

Decision Support Unit (DSU)

Summary report: Artisanal and small-scale
mining – agriculture linkages

Final Fieldwork Report

20 December 2019



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About the Decision Support Unit (DSU)

The DSU is a UK Department for International Development (DFID)-financed project implemented by Oxford Policy Management (OPM) in the Democratic Republic of Congo (DRC). It is designed as a support function to DFID's overall management of its Private Sector Development (PSD) programme. The DSU provides evidence and analysis aimed ultimately at improving the programme's overall impact of increasing incomes for the poor in the DRC. In addition, the DSU provides an external learning role targeting improved implementation practices of the broader development community working in the field of economic development.

As part of a broader assessment of the context in which the PSD programme operates in DRC, the annual *problematique* review, the DSU is mandated to provide short-term research support as one of its deliverables. The aim of the research activity is to support the PSD programme by conducting research on issues requiring more detailed investigation as identified through other work streams, or requested by DFID DRC or the PSD programme component projects (currently ÉLAN, Essor, and the DSU), and agreed with DFID.

This study was developed through a collaboration between **Oxford Policy Management** (Jonathan Mitchell and Alistair Grattidge) and **Pact UK** (an international development not for profit organisation with expertise in artisanal and small-scale mining and operations in DRC, James McQuilken, Vincent Gobolo Songe, Luc Assosa, Jean Claude Monzengalo and Yves Bawa – who organised the field work and supported drafting this document) and the Centre D'Expertise En Gestion Du Secteur Minier or **CEGEMI** (a partnership between the University of Bukavu in DRC and the University of Antwerp in Belgium, Francine Iragi led the literature review and Janvier Kilosho supported the logistics of fieldwork).

Table of contents

| | |
|--|-----------|
| List of Abbreviations | 1 |
| Executive summary | 2 |
| Introduction | 6 |
| Methodology | 7 |
| Context | 8 |
| Section 1. The political economy of conflict and development | 12 |
| 1.1 Mining code takes primacy over agricultural codes | 12 |
| 1.2 State support for mining and farming is lacking | 13 |
| 1.3 Cooperatives suffer elite capture but progressive coops could be a selective entry point to support miners and farmers | 15 |
| 1.4 Examples from NGOs | 17 |
| 1.5 Summary | 17 |
| Section 2. The sectors: Agriculture and mining and economic development | 19 |
| 2.1 Contribution of ASM and agriculture to livelihoods and viable long-term jobs | 19 |
| 2.2 Negative linkages and conflicts between agriculture and mining | 26 |
| 2.3 Positive synergies between agriculture and ASM | 29 |
| 2.4 Gender impacts in the mine and on the farm | 31 |
| Section 3. Recommendations | 35 |
| 3.1 Recommendations which would deliver huge benefits but would be extremely challenging to implement | 36 |
| 3.2 Recommendations which could feasibly be implemented in the context of a five year aid programme | 37 |
| 3.3 Recommendations which recognise the political economy of DRC and seek to change it by thinking and working politically | 37 |
| Bibliography | 38 |
| Annex A Terms of Reference | 45 |
| Annex B Key laws and Stakeholder Mapping | 55 |
| Annex C Security incidents | 60 |

List of Abbreviations

| | |
|----------------|--|
| ACLED | Armed Conflict Location & Event Data Project |
| ASF | Avocats sans Frontières |
| ASM | Artisanal and Small-Scale Mining |
| CAADP | Comprehensive Africa Agriculture Development Programme |
| CAMI | Cadastre Minier |
| CDF | Cumulative Distribution Function |
| CEEC | Centre d'Evaluation, d'Expertise et de Certification |
| CEO | Chief Executive Officer |
| CF | Congolese Franc |
| COMIKI | Kitamba Mining Cooperative |
| CTCPM | Cellule Technique de Coordination et de Planification Minière |
| DFID | (UK) Department for International Development |
| DMFA | Dutch Ministry of Foreign Affairs |
| DRC | Democratic Republic of the Congo |
| ELAN | DFID market systems project |
| FAO | Food and Agriculture Organization |
| FAOSTAT | Food and Agriculture Organization Corporate Statistical Database |
| FARDC | Armed Forces of the Democratic Republic of the Congo |
| GDP | Gross Domestic Product |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH |
| IDP | Internally Displaced People |
| IFPRI | International Food Policy Research Institute |
| INGO | International Non-Profit Organisation |
| IRC | International Rescue Committee |
| ITSCI | International Tin Supply Chain Initiative |
| NGO | Non-Profit Organisation |
| ODI | Overseas Development Institute |
| OECD | Organisation for Economic Co-operation and Development |
| PPP | Purchasing Power Parity |
| RENAFEM | Women in Mining DRC |
| SEAMAPE | Service d'Assistance et d'Encadrement de l'Exploitation Minière Artisanale et à Petite Echelle |
| SEC | Securities and Exchange Commission |
| SENASEM | Service National des Semences |
| SMB | Name of a commercial <i>society</i> or mineral exporter |
| U.S. | United States |
| ZEA | Zone d'Exploitation Artisanale |

Executive summary

The purpose of this study is to **examine the artisanal and small-scale mining (ASM)¹ and agriculture nexus in the Democratic Republic of the Congo (DRC)**. Within the framework of building stability, the aim is to provide an evidence base to broaden understanding of the stability and livelihood promoting qualities of the two sectors. Our understanding of the positive and negative interdependencies between ASM and agriculture is the basis to provide recommendations on how to promote the development of the sectors and build stability in the Congo.

This study complements an accompanying literature review and is based on fieldwork carried out in Kinshasa, North and South Kivu and the Kasai in the Congo in September to October 2019. The context is the **very poor economic performance since Independence in 1960. The level of conflict and violence since the 1990s has been extraordinarily high and continues** – despite the War having officially ended in 2003. The damaging effect on agriculture has resulted in **very high levels of malnutrition across the country** and particularly in our minerals-rich study areas.

