupied other sites: Kaduma and Lukunguri, which are very close to Mbwege, and the alluvial site of Mwana river, situated in Burhinyi chiefdom (see also Geenen and Claessens, 2013). These are the sites where we did our survey. For the interpretation of the data it is important to note that in these sites, the presence of the company is already very tangible, and all miners here are threat-

[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] 'Avenant n.1 à la convention minière du 13 février 1997', 18/04/2002.

[16] 'Avenant n.2 à la convention minière du 17 février 1997', 13/07/2010.

ened with involuntary displacement. According to the last estimates on their website, Twangiza has a proven and probable reserve of 34,321 kg. In November 2011 they produced their first gold ingot in Twangiza. As a first indication of their production, they exported 539 kg of gold in the first trimester of 2012¹⁷.

In 2011 Banro also started exploration in two new sites: Kamituga and Lugushwa, which were also included in the survey¹⁸. These were respectively the first and second most important gold mines for Sominki. The most recent estimates on Banro's website estimate the reserves at 28,470 kg of gold in Kamituga and 85,100 kg in Lugushwa. Kamituga, situated at 175 kilometers from Bukavu, has more than 100,000 inhabitants, of which most are at least indirectly dependent upon artisanal mining activities. According to estimates by the local Mining Division, there are 200 to 300 mining shafts in and around the town. If we estimate that each shaft employs 30 miners on average, we may say that at least 6,000 to 9,000 miners work in Kamituga (Geenen and Kamundala Byemba, 2009). Lugushwa is further inland, at 275 kilometers from Bukavu. The number of pits is estimated at 400, equally employing 30 miners on average, so that at least 12,000 miners work in Lugushwa. About 30,000 people live in the town, where all economic activities are oriented towards the artisanal gold mining¹⁹.

The fourth site where we have done the survey is Mukungwe, located at about 60 kilometers from Bukavu. An estimated 1,200 to 3,000 miners live here, as well as hundreds of people providing all kinds of goods and services to the miners (Geenen and Claessens, 2012). There has never been industrial production in Mukungwe. Gold was discovered here in the 1970s and control over the site has since then been continuously disputed between the customary chief and the customary land owner. The site has thus witnessed a lot of conflicts, which often turned violent. Currently Banro claims that the site falls within the boundaries of its Twangiza concession, but this is being disputed by the artisanal miners. The Mining Registry has not yet pronounced itself, but the decision on who may exploit the concession, is pending.

Just like in Ituri it is very difficult to give reliable estimates of artisanal production. The best estimates have been based on export figures from neighbouring countries and are at 4,800 kg per year (Tegera and Johnson, 2007; De Koning, 2011: 10). In a 'mapping' exercise done by the Provincial Mining Division in 2011 a monthly production of 89 kg of gold was registered²⁰, which definitely is an underestimation. Another research was based on the sites of Kamituga, Lugushwa and Mukungwe, which are included in this study and found an estimated monthly production of 338 kg for these three sites alone (Kamundala Byemba, 2013).

[17] 'Statistiques trimestérielles', Division des Mines Bukavu, 2012.

[18] They are also in the exploration phase in Namoya, where the concession lies partly in South Kivu and partly in Maniema province.

[19] Kamundala Byemba, 2013 estimates 15,000 miners in Lugushwa, 12,000 in Kamituga and 3,200 in Mukungwe.

[20] 'Cartographie des sites miniers du Sud-Kivu par rapport aux centres de négoce', Division des Mines Bukavu, 02/2012.

4. ARTISANAL MINERS AND THEIR LIVELIHOODS

4.1. Entering and exiting artisanal mining

Our study yields insights into who the miners are, why they pursue mining as a livelihood and what these artisanal mining activities actually contribute. Overall, it shows that miners are strongly committed to their livelihoods, in part because mining provides enough income to survive in a context with few viable alternatives. As we have said, most survey respondents were shaft or site managers, since they are better placed to give information about their mining project. These people usually have many years of experience in the mining sector. Table 1 shows that approximately five out of every six respondents have worked in gold mining for longer than five years. Many have started off as ‘ordinary’ miners, were able to accumulate some starting capital and invest in new shafts.

Table 1. Time spent in sector (percent of responses)

	Ituri	South Kivu
< 3 months	-	5.0
3 months to 1 year	0.7	2.0
1 to 5 years	10.7	8.6
> 5 years	88.6	84.4

This observation may support Bryceson and Jønsson’s (2009: 3) argument, which we already presented in the introduction. In their analysis of mining livelihoods in Tanzania, the authors distinguish ‘career miners’, miners who take up an occupation “for a significant period of one’s life with opportunities for progress” from mere ‘livelihood diversifiers’. The indicators distinguishing career miners from income diversifiers, they argue, are the length of occupational engagement, the level of concentration on mining activities, and the willingness to move in response to the changing availability of minerals. The latter point may be illustrated by the following quote from a shaft manager we met in Mukungwe. He carried out different activities connected to mining, and also moved in a quest for new opportunities:

“I grew up in Bukavu. In 1991 I traveled to Lugushwa with goods to sell. I am a businessman. I arrived there, I saw my friends who were making good money in mining, and I decided to join them. In 1998 I moved to Kalemie in search for other opportunities. I ended up in a mine called Lunga, where I opened up three pits. After that I worked in Misisi for three years, but there I did not mine, I was buying gold. I earned good money at the time, I had even bought three cars, but at a certain moment during the war everything was pillaged. I briefly went to Dar-Es-Salaam and Kampala to trade, and after that I ended up here in Mukungwe. I had to start all over again. Here in Mukungwe you find people from everywhere, even from Kinshasa, Kisangani and Lubumbashi”²¹.

The profile of ‘ordinary’ miners may be different. Here we often find young men who may consider artisanal mining as a temporary livelihood. As shown in Table 2, the site and shaft managers also tend to remain at individual sites for long durations. In Ituri, 76 percent of miners had been at their site for one year or longer, while in South Kivu, 69 percent spent longer than

[21] Interview with shaft manager in Mukungwe, 02/06/2012.

one year at their site. In both Ituri and South Kivu, fully half the miners had been at their sites for longer than five years, demonstrating a commitment to place in addition to their commitment to the mining livelihood.