The political economy of conflict and development

The picture on the ground is of **almost complete institutional collapse in Government and many civil society institutions**. Whilst policies and regulations promulgated in Kinshasa are generally sound, they are not being implemented appropriately on the ground. In some cases this is because spheres of local government and line departments are not funded adequately. But, even where funding is adequate, the Government agencies mandated to support miners and farmers rarely provide support – and generally harass and extort the ‘invisible’ people.

Cooperatives and women’s groups could provide an institutional structure which benefits their members. However, most of the coops reviewed have been captured by an elite – politicians, customary chiefs, mineral traders and/or their founder members – and do not represent the interests of ordinary members. All the women’s groups the study team met were led by professional women in leadership positions in other organisations. This form of elite capture appears to impact less negatively on the activities of these groups, compared with most cooperatives.

The **only institutions which appear to focus on the needs of the population are some NGOs**. Many of these focus on short-term emergency relief, which is not necessarily appropriate in a context of protracted crisis. But some have a more developmental orientation.

The sectors: agriculture and mining and economic development

Mining livelihoods contrast sharply with those of farmers. An individual mine worker will typically relocate to the mine site from a farm and earn between four to ten times as much as a smallholder household. Mining appears to be a very dangerous livelihood in the DRC with a very high rate of fatal accidents and mine workers are targeted for hassle and extortion by government workers. Without robust monitoring systems and safeguards, an unintended consequence of traceability initiatives is that by bringing miners into frequent contact with multiple government agencies there is a greater potential for corruption.

Despite the agricultural potential of DRC, farming livelihoods are being depressed by two binding constraints. The roads are so poor physically and harassment by officials so intense that it is difficult and sometimes impossible to transport produce to market. In the Kivus, access to land by smallholders is challenging and expensive. Secondary constraints are the lack of access to quality inputs and the near absence of Government agronomic support. The consequence of this is that **smallholder agriculture is becoming untenable** for many and there is evidence that agricultural households are increasing diversifying to earn income off-farm.

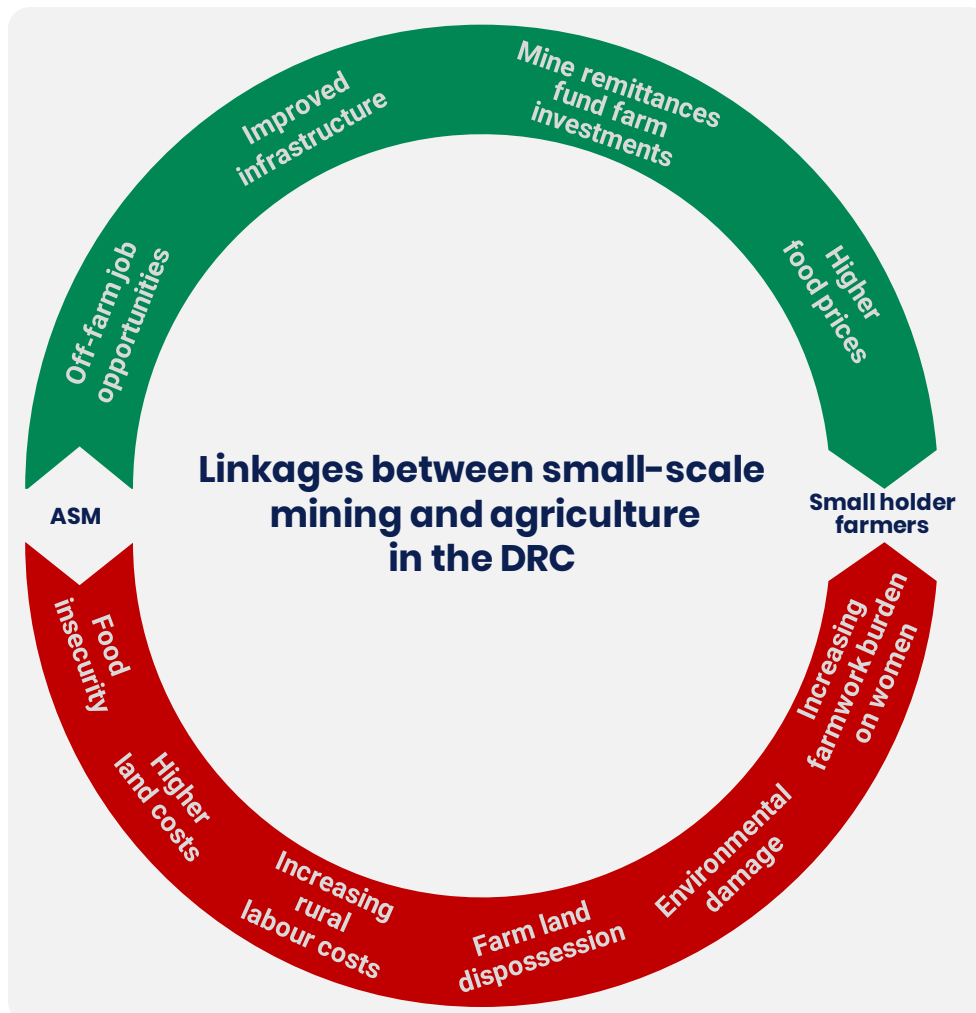
¹In this study the terms artisanal, and small-scale are used interchangeably to refer generally to ASM activities. There is no universal definition of ASM due to the highly context specific and dynamic nature of activities. But generally, these operations are comprised of low-tech, labour-intensive mineral extraction and processing.

There are real, tangible costs to farming communities from mining activity. The two biggest cost drivers in farming – land rent and labour – become more expensive as land is lost to the mining sector and rural labour markets tighten. For ASM, it is often a challenge for operators to implement environmental regulations. This is due to the high degree of informality of the sector including limited knowledge among artisanal miners beyond simple backfilling techniques, lack of financial and material resources and incentives, and lack of awareness of legal requirements, as well as limited monitoring and enforcement. The result is greater instability and tension between mining and farming and immediate negative impacts for downstream users and farmers living near the mine sites. Soil erosion, ground collapse, pollution and the trampling and theft of crops impose real costs on farmers. A weakened agricultural sector receives a boost in local demand for food but is unable to respond adequately to the surge in demand for food from mining and so food prices increase to the detriment of the food security of the majority.

Overarching and reinforcing these negative effects is the **incapability of the state to implement its own laws to protect land rights, the natural environment, the public and particularly women.** The benign intent of the considerable volume of laws, regulations, organisations and policies in Kinshasa purporting to support farmers and miners is lacking on the ground in the study areas. The government agencies tasked with implementing these formal rules and technical support have instead focused on formal tax and revenue collecting activities and agents have used their position to extort and harass for informal payments.

Inherent to these negative interdependencies, two important positive aspects stand out.

First, the tightening of rural labour markets increases the price of agricultural labour which we know to be one of the most powerful early indicators and generators of broad-based economic development. Second, although the supply side response by agriculture to rising food demand from mines is unable to prevent food price increases and food insecurity, mining is clearly providing a stimulus to agricultural development.



The positive synergies between mining and agriculture are significant. There is evidence of mining wages being recycled back to smallholder households – some of which is used for agricultural investment. Given the difficulties of transporting agricultural produce to urban consumer markets, the emergence of buoyant demand for food in rural areas provides an important boost to farmers in areas surrounding mines. There is some anecdotal evidence that mining sites can stimulate the improvement in road infrastructure between the mine and the urban regional centre. This has important spill-over benefits for farming because it, at least partially, releases one of the binding constraints on agricultural development in DRC.

The gender context in the DRC is bleak. Notwithstanding Constitutional guarantees, women are almost uniquely marginalised economically, in terms of representation and subject to extreme levels of gender-based violence in the home at work and elsewhere. Despite this, women are responsible for 75% of agricultural work on the farm and work across all roles at mines – although they tend to be concentrated in the lower wage parts of the minerals supply chain. This considerable level of economic activity does not appear to translate to a higher status within Congolese society and women find it harder than men to access the land and finance that is necessary for empowerment.

Using the building stability framework and insights of institutional economists, we distinguish our recommendations between those which, whilst they would deliver huge benefits, are likely to be extremely challenging to implement and those which are more realistic within the context of a short-term aid programme.

Recommendations which would deliver huge benefits but are extremely challenging

Rationale: The rationale for these recommendations is based upon seeking to bridge the very significant implementation gap between the generally sound policy environment in DRC and the on-the-ground reality and support the building stability framework. The lives of some 50 million smallholder households would be greatly enhanced if they had more secure and equitable access to land; access to agronomic support; less violent conflict and harassment; and, they could transport their surplus on functional roads. The lives of 2 million people engaged with ASM would be significantly improved if they experienced less harassment; safer working conditions; and, the support of SAEMAPE. 40 million women would benefit from the equality guaranteed in the Constitution being translated into tangible support in the economic and social sphere.

Recommendation 1: Government officials should deliver on their mandates and perform basic state functions effectively. Priorities should include renovating roads; providing security with the military and police; and provide technical support through SAEMAPE to miners and agricultural extension support to farmers.

Recommendation 2: Existing laws and regulations on environmental management; mining titles; gender equality; mine safety and dispute resolution should be implemented impartially by the state.

Recommendation 3: Government should implement its commitments to value agriculture by ensuring that the benefits of the considerable budget allocation benefit farmers on the ground.

Recommendation 4: Government should implement an independent review of previous land and mineral titles to overturn corrupt decisions made in the past.

Analysis: These recommendations are aspirational. They are framed around the normative building stability framework building blocks of ‘fair power structures’, ‘inclusive economic development’, ‘conflict resolution mechanisms’, ‘effective and legitimate institutions’ and ‘a supportive regional / global environment’. If implemented, these recommendations would have a huge positive impact. However, using the framework of institutional economics, they are unlikely to be implemented because they are predicated on a fundamental change to the customs, traditions and norms of the politically powerful and an acceptance by the elite to unilaterally relinquish the revenue streams derived from the implementation gap between policy and current reality.

Recommendations which could feasibly be implemented in the context of a five-year aid programme

Rationale: The rationale for these recommendations is that they do not challenge the fundamental interests of the elite and, therefore, are much more likely to be implementable. They seek to encourage 'inclusive growth' and 'effective institutions' but do not attempt to improve the higher level building blocks of the stability framework. The analysis in this report indicates that the lives of farmer and miners would be incrementally improved if financial literacy and financial services were improved for miners to help them manage their erratic incomes and transmit the liquidity of the mining sector more effectively into the rest of the local economy. In the context of an almost complete collapse of effective institutions, support to progressive cooperatives, women's groups and private sector suppliers represents an attempt to rebuild civil society institutions that can advance the interests of the vulnerable.

Recommendation 1: Building on existing ELAN, GIZ and DMFA interventions, DFID develop and market a commercial savings (and later credit) product to miners and farmers, with associated financial literacy training, to improve household cash-flow management and investment in agriculture.

Recommendation 2: DFID work with accountable and effective cooperatives and women's groups to support the empowerment of vulnerable farmers, miners and women.

Recommendation 3: Building on existing ELAN interventions, DFID extend working with the private sector to improve access to quality agricultural inputs and agronomic support to mining areas.

Analysis: There is much to commend these recommendations. Experience suggests that they are implementable and the outcomes are somewhat predictable, precisely because they do not directly challenge powerful vested interests. The drawback of these initiatives is the flip-side of their advantages, they are relatively incremental and will improve the lives of specific groups of people living in mining areas somewhat.