Table 2. Time spent at mining site (percent of responses)

	Ituri	South Kivu
<3 months	7.9	10.9
3 months to 1 year	14.3	18.6
1 to 5 years	25.7	15.9
>5 years	50.0	53.1
Don't know	2.1	1.5

As we have indicated in the introduction, miner's motivations to enter and remain in artisanal mining activities have been studied in the literature. Authors who emphasize the 'entrepreneurial' character of ASM tend to advance so-called 'pull-factors', the lure of fast money. Others highlight the poverty-driven character of ASM and argue that people are 'pushed into' mining because of a lack of alternatives. A third, more contextualized dynamic, is based on the 'rootedness' of the artisanal mining sector as such. In reality, these dynamics often coexist, while the one or the other may be given more prominence by certain individuals. Table 3 gives an indication of the primary reasons for choosing to work in the mining sector. It shows that miners in Ituri overwhelmingly became miners because of the possibility to earn money. Remarkably, in South Kivu the proportion between people who are 'pushed into' the mines because of a lack of alternatives, and those who are 'pulled into' the sector, is about equal.

Table 3. Primary reason for working in sector (percent of responses)

	Ituri	South Kivu
Lack of alternative employment	10.0	40.3
Possibility to earn money	88.6	54.6
Other	1.4	5.0

Poverty and the lack of formal employment definitely play a role in people's decision to go into gold mining. The expression 'kutafuta maisha', or to 'seek how to live', is often used in responses to the question why respondents engaged in the sector. Some older miners used to work in public administration, or in education, but at a certain moment they found that their salaries were insufficient to cover their basic needs, and they were pushed into mining, as the following quote illustrates:

"At a certain moment I was fed up with my job in the administration. We were not even able to pay for our children's school fees. I saw all these houses in Bukavu popping up, and when I made my analysis, I realized that all owners were directly or indirectly involved in the gold sector. I told myself that I may also give it a try and succeed in this sector"²².

[22] Interview with shaft manager in Mukungwe, 31/05/2012.

Many younger respondents had to give up their studies because of lack of financing, and decided to go into mining, some with the aim of earning enough money to pursue their (higher) studies later on²³:

“We lived in terrible conditions. My mother died very young and my father married my stepmother, so me and my brothers, we had to take care of ourselves. That is how I gave up school and got involved in this activity”²⁴.

The respondents who acted upon the ‘possibility to earn money’ often did so because they had seen others, friends or family members, making relatively good money in mining. A young boy in Luhwindja told us:

“I entered into this activity because I did not have the money to pay for my school fees. So what we did, after school we took our shovels and went into the river to look for gold. When we had found something, we went to Mbweга to sell it to the traders and there we lived the ambiance at night. The following morning, those who had to go to school left, and the others may have stayed. Some even skipped school because of this ambiance. So that is how I eventually gave up school. We just forgot about home because of the atmosphere in Mbweга. I couldn’t even stand being at home for a long time, because my mind was in Mbweга”²⁵.

Table 3 also shows that some respondents in South Kivu (5 percent in the survey) gave ‘other’ reasons. Those referred to a range of family problems (parents’ death, unemployment of parents) and to the freedom offered by the sector. There are several dimensions to this conception of ‘freedom’, as we found out through qualitative interviews. First, miners are mobile, ready to move from site to site according to the availability of minerals. Thereby they are the chief of their own decisions and responsible for their own money, as demonstrated in the following quote:

“[Question: if you compare the profits of a miner with the salary of a day labourer at Banro, how would you compare?] You cannot compare because an artisanal miner is free. In our conception of consumption, a miner is a rich man since he does not work for another person. He goes to work when he wants, if he wants, he may work for two hours and if God blesses him he may find enough money to buy a car in these two hours”²⁶.

Second, miners are also attracted by the ‘special atmosphere’ in the mining camp where beer, prostitutes, dancing clubs, cinemas, parties and other leisure activities are readily available. Third, especially young people believe that artisanal mining offers them the opportunity to break away from their parents’ control and from social pressure in the village or neighbourhood. Once they got dragged in to the system, it may be difficult to leave:

“Many miners who came here, are here to stay. They don’t even know anymore where they come

[23] Interview with miners in Kolo, Lugushwa, 26/01/2011. Interview with miner in Mukungwe, 01/06/2012. Interview with miner in Mukungwe, 31/05/2012

[24] Interview with former miner in Luhwindja, 08/01/2011.

[25] Interview with miner in Luhwindja, 09/01/2011.

[26] Interview with chef de groupement in Luhwindja, 01/2011.

from. They start a new family. They don't know how to return"²⁷.

But what are really the incentives for staying in mining, or on the contrary, why would people want to exit the activity? After all, artisanal mining is inherently unpredictable, with profits dependent upon what can be found in the soil and rocks. In addition, it is dangerous, with cave-ins and landslides occurring frequently (Fahey, 2008; IKV/Pax Christi and RHA, 2012).

In order to better understand this, we also asked questions about the willingness and reasons for artisanal miners to remain in their livelihood. In response to a first question asking whether they plan to remain in the artisanal mining sector, 99 percent of Ituri miners said yes, and 83 percent of South Kivu miners responded affirmatively. We followed this up with a second question, asking if miners would stay in mining if they could freely choose from a variety of possible alternative livelihoods. In Ituri, 96 percent still said yes, but in South Kivu, only 54 percent responded affirmatively. The results suggest that while miners in both locations are strongly committed to their livelihoods, miners in South Kivu would more willingly give up mining if there were viable alternatives than their counterparts in Ituri, who are strongly committed to mining as a profession. Those who would choose to stay were also asked an open question about their motivations. The results are summarized in Table 4 (South Kivu) and Table 5 (Ituri).

Table 4. Motivation to stay in artisanal mining – South Kivu (number of responses)

Gainful activity	42
Only activity I master	20
No alternative	17
Only activity in the area	11
Easy money	5
I like my job	5
I hope to gain	3
Investments made	1
Total	104

Table 5. Motivation to stay in artisanal mining – Ituri (number of responses)

It is my job	38
To avoid unemployment	22
I like it	18
No alternative	12
I have done it since childhood	9
It is a means to do other work/ business	7
Easy money	4
Investments made	4
Total	114

[27] Focus group with miners in Lugushwa, 25/01/2011.