Recommendations which recognise the political economy of DRC and seek to change it by thinking and working politically

Rationale: These recommendations retain the ambition of those in the first set but are based on understanding the political economy of DRC and so are more likely to work. This approach recognises that powerful actors have vested interests and claim rents currently. It is not politically feasible to cancel these claims without compensation. Understanding incentives and working politically, there are win-win 'deals' that could be brokered to allow progressive policy to be implemented.

Recommendation 1: DFID to undertake a detailed political economy analysis to understand the methods of rent extraction, who currently benefits and how this subverts the policy implementation process. Powerful actors with (and those without) an interest in progressive reform will be identified.

Recommendation 2: Making full use of DFID's convening power with other donors and progressive interests in the elite DFID, working politically to develop policy reforms that create stronger incentives to implement policy and incorporate actors who may otherwise undermine the system.

Analysis: This is a high-risk strategy, which has not been attempted before in DRC. However, DFID has significant experience in the extractives sector in complex environments like Nigeria where, using the 'thinking and working politically' approach, donors have been able to stimulate change to incentive structures that have delivered better development outcomes in very challenging contexts.

Introduction

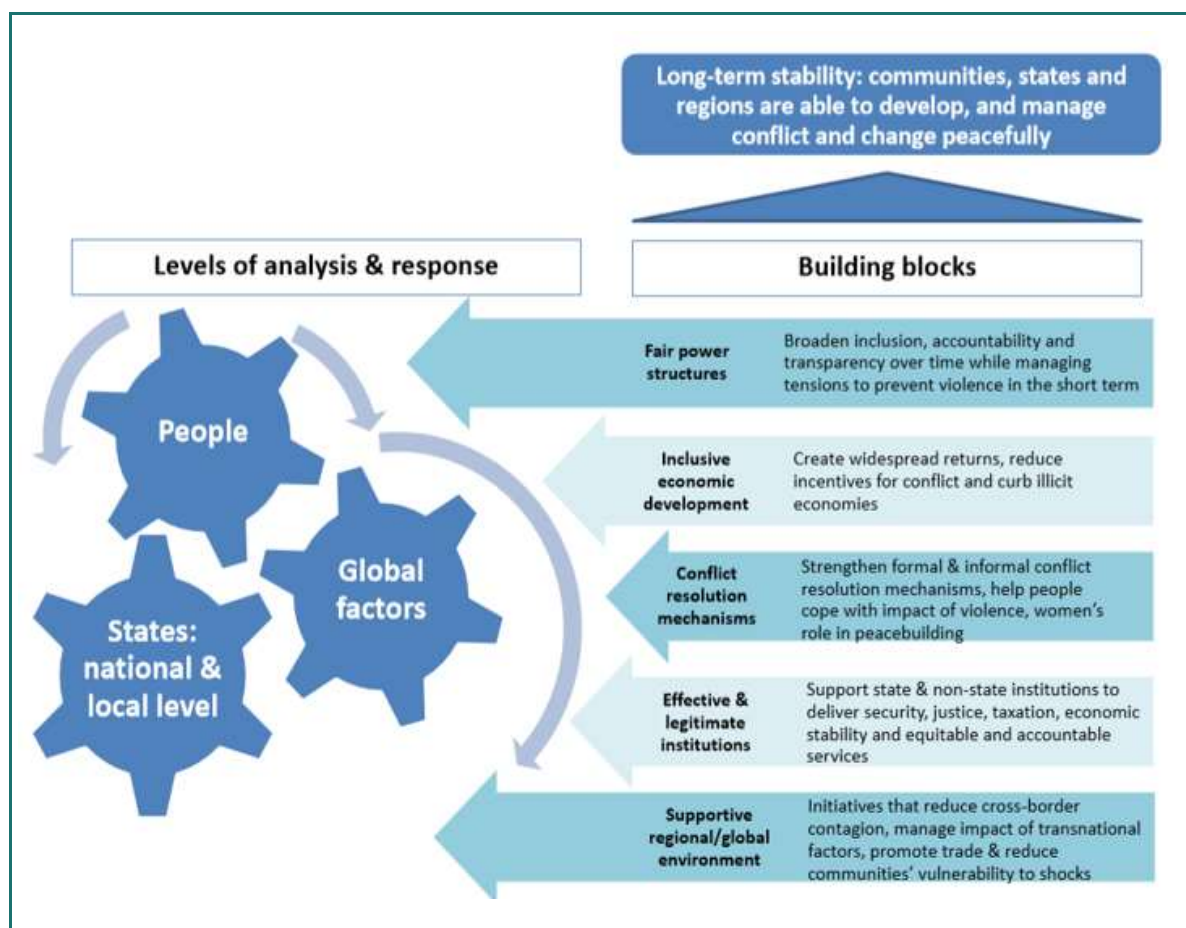
The purpose of this study is to begin to examine the ASM and agriculture nexus in the DRC. Specifically, set within the context of DFID’s Building Stability Framework (Figure 1), the aim is to provide a preliminary evidence base to broaden understanding of the stability and livelihood promoting qualities of the two sectors.

The study objectives are to:

- Examine interdependencies between ASM and small holder/subsistence farming at different levels. This will identify the links between the sectors and explain how livelihoods traverse them.
- Explore areas of synergy between the sectors and identify how these can be leveraged to increase economic and social development and empower marginalised miners and farmers.
- Examine areas of tension between the two sectors and identify possible conflict risks as well as any potential mitigating strategies.
- Provide recommendations on how to promote ASM and agricultural livelihoods for building stability in the DRC.

While the primary recipient of the study is DFID DRC, the results are expected to be disseminated as a public good to other bilateral, multilateral, private sector, and NGO actors who work in the space of economic development in the DRC.

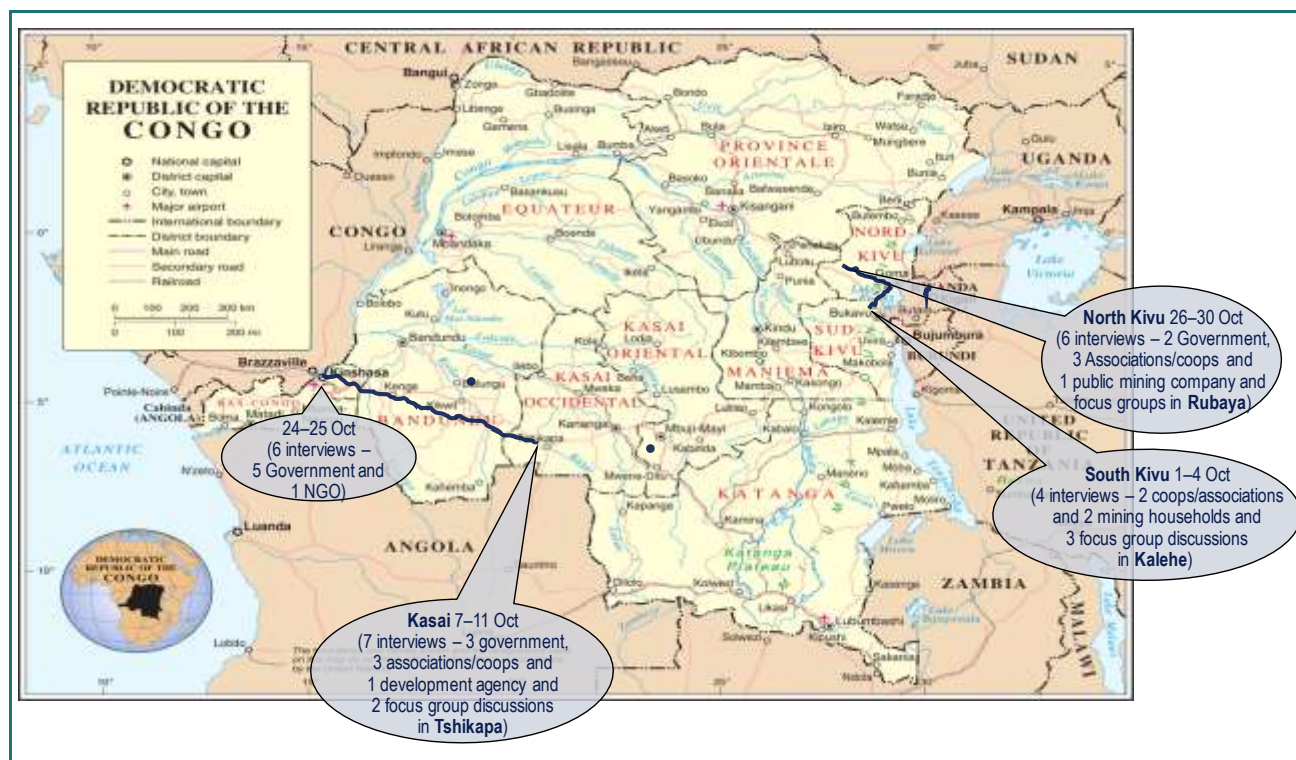
Figure 1 – Building Stability Framework



Methodology

The evidence presented in this study is based upon a literature review and also qualitative data collection during field visits in North and South Kivu and in the Kasai regions of the DRC in September and October 2019. The literature review followed a standard methodology comprising an online key word search and review of academic papers, grey literature, and sources of primary data to build a rich and detailed picture of ASM and agricultural linkages within sub-Saharan Africa, before narrowing to focus specifically on the DRC. In all, 74 pieces of literature were reviewed. In addition to highlighting our existing knowledge, the review also identified key themes, knowledge gaps, stakeholders and fieldwork locations for the subsequent field work.

Figure 2 – Map of the field visit locations



The field work took place during a concentrated three-week period from the end of September to mid-October 2019. After a kick-off and meetings with the main national government stakeholders in Kinshasa, the team moved to North Kivu, South Kivu and Kasai. These case studies allowed a comparison between the Kivus, dominated by the 3Ts (tin, tungsten, tantalum) and high population densities, and the Kasai, which is less densely-populated and has small-scale diamond mining.² Katanga was not included in this study because, whilst it has very significant mining activity (see Figure 3), it falls outside DFID’s priority areas in the new Country Strategy. In all, 17 interviews and 8 focus group discussions were held. The interviews were held with politicians and civil servants at national and provincial level and with associations/cooperatives of farmers and miners and NGOs. 8 focus group discussions were held with farmers and miners.