The miners in each location gave different responses, but the common theme is that miners stay in mining because it is a viable job in a context where there are few realistic and profitable alternatives. Many respondents said it is the only activity they master, or the only potentially profitable activity in the area. Some also highlighted the opportunities in the sector to earn money or do other businesses. Others just said they ‘like the job’. A few shaft managers referred to the investments made as well. Apart from the social and economic barriers already mentioned, this seems to be an important point, which was much more stressed in the qualitative interviews than in the survey. Shaft managers, but also individual miners, often have incurred a lot of debts in the mines²⁸. This is an important barrier for exit. In the following section we further elaborate on these costs, and on the profits generated in artisanal mining.

4.2. Profiting from artisanal mining

In order to assess the profits of an artisanal mining project we first need to consider the total production, which varies widely from site to site and depending on the period. One factor affecting production is the season. During the wet season, it is more difficult and dangerous to mine, thus wet season yields are typically lower than during the dry season. Related to the climatic conditions is the availability of labor. During the wet season, more people are engaged in agriculture, whereas during the dry season, less labor is required on farms, so more people engage in mining (IKV Pax Christi and RHA, 2012: 67-68). In South Kivu’s underground shafts, production is also extremely volatile and depends upon whether the shaft is in the preparatory phase (when activities are carried out inside the shaft in search of the auriferous rock) or in the high production phase (when the team has reached the actual gold vein and can start to evacuate and process the auriferous quartz). During the preparatory period, the production is very small and usually implies a few mishale (measure equivalent of 0.126 gr) or few renga (measure equivalent of 1.26 gr) a day. Our respondents were asked to distinguish their production during the low production and the high production period. In South Kivu, underground exploitations produce on average 433 gr per month during the high production period and 53 gr during the low production period, which is here defined as the ‘preparatory phase’. The average number of workers per shaft was 33. In Ituri, the high production estimates go up to 784 gr per month, whereas in the low production period monthly production is 272 gr on average. As we said this concerns mostly alluvial and open pit sites, which typically stretch out over a larger area than underground shafts, and employ more people, with an average of 125 workers per site, although the numbers were quite site specific.

After production we need to assess the costs incurred in artisanal mining. These costs may be very high, especially during the period when the site is not really producing. In underground shaft mining for example, it may take more than one year before the team reaches the gold vein and starts producing. In the meantime, working tools, batteries, torches, fuel, wooden trunks and so on need to be purchased, and workers need to be fed. As a consequence, investments in shafts may run to tens of thousands of USD before the shaft eventually produces²⁹. But these investments are not done by the shaft managers themselves. The latter rely on financiers, who are usually gold traders, to do these investments, in exchange for a supply of gold. When they reach the production phase, miners need to reimburse these financiers, and so

[28] See also Banchirigah, 2008; Banchirigah and Hilson, 2010; Perks, 2011.

[29] Examples are multiple: investments for a total of USD 24,000 made in one shaft in Kamituga (Focus group with miners in Kamituga, 25/01/2011), of USD 6,888 in another one (Interview with miners in Kamituga, 09/04/2008), several thousands of USD in Lugushwa (Interview with shaft manager in D18, Lugushwa, 26/01/2011),

when it comes to dividing the total production of the mining shaft, a share is reserved for paying back the costs, as we will see later. The analysis of these complex transactions and credit-debt relations falls beyond the scope of this paper (but see Geenen, 2011) but mentioning this is crucial for understanding the organization of and profits in artisanal mining. From the survey it can be concluded that in the month preceding the survey the shaft managers in South Kivu faced an average cost of USD 1,411 for their shaft, whereas in Ituri managers incurred costs of USD 713 during the previous month. These costs include material resources, human labour and contributions and taxes paid. The difference between the two can be explained by the higher costs incurred in underground mining as opposed to open pit and alluvial mining.

Next, the production of the shaft or pit (in the form of extracted sand, gravel or rocks) is distributed among the different workers. For individual miners, a share in the output constitutes their 'salary'. Miners are never paid in cash, but always in a number of bags containing sand, gravel and/or rocks. This is in fact a very important aspect, since it means that their profits will always be unpredictable, and will depend on the quality of the gravel they receive. Generally, one-third of the extracted production is used to reimburse the investment costs (see above), including all kinds of taxes and contributions, one-third goes to the site or shaft manager, and one-third is distributed among the other miners. As remuneration comes in kind, it is common practice to evacuate one metre of gravel to cover expenses, one metre for the shaft manager and one metre for the miners³⁰. Individual miners are then responsible of processing their production (crushing, sifting, washing, polishing) in order to find gold in it (see Geenen, 2013).

On the basis of the production data from South Kivu³¹, data on local gold prices, monthly costs, and the share of shaft managers and 'ordinary' miners, we found that during the study period the net profits of the shaft manager can be evaluated at USD 643. The 'ordinary' miners earn USD 31 each, supposing they are 33 in total (average number of workers for the shafts surveyed). During the high production period the share of the shaft manager may mount to USD 4,586, while that of an individual miner (supposing there are 50 miners active in the shaft, which is a rough estimate) may be around USD 92. For a calculation of costs we held on to the average of USD 1,411 per month, although we have already explained that these vary. During the preparatory period costs may continuously run up, and since there is little production there is nothing to cover them. Instead the team lives on credit and costs are piling up until they reach the production phase. This is why it may be dangerous to suppose a monthly cost of USD 1,411. As we demonstrated above these costs are not necessarily incurred each month, and they are not reimbursed periodically. During the preparatory period, the share of the shaft manager is estimated to be USD 840, against USD 84 (supposing there are 10 miners) for an individual miner. In another survey question the shaft managers were directly inquired about last month's profits, which they estimated at USD 1,037 per month on average. This is quite consistent with what the calculations under the study period indicate. In Ituri, respondents indicated their monthly profits were USD 1,110 on average, which is also consistent with the calculations on South Kivu.

[30] Interview with miner in Kamituga, 20/01/2011. Interview with miner in Kamituga, 03/04/2008. Interview with miner in Kamituga, 11/04/2008. Interview with shaft manager in D18, Lugushwa, 26/01/2011.

[31] We have not been able to do the same exercise for Ituri.