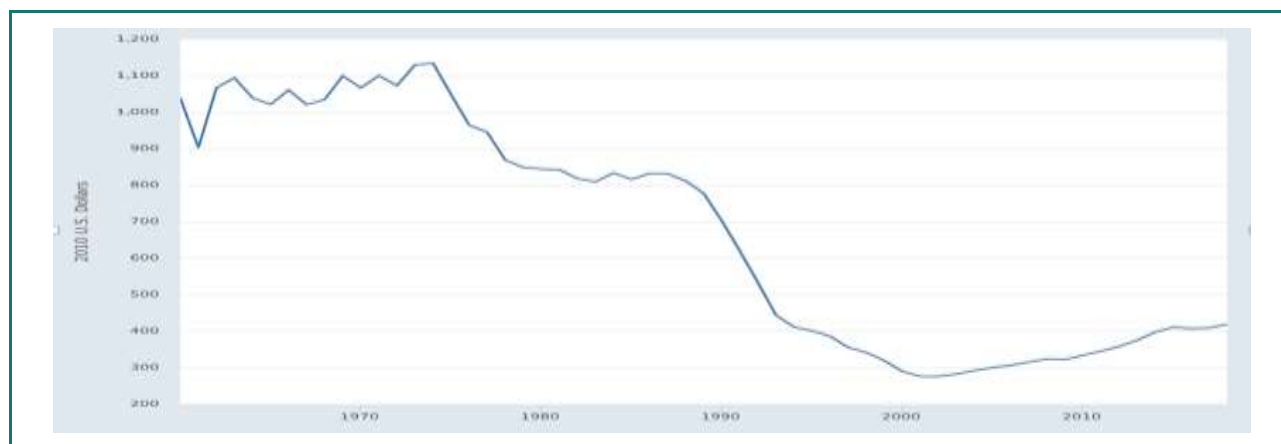
We presented our findings from this study at the EX4DEV19 conference on ASM and the Sustainable Development Goals at the University of Surrey on Friday 8th November 2019 (<https://ex4dev.com/>). This gave us the opportunity to ‘ground truth’ our findings with the international ASM academic, practitioner and industry community.

² World Bank (2008) DRC-Growth with Governance in the Mineral Sector. PROJECT INFORMATION DOCUMENT (PID) CONCEPT STAGE. The World Bank: <http://documents.worldbank.org/curated/en/341011468234300132/pdf/Project0Inform1cument1Concept0Stage.pdf>

Context

Developmentally, the DRC is one of the poorest countries on earth. In 2018, the Human Development Index – a composite indicator of the economic and human capital of nations – ranked the Congo as 176th out of 189 countries. Few countries not at war are less developed. The economic calamity of the sixty years since Independence in 1960 is illustrated in Figure 3. It is easy to forget that, at Independence, the Congo was a comparatively rich developing county. Nearly three times higher GDP per person than India and China, higher than South Korea and on a par with Malaysia. Taking account of inflation, the average Congolese is today 60% poorer than in 1960. In 2018 the GDP per capita was \$490 expressed in current terms.

Figure 3 – Constant Gross Domestic Product per capita 1960 to 2018 (2010 US\$)



Source: World Bank 2019

Modelling the Congolese economy, it is clear that minerals-based development will dominate exports for the foreseeable future. But a reliance on extractives is unlikely to result in broad-based growth and development – due to Dutch disease and the structural effects of extractives (Otchai 2015). What is needed is a deliberative policy which encourages industrial growth and leverages artisanal mining to stimulate demand for domestic agricultural and food products and positive linkages between the two to improve the welfare of poor households.

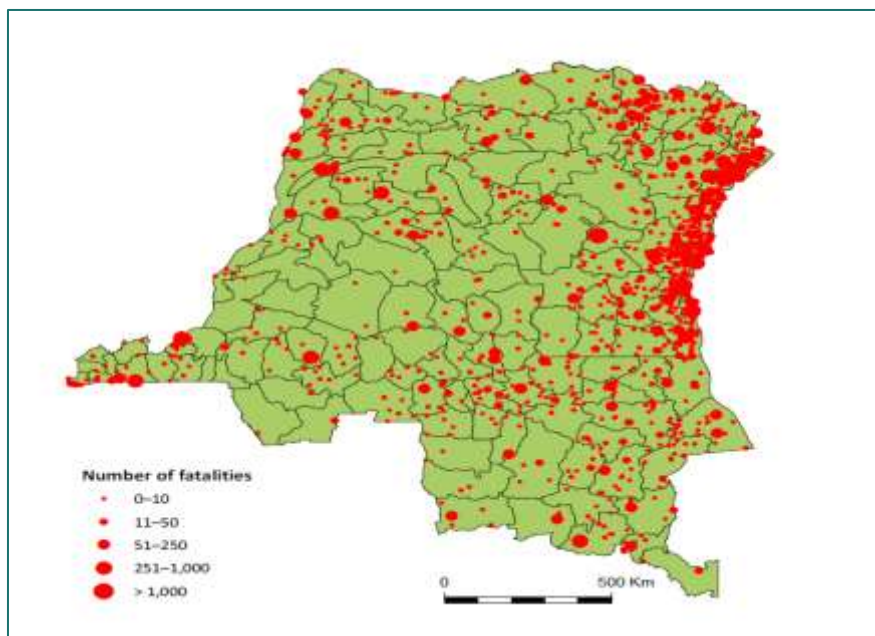
Beyond containing valuable minerals, the similarities between the two case study areas are high levels of instability – even relative to the violent recent history in the Congo – and strikingly high levels of malnutrition.

In the Kivus, the First (1997-1999) and Second (1999-2003) Congo Wars have left an indelible impression on the population. Panel surveys carried out in South Kivu in 2015 found over one-quarter of the population had been internally displaced by violence and 40% of the population (and a higher proportion of women) considered their local area to still be very unsafe (Ferf et al 2016). Notwithstanding the picture of extreme and widespread violence in Figure 4 4, the graphic predates the extreme ethnic conflict which occurred in the Kasai from 2016. Consequently, by December 2018, there were 3.1m Internally Displaced People (IDPs) in DRC, 1.8m of whom had been displaced during 2018³. In the first half of 2019, a further 732,000 IDPs were added – predominantly as a result of conflict rather than natural disaster. What is clear from these figures is that, appalling though the official wars were in the Congo – the International Rescue Committee estimate 5.4 million deaths 1998-2008⁴ – conflict at various scales is by no means over.