Table 6. Typical calculation of costs and individual profits in underground shaft mining

	High production	Preparatory pe- riod	Study period
Production (renge)	344	42	77
Total value (USD) ¹	13,760	1,680	3,080
Costs (USD) ²	1,411	1,411	1,411
Share of investment costs (USD)	4,586		1,027
Share of shaft manager (USD)	4,586	840	1,027 – 384 (excess costs) = 643
Share of miners (USD)	4,586	840	1,027
Share of individual miner	92 ³ /139 ⁴	84 ⁵ / 25 ⁶	31

- 1 During the study period, one renga was sold at about USD 40 in the mining sites.
- 2 For the costs I use the estimated costs for the study period as a reference. In reality they may of course deviate from this average.
- 3 Estimate on the basis of an average of 50 miners (during high production period).
- 4 Estimate on the basis of an average of 33 miners (average during the study period).
- 5 Estimate on the basis of an average of 10 miners (during preparatory period).
- 6 Estimate on the basis of an average of 33 miners (average during the study period).

For South Kivu, we may compare these figures to the estimated monthly revenues from other sectors, such as agriculture (USD 17), informal business (USD 20), formal business (USD 62) or public administration (USD 25) (Iragi, 2012)³². Formal jobs in this region are extremely rare and salaries in public administration are paid only irregularly. That is why many people get involved in informal businesses. Yet agriculture is still the principal livelihood strategy for more than 80 percent of households in the province (DSCR, 2006). Nevertheless, it has become less and less attractive because of different reasons³³. Historically there was the introduction of a ‘modern’ land law in 1973 and erosion of the traditional land system, resulting in dispossession and marginalization of peasants, combined with demographic pressure in certain regions of South Kivu (Van Acker, 2005). The wars of the 1990s further undermined customary power, and shifted land control towards business and military elites. The insecurity caused peasants to abandon their fields, having a direct effect on food production and consumption (Vlassenroot, 2005: 25). People were forced to flee the villages and migrate to urban centres, or to the mining sites, where money could be made (idem and Cox, 2011: 246). Many people, especially women, have also become petty traders and try to sell all kinds of products on local markets.

The abovementioned figures thus seem to suggest that gold mining yields more income than other activities these miners may choose to do (agriculture and informal business in the first place), including working in public administration. Gold mining thus seems to be a viable revenue generating activity. For shaft managers, the activity can definitely be profitable, on the condition that they reach the production phase, which does not always happen. For ‘ordinary’ miners, the difference with other sectors may be less pronounced, but still the activity seems to be profitable. A crucial additional factor for understanding the attractiveness of gold mining for these individual miners is the unpredictability and volatility of its profits and the resulting constant hope to ‘strike it rich’. Also, money from gold mining is perceived as ‘easy’ and ‘quick’ money, in contrast to money from agriculture, which is seasonal and comes much slower:

[32] Calculations on the basis of the 1-2-3 national survey in the DRC. The figures on the informal economy must be interpreted with caution though, and are rough estimations based on survey data.

[33] As said in the introduction, ASM literature has pointed to the diminishing attractiveness of smallholder farming in different countries.

“The money I find is easy money. A farmer has to wait for a long time”³⁴. Actually artisanal production depends on a range of controllable and non-controllable factors, a mix of experience, skills and luck: the presence of rich gold veins, the discovery of those, the available capital to invest, available manpower, technical support, climate conditions. High production periods are thus alternated with preparatory works and low production periods. Artisanal mining provides opportunities, especially to young people who have not studied and have not acquired particular skills, and in a context where there is a general lack of formal employment.

The fact that artisanal mining is profitable to our respondents can be illustrated by the ‘big investments’ they have been able to make, of which the most important ones are houses, vehicles, motorcycles, agriculture and livestock and bride price. Buying a house is considered as the priority investment, preferably in the city (Bukavu in South Kivu or Bunia in Ituri), where the pressure on the housing market is already very high. Regarding agriculture and livestock, as artisanal miners do not have a permanent income, investments in this sector can be seen as a strategy to cope with the uncertainty of their revenues. Finally, given the fact that the bride price to be paid to the girl’s family has risen (it can go up to USD 3,000 or 5 cows at a price of USD 600 per cow), as well as the expenses for the wedding festivities, it is understandable that miners consider marriage as a big investment. Our respondents indicate that they have been able to do all these expenditures thanks to the profits found in artisanal mining.

[34] Interview with miner in Kamituga, 02/04/2008..

5. ARTISANAL MINERS FACED WITH INDUSTRIAL PRESENCE

As earlier discussed, we conducted the surveys in areas where large-scale, industrial mining operations threaten to displace – or already have displaced – artisanal mining operations. Unlike in South Kivu’s Twangiza concession, exploitation has not started yet in Ituri, but AGK has done exploration works³⁵. We asked a series of questions to learn more about miners’ attitudes towards large-scale mining, which are summarized in Charts 1 and 2. The results show general agreement between the sites about the importance of artisanal mining for income generation, employment, and for the community in general, although the intensity of opinions on these issues was somewhat higher in South Kivu than in Ituri (demonstrated by the percentage of responses indicating ‘total’ agreement, as opposed to general agreement). This might be explained by the more advanced stage of the industrial projects in the former region, and the fact that artisanal mining has already come under a more direct threat.

With respect to views about the long-term benefits of large-scale mining, there is greater pessimism among miners in Ituri than in South Kivu. Nearly 100 percent of respondents in Ituri do not believe that large-scale mining will contribute more to long-term development than artisanal mining, whereas in South Kivu slightly more than half held the same view. However, less than 20 percent of the respondents in South Kivu agreed that all concessions should be given to large-scale mining companies. The prevailing perception was that industrial mining would not create sufficient employment, as the following quote from a focus group interview illustrates:

“How can a company that does not hire people contribute to development? Banro uses machines for everything, even for emptying the toilets! What can we possibly expect from such a company?”³⁶

This quote also relates back to our introductory point about the notion of ‘development’. The artisanal miners believe that their artisanal activities offer them better guarantees at employment, profits and livelihoods, which is rather remarkable. Their pessimism about the impact of industrial mining was reflected in other responses as well, with large majorities in both Ituri and South Kivu believing that living conditions in large-scale mining are not better than for artisanal miners, and that large-scale mining fails to create as much employment as artisanal mining. Whereas nearly no respondents in Ituri expressed a willingness to accept a job in industrial mining, approximately 13 percent of miners in South Kivu said they would accept employment with a mining company. Possibly, the artisanal miners in South Kivu have already been obliged to accept the presence of industrial mining, and knowing that they would lose their jobs, are more open to other employment opportunities.

[35] In May 2013 rumours emerged that AGK will not start production. However, these have not yet been confirmed.

[36] Focus group with artisanal miners in Twangiza, 26/10/2011.

Chart 1. Miners' Opinions on ASM-LSM – Ituri

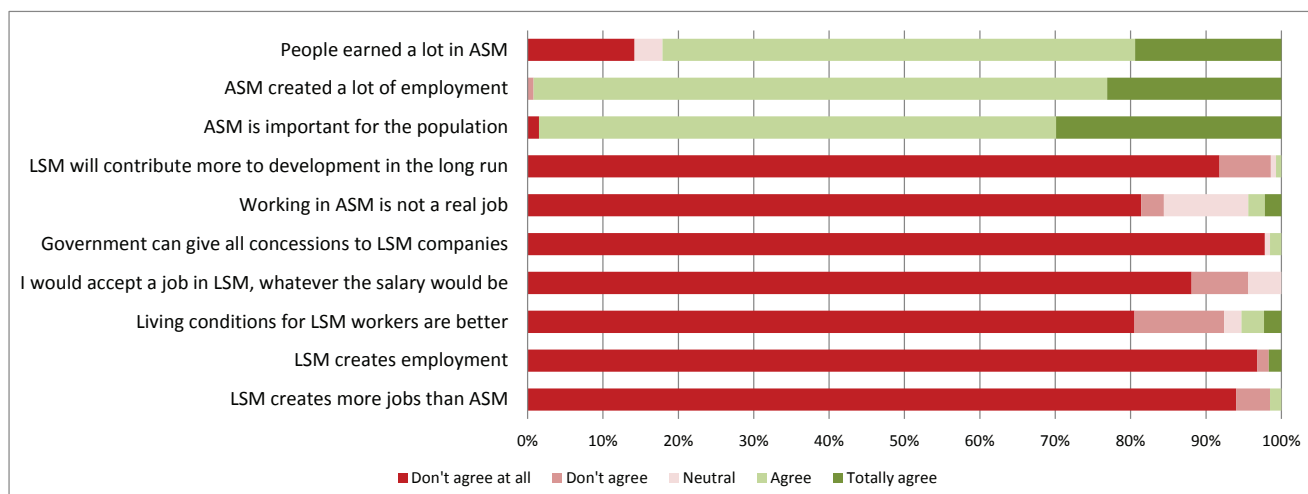
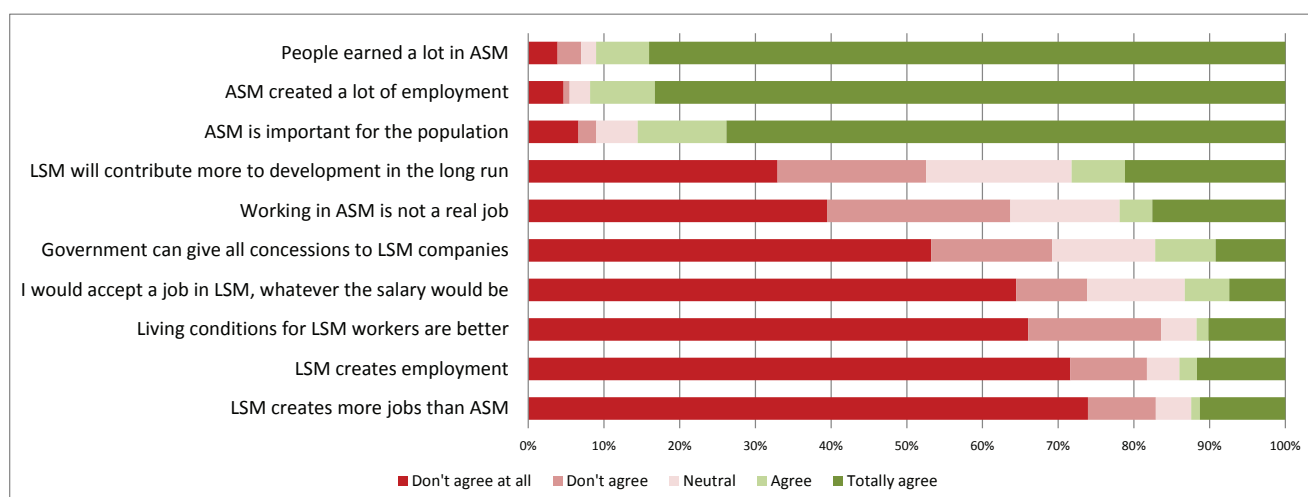


Chart 2. Miners' opinions on ASM-LSM – South Kivu



From the charts a number of other observations can be made about employment, profits and livelihoods. First, the presence of industrial mining has a direct impact upon production and consequently profits in artisanal mining sites neighbouring the concessions, In the previous section we gave an idea about profits from artisanal mining. The question may then be asked what industrial mining can offer instead. We do not have data on AGK or Sokimo, but we do have some information on Banro. Day labourers who were hired by Banro's subcontracting companies to work at the factory and the roads earned USD 4 to 6 per day. They are considered to be 'unskilled workers' (although they may have very relevant mining skills) and are not offered long-term contracts. For most former miners the salary of USD 4 to 6 a day, even if more stable and predictable, is not satisfactory.