³ International Displacement Monitoring Service 2019 <http://www.internal-displacement.org/countries/democratic-republic-of-the-congo>

⁴ International Rescue Committee (2008) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2223004/>

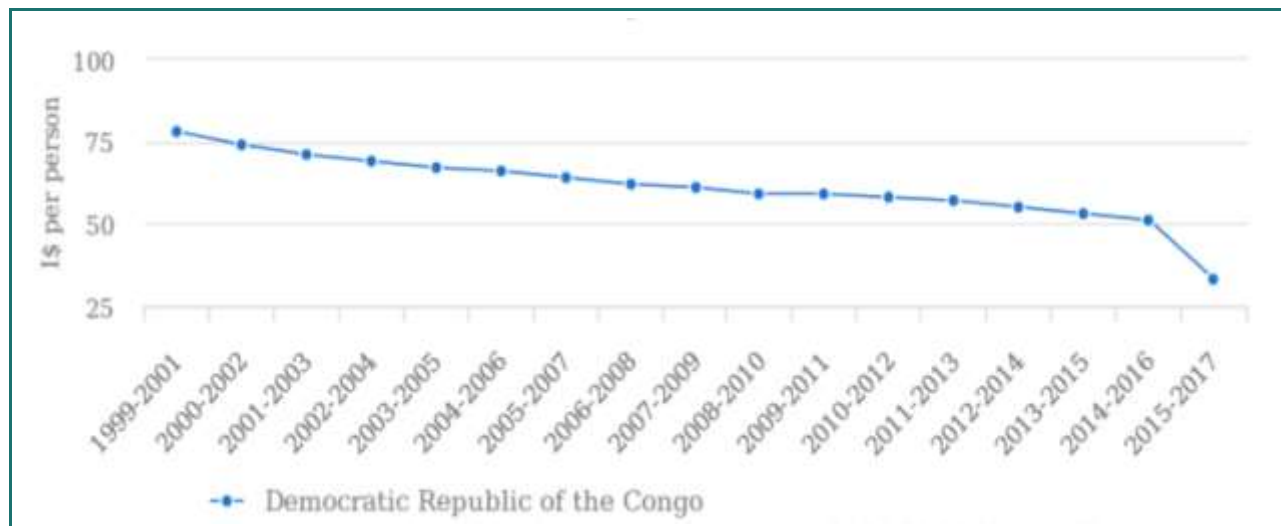
Figure 4 – Locations of conflict by intensity level, 1997-2015



Source: Marivoet et al (2018) using data from ACLED

The paradox of Congolese agriculture is that a country which – in terms of its agricultural potential could feed the entire African continent – is unable to even feed its own 80 million population (IFPRI 2018). Figure 5 illustrates the serious decline in the value of per capita food production since 1999. Reasons for this catastrophic failure to capitalise on the Country’s potential include climate change and persistent conflict and an almost complete lack of support for the agricultural sector, including the provision of the economic infrastructure – most importantly functioning roads – to get surplus goods to market.

Figure 5 – Average value of food production (constant I\$ per person) in DRC



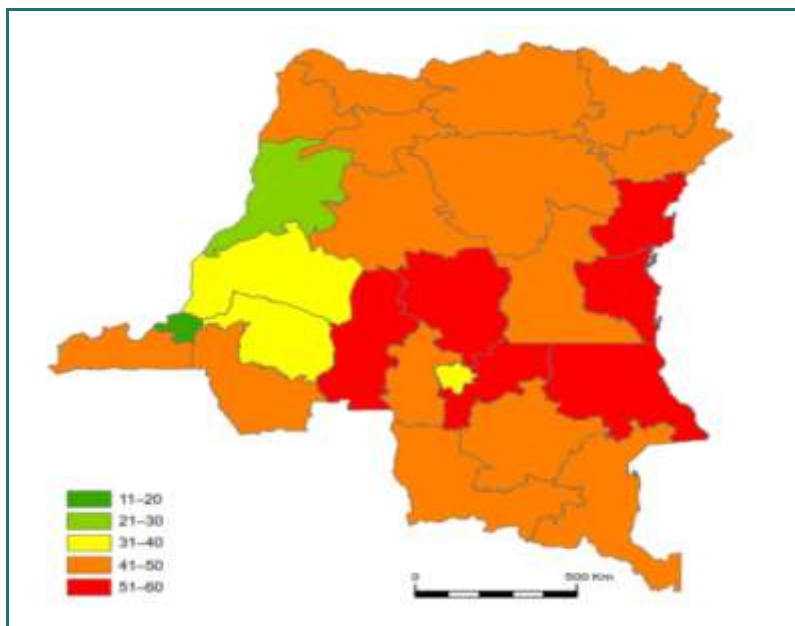
Source: FAOSTAT 2019

Note: Figures in chart above are 3 year averages

One consequence of this failure to grow enough food and get it to market is widespread hunger. Figure 6 shows the crudest measure of malnutrition – stunted growth amongst under five year-olds. Across the DRC, the growth of 43% of young children is significantly stunted (Marivoet 2018).

In our minerals-rich study areas in the Kivus and Kasai, despite an on-going humanitarian operation in DRC costing over \$0.8bn a year⁵, over half the under-five year-olds are stunted. This juxtaposition of natural resource wealth and malnutrition in the Kivus and Kasai starkly underlines the importance of this study.

Figure 6 – The geography of malnutrition in the DRC in 2014



Source Mariovet et al (2018)

Research questions

The study aims to answer ten key research questions that were identified through initial discussions with DFID DRC and sector experts (Box 1).

Box 1 – Research questions

Research questions

Wealth Creation & Economic Development:

1. What is the role of ASM in contributing to diversified livelihoods?
2. What are the opportunities and barriers to creating viable long-term jobs in the ASM and small-holder sector?
3. What are the average household income levels for the two sectors in different types of mining and agriculture in the DRC?
4. Does the advent of ASM affect gender patterns of agricultural work?