“A real miner can never accept to leave mining. Going to work for a salary? No, he cannot accept. Companies pay maybe USD 170 to 200 per month. Which miner can accept that? Not one! Beyond the obvious sacrifices they are doing and the difficult circumstances they are working in, when he has a production, he forgets all that. Because he is earning money. [...] He knows that some periods he will earn nothing. He knows that is part of the game. But eventually he will profit. So all these sufferings, it is like a woman who is expecting her baby. It is hard during 9 months, but once the baby is born, she forgets about it! After some time, you’ll see her pregnant again!”³⁷

The following story of a former miner from South Kivu shows that, despite the fact that he had been employed by one of Banro’s subcontracting companies for some time, he remained highly committed to artisanal mining. This young man was born in 1985. At the age of 7 he started to pan for gold in Mwana river. His parents were already old and they needed him to contribute. At the age of 12 he started to dig in Mbwega, in a pit that was managed by his big brother. They were living quite well, by local standards: “we always found something to eat”. In the meantime his parents had died. At the age of 16, because of lowering production in Mbwega, he engaged in trade and travelled to Bukavu and other mines to trade in gold. He came back to Mbwega and got married in 2007. In 2010 Mbwega was closed down. He passed a test with Banro and was offered a job at Erynys in security. But he quit. Asked why, he answered:

“The work was hard and not well paid. They first paid me USD 105, then USD 110, and when I got a fixed contract they also paid USD 5 to support my wife and USD 5 for my child. But that was not sufficient. After two years I had not even been able to buy a chicken or a goat. When I quit they gave me a severance pay of USD 130, of which I gave USD 100 to my wife. With the remaining USD 30 I travelled to my brother who is a teacher in Kigali and asked him for work, but after a month my visa expired and I needed to come back. Back here, I found that my wife had invested the money well and was selling beer. So now we live from that income. In the mines I used to earn much more! Sometimes you went to the pits in the morning, and by 10 am you had already found a few hundred USD. The next day you may find nothing, but if God helps you, the next day hundred again, and so on. We only ask for work at a decent salary.”³⁸

Actually as day labourers these former miners’ income remains as unstable as before. Moreover, they are entirely dependent upon the company, whereas an artisanal miner is considered to be mainly dependent upon ‘his own force’, as we said earlier³⁹.

A second aspect is employment. It is widely recognized that large-scale industrial mining provides few job opportunities to local people (Campbell, 2004: 28; Hilson and Potter, 2005). It is highly mechanized, and the jobs it does offer are often for skilled workers, while local people may work on short-term contracts in heavy manual labour, often related to the initial phases of mine construction. Data from South Kivu indicate that most Congolese indeed worked in the lower skilled jobs, such as in security (Erinys) and casual labour for road and infrastructure construction (by subcontracting companies like Cinamula, Diphil and Zuki). Subcontracting companies charged with more specialized technical tasks employ more expats, as well as the company’s administration. This feeds in to the artisanal miner’s frustration that all the jobs in the company are given to ‘foreigners’. The only viable alternative they have, so they believe, is to continue mining artisanally, and to look for other mining sites. When asked about the artisanal

[37] Interview with shaft manager in Bukavu, 27/05/2012.

[38] Interview with former miner in Twangiza, 09/01/2011.

[39] Focus group with miners in Kaduma, Twangiza, 28/10/2011.

miners who had been chased away from the sites where they were working, respondents said that 96.5 percent of them were now mining elsewhere.

Another possibility would be, of course, to consider alternative livelihood opportunities. Some programmes in this sense have been set up by governments and companies, for example in Ghana, but research has shown that programmes for alternative livelihoods have generally been little successful because they offer no realistic and inviting opportunities, and there are several barriers to exit in artisanal mining (Tschakert, 2009). Table 7 has been compiled on the basis of data from South Kivu. For those who were willing to consider alternative livelihood options, we asked which options would be attractive to them. As in Ituri 96 percent did not consider an alternative, as we said before, there were not enough cases to report on.

Table 7. Alternative jobs proposed by artisanal miners

Jobs	Freq.	%
Businessman	115	70
Student	30	18
Job in large-scale mining	9	5
Driver	6	4
Farmer	5	3
Total	165	100

While 70 percent of our South Kivu respondents would like to go into business, only 3 percent considers becoming a farmer. This confirms the argument of Bryceson and Jønsson (2010) that miners “choose to move beyond mining into business rather than agriculture and farming” in Tanzania. The same argument is advanced by Perks (2011), who speaks about Katanga province in the DRC. She claims that in mineral environments, supplier business and trade are considered to be more viable exit options because miners have the relevant skills and are more familiar with these kinds of activities. The relatively high percentage of respondents in our survey who would like to pursue their studies may be surprising and explained by two facts. First, the surveyors were university students and they having emphasized this in their introduction may have influenced this outcome. Second, those who aspire to a well-paid job in large-scale mining may find that obtaining a degree is the only way to access it. We have already said that in the case of Banro, for example, the perception is that the company only employs highly educated people from the provincial capital Bukavu. And since the company’s language is English, all employees should also have a certain proficiency in English, which is not commonly spoken in the mining areas of Ituri or South Kivu.

6. CONCLUSION

This paper presents original research on the perceptions of artisanal gold miners about their profession and about large-scale mining. Artisanal mining is an important livelihood in both Ituri and South Kivu, providing employment for tens of thousands of people. But in both locations, the start of large-scale, industrial mining operations threatens to displace artisanal mining from some of the areas where the soils and rocks have the highest gold concentrations. The results presented in this paper thus provide an understanding of artisanal miners' views at a time of transition, when local economies are shifting from purely artisanal production to a mix of industrial and artisanal production.

The survey results demonstrate that artisanal miners are strongly committed to their jobs and livelihoods. This is shown in the amount of time they have spent in the sector, the amount of time spent at individual mining sites, and the likelihood they would stay in the sector even in the presence of alternative livelihoods. Miners appear to be committed to their livelihood in part because they see a paucity of viable alternatives, but when asked if they would switch to other jobs if alternatives existed, the majority of respondents indicated they would prefer to remain engaged in artisanal mining. Indeed, artisanal mining is not just a job, but also a way of life, particularly for young men, who often enter the activity in early adulthood. In Ituri and South Kivu, gold mining has been taking place for one hundred years, and artisanal mining is in its fifth decade. Mining has been passed on from generation to generation, and the survey and interview results demonstrate a pride and commitment to artisanal mining that goes beyond its status as a form of employment. Some results even hint at a different conception of the potential development contributions of artisanal and industrial mining respectively. In their discourses and their practices, artisanal miners resist the 'dispossession' created by the arrival of large industrial companies: they are displaced from their working places, from their homes, and they lose their jobs and livelihoods. But even if they are displaced, artisanal miners are likely to remain within the sector, moving to new or existing mining sites. Thus, the success of state- or corporate-sponsored resettlement programs and alternative livelihood schemes may be affected by the desire of artisanal miners to retain their livelihood.

In the introduction we already hinted at a possible coexistence between ASM and LSM. Indeed, it has been argued that an artisanal exploitation typically targets different deposits than an industrial project (Hilson and Yakovleva, 2007). Industrial mining normally exploits deeper veins and makes efficiency calculations on the basis of their costs on the one hand, and the volumes and grades on the other hand. There are also a number of infrastructural conditions that need to be met in order for their operations to succeed, like physical access to the concession (roads) and electricity supply. Artisanal miners face lower labour and technical costs, which may make minerals with lower grades economically profitable to them (World Bank, 2009). But with their technologies they cannot extract large volumes, nor mine deeper underground. They thus target more accessible surface deposits where relatively small quantities of extracted rocks can generate sufficient grades. They may also have access to more remote sites, or in areas where there is no road infrastructure. In that sense we could say that ASM allows for the mining of resources that would otherwise not be profitable.

But there obviously are conditions for this coexistence scenario to succeed. First, geological knowledge about deposits is required. Studies should be able to identify the geological conditions and to calculate the economic feasibility of projects. Then, on the basis of clear

criteria, deposits should be assigned either to large-scale or to artisanal and small-scale miners. In order for this to materialize, companies should be willing to release parts of their vast concessions and put them at the disposal of artisanal miners, or governments should do the same. Second, attention must be paid to working conditions, especially in ASM sites. Some investments in small machines and material for protection may already significantly improve the working and living conditions of artisanal miners. Third, artisanal mining needs to be formalized and regulated, allowing it to contribute, through taxation and redistribution, to broader development as well⁴⁰.

Regardless of all these considerations though, under the present conditions artisanal gold mining is a firmly established livelihood option in both Ituri and South Kivu. While academics and policymakers debate whether industrial or artisanal mining can lead to long-term economic development, the survey results presented in this paper suggest that from the point of view of those engaged in artisanal mining, the artisanal livelihood is seen as more likely than large-scale mining to promote development, in part because it provides large numbers of relatively-good paying jobs.

[40] For the challenges related to formalization, see Geenen, 2012.

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ANNEX 1: SURVEY QUESTIONS

ENQUETE EXPLOITANTS ARTISANAUX- La confidentialité des données est garantie

Nom du chercheur :

Date :

Lieu :

Nom du site minier artisanal :

Localisation par rapport au site industriel :

.....

Nom de la personne interviewée :

Numéro de téléphone de la personne interviewée :

A.1. Quels travaux miniers la société minière a-t-elle déjà fait ?

A.1.1. Prospection :

0 oui : dans quels sites ?

0 non

A.1.2. Exploitation:

0 oui : dans quels sites ?

.....

0 non

A.2. Quelles autres activités la société a-t-elle déjà fait ?

A.2.1. Projets sociaux pour la population :

0 oui : lesquels ?

.....

0 non

A.2.2. Construction de l'infrastructure :

0 oui : lesquels ?

.....

0 non

A.2.3. Délocalisation des familles :

0 oui : combien ?

.....

0 non

A.2.4. Compensation des familles:

0 oui : combien ?

.....

0 non

A.2.5. Délocalisation des exploitants artisanaux:

0 oui : combien ?

.....

0 non

A.2.6. Compensation des exploitants artisanaux :

0 oui : comment ?

.....

combien ?

0 non

A.2.7. Engagement des travailleurs :

0 oui : combien ?

.....

0 non

A.2.8. Autres :

0 oui : lesquelles ?

.....
0 non

A.3.1 Combien de puits/ lieux d'extraction y-avait-il dans ce site-ci avant l'arrivée de la société ?.....

A.3.2. Et maintenant ?.....

A.3.3. Comment expliquer cette différence ?

.....

A.4.1 Combien de gens (à peu près) travaillaient dans ce site-ci avant l'arrivée de la société ?.....

A.4.2. Et maintenant ?.....

A.4.3. Comment expliquer cette différence ?

.....

A.5. Est-ce qu'il y a des creuseurs qui ont été déplacés des sites où la société travaille maintenant ?

0 oui → A.6.

0 non → A.7.

A.6. Ces creuseurs, qu'est-ce qu'ils font maintenant ?

0 Chômeur :%

0 Creuseur dans d'autres sites :%

0 Travailleur de la société :%

0 Cultivateur :%

0 Commerçant :%

0 Autres :

.....

A.7. Vous pouvez estimer les revenus des creuseurs avant et après la prospection et l'exploitation industrielle (en moyenne)?

A.7.1. Avant : par mois

A.7.2. Après : par mois

A.8. Vous pouvez estimer les revenus des PDGs/ propriétaires avant et après la prospection et l'exploitation industrielle (en moyenne)?

A.8.1. Avant : par mois

A.8.2. Après : par mois

A.9. Dans quelle mesure êtes-vous d'accord avec ces observations ?

A.9.1. Le secteur industriel a créé de l'emploi pour la population 1-2-3-4-5

A.9.2. Les gens gagnaient beaucoup dans le secteur artisanal 1-2-3-4-5

A.9.3. Les conditions de vie pour les travailleurs de la société sont meilleures qu'ailleurs 1-2-3-4-5

A.9.4. Le secteur artisanal occupait beaucoup de gens 1-2-3-4-5

A.9.5. Le développement de l'exploitation industrielle sera mieux pour le développement à long terme 1-2-3-4-5

A.9.6. La société nous donne plus de travail que le secteur artisanal 1-2-3-4-5

A.9.7. L'Etat peut donner toutes les concessions aux industriels pour exploiter 1-2-3-4-5

A.9.8. L'exploitation artisanale est importante pour la population 1-2-3-4-5

A.9.9. Etre creuseur n'est pas un vrai emploi 1-2-3-4-5

A.9.10. Si on m'offre un emploi dans le secteur industriel, je dois accepter, quel que soit le salaire 1-2-3-4-5

A.10. Si vous comparez la situation aujourd'hui avec celle d'il y a quelques années, vous avez l'impression que

A.10.1. Le nombre de conflits dans la communauté a

augmenté

baissé

resté sur le même niveau

A.10.2. La jalousie dans la communauté a

augmenté

baissé

resté sur le même niveau

A.10.3. La sécurité dans la communauté a

augmenté

baissé

resté sur le même niveau

B.1. Quelle est la forme du lieu d'extraction pour lequel vous êtes responsable ?

Puits

Exploitation à ciel ouverte

Exploitation alluviale

Autre : spécifiez :.....

B.2. Combien de personnes travaillent ici (en total):

Pour le moment :.....

Pendant la période de préparatifs :.....

Pendant la période de la plus grande production :.....

B.3. Quels catégories de personnes travaillent ici et combien :

Boiseurs : combien :

Foreurs : combien :.....

Pelleteurs: combien :

Capita :

Sentinelle :

Autres : spécifiez :.....

B.4. Depuis combien de temps est-ce que vous travaillez ici?

Moins de 3 mois

Entre 3 mois et une année

Entre une année et 5 ans

Plus de 5 ans

B.5. Quelles activités avez-vous déjà fait dans le secteur minier et combien d'années?

Creuseur : ans

Transporteur : ans

Loutrier: ans

Acheteur: ans

Propriétaire/ responsable: ans

Commerçant en d'autres matières (coltan, cassitérite, wolframite): ans

Autres : spécifiez :.....

B.6. Ca fait combien de temps que vous travaillez dans ce secteur ?

Moins de 3 mois

Entre 3 mois et une année

Entre une année et 5 ans

Plus de 5 ans

B.7. Quelle a été la raison principale pour vous engager dans ce secteur ?

Manque d'alternatives (autres emplois)

Possibilité de gagner plus d'argent dans ce secteur

Suivi l'exemple d'autres qui étaient dans le secteur

Autres :

B.8. Quelle a été la raison pour commencer dans ce puits/ lieu d'extraction spécifiquement ?

Sur base de prospection

Informations acquises des autres personnes

Connaissance personnelle

Coïncidence

Autres :

B.9.1. Est-ce que vous pensez que vous allez continuer cette activité ?

Oui : pourquoi :

Non : quelle autre activité vous pensez aller faire :

B.9.2. Si vous pourriez choisir, est-ce que vous voudriez continuer cette activité ?

Oui : pourquoi :

Non : quelle autre activité vous voudriez faire :

B.10. Quel est votre statut ?

Propriétaire de la terre

- avec quels droits de propriété ?

Propriétaire du puits

- avec quels droits de propriété ?

Responsable du puits

.....

Autre

.....

C.1.1. Par rapport à d'autres puits/lieux d'extraction dans le même site, votre exploitation est

parmi les plus importants

il a une production moyenne

parmi les moins importants

C.1.2. Quels sont les lieux d'extraction avec la plus grande production de l'or ?

-

-

-

-

C.2. Combien d'or est-ce que votre site produit en moyenne ?

Pour le moment : renga par mois

Pendant la période de préparatifs : renga par mois

Pendant la période de la plus grande production : renga par mois

C.3. Au cours des 12 mois passés, combien de semaines estimez-vous qu'il y a eu une production ?

C.4. Au cours des 12 mois passés, combien de semaines estimez-vous que vous avez fait des travaux préparatifs ?

C.5. Au cours du mois passé, quelle a été la production totale de votre site ?

... renga

C.6. Comment est-ce que la production est partagée?

PDG : % de la production

Travailleurs :

..... : % de la production

..... : % de la production

..... : % de la production

..... : % de la production

Autres : lesquels ?.....

... % de la production

C.7. Au cours du mois passé, quelles dépenses est-ce que vous avez faits ?

C.7.1. Outils pour exploitation : total : ... dollars par mois

0 bois pour boisage: ... dollars par mois

0 bêche: ... dollars par mois

0 burin: ... dollars par mois

0 marteau : ... dollars par mois

0 autres : lesquels :: ... dollars par mois

C.7.2. Petites machines : total :..... dollars par mois

0 motopompe: ... dollars par mois

0 carburant: ... dollars par mois

0 groupe électrogène: ... dollars par mois

0 autres : lesquels :: ... dollars par mois

C.7.3. Outils pour traitement: total :..... dollars par mois

0 acide nitrique

0 karai: ... dollars par mois

0 biporo: ... dollars par mois

0 loutra: ... dollars par mois

0 autres : lesquels :: ... dollars par mois

C.7.4. Dépenses pour le transport: total :..... dollars par mois

C.7.5. Dépenses pour les travailleurs : total :..... dollars par mois

0 boiseurs: ... dollars par mois

0 foreurs/ peleteurs: ... dollars par mois

0 transporteurs: ... dollars par mois

0 mamans twangaises: ... dollars par mois

0 autres : lesquels :: ... dollars par mois

C.7.6. Dépenses pour les taxes et contributions: total :..... dollars par mois

0 mwami: ... dollars par mois

0 autorités coutumières: ... dollars par mois

0 Division des Mines: ... dollars par mois

0 Saesscam: ... dollars par mois

0 police: ... dollars par mois

0 militaires: ... dollars par mois

0 autres : lesquels :: ... dollars par mois

C.7.7. Autres dépenses: total :..... dollars par mois

Spécifiez :

.....

C.7.8. Par rapport à l'année passée, mes dépenses ont

0 augmenté

0 pas changé

0 baissé

C.7.9. Quelle en est la raison selon vous ?.....

.....

C.8.1. Quels ont été les grands investissements que vous avez déjà fait dans ce site (depuis que vous avez commencé à exploiter ici), pour combien et quand ?

-combien ?..... année ?.....
-combien ?..... année ?.....
-combien ?..... année ?.....

C.9.1. Au cours de mois passé quels ont été vos revenus nets personnels ?

... dollars

C.9.2. Par rapport à l'année passée, mes revenus ont

0 augmenté

0 pas changé

0 baissé

C.9.3. Quelle en est la raison selon vous ?.....

.....

C.10. Comment est-ce que vous avez utilisé cet argent ?

C.10.1. Investissements dans le site : ... dollars

C.10.2. Autres investissements : ... dollars

C.10.3. Besoins personnels : ... dollars

C.10.4. Besoins de la famille (nourriture, scolarisation, soins de santé etc.): ... dollars

C.10.5. Epargnes : ... dollars

C.10.6. Autres ? lesquels : : ... dollars

D. Est-ce que vous avez d'autres recommandations ou remarques ?.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

ANNEX 2: : MAP OF DRC WITH MINERAL RICH AREAS