ASM and Agriculture Nexus:

5. What are the interdependencies between the Agriculture and ASM sectors (employment, infrastructure, markets)? How do they impact the livelihoods of communities (households) dependent on them?
6. Are these interdependencies beneficial? If yes under what conditions and what are the drivers? Do they help in conflict reduction at community level?
7. Are there tensions between the two sectors? Do they lead to conflict at the community level? What are the causes?
8. How can the linkages between ASM and agriculture be strengthened in order to create a foundation for improved livelihoods and wealth creation? What are the key constraints (technical, financial, security, organisational or regulatory)? What lessons can be learnt from other relevant countries?
9. How can mining sector investment strengthen agricultural value chain and local agribusinesses? Where are the opportunities to further incentivise this?
10. How can the synergies between ASM and agriculture be used to promote stability in a DRC context? How can policy and regulation facilitate this? What sort of local level interventions can facilitate this?

⁵ Development Initiatives (2018) Global Humanitarian Assistance Report 2018 – the \$813m in humanitarian assistance received by DRC in 2017 is estimated to cover 57% of requirements.

Structure of the report

We have structured this report around the findings. This provides a more readable and succinct format than seeking to answer each of the research questions sequentially.

The first section examines the political economy of conflict and development. Issues of power structures and institutions (national government, local government, irregular forces, private sector, civil society, coops, NGOs, communities and the family) have a significant impact on what happens on the ground. We also examine conflict resolution mechanisms and the regional and global context in which mining in the DRC operates.

The second section focuses on the contribution of ASM and agriculture to livelihoods and jobs. The negative interdependencies and positive synergies between mining and agriculture are examined. Underlying this analysis, the gender aspects are highlighted.

The third section examines the recommendations, which would improve the impact of mining and agriculture on the vulnerable, arising from this analysis. Following the building stability framework and insights of institutional economists, we distinguish between the recommendations that would deliver real benefits to the communities in the case study area in terms of livelihoods and conflict mitigation but whose feasibility in the short-term is questionable, and those which can be implemented by DFID DRC in the near term as part of their private sector development programme. It is proposed that using a ‘thinking and working politically’ approach may be a way of moving beyond the dilemma - where important reforms in the enabling environment are considered not feasible so that external donor support is restricted to implementing relatively small-scale, incremental initiatives.

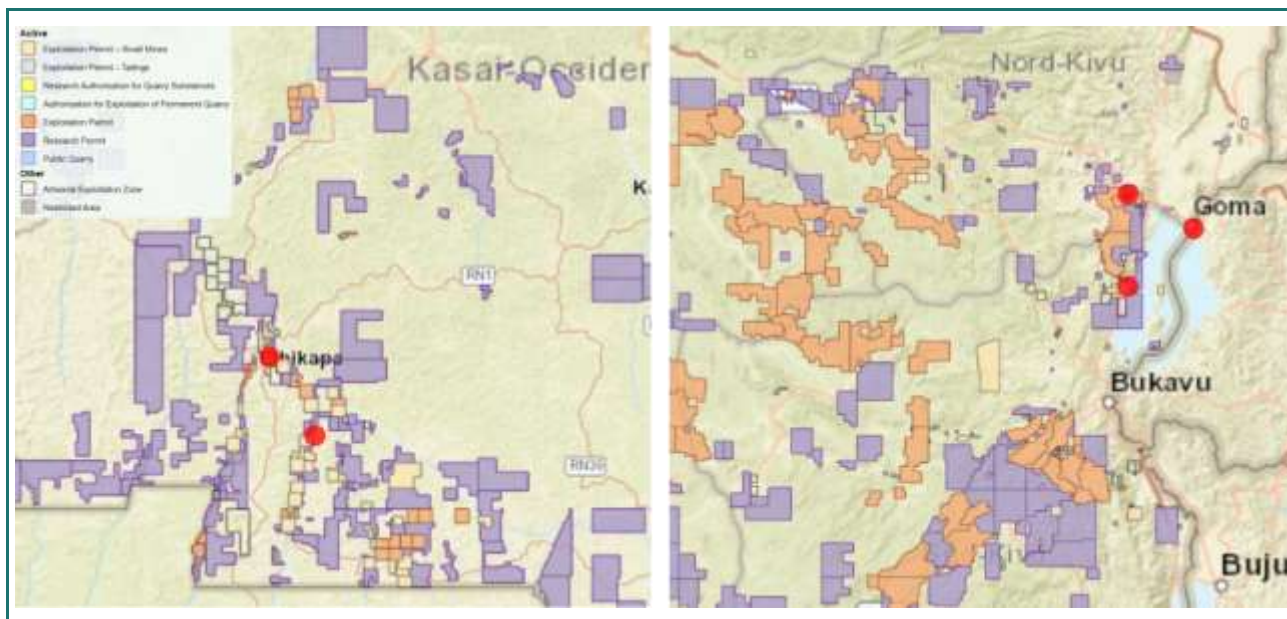
Section 1. The political economy of conflict and development

Mining and farming are embedded within a wider political economy that strongly influence whether the two sectors are able to develop sustainably and peacefully co-exist. The research found that formal and particularly informal laws, regulations, and social norms have a significant daily impact on farming and mining communities, making it a challenge to maintain their rural livelihoods, let alone prosper. This section outlines the key issues as they were reported by participant interviewees from national, provincial, and local level government institutions and agencies, and community members.

1.1 Mining code takes primacy over agricultural codes

The primacy of the mining code over the land, forest, and agricultural codes is a major structural issue. It has significant implications for the wider governance and functioning of the two sectors as well as for miners and farmers on the ground. It is also one of the most commonly identified issues by participants at all levels as a cause of conflict.

Figure 7 – Map of mining concessions in DRC showing study areas⁶



According to Congolese law, when a new mineral deposit is found in a designated Zone d'Exploitation Artisanale (ZEA - Artisanal Exploitation Zone) a mining permit can be applied to undertake ASM. This gives the mining title holder with the right to relocate land rights holders such as farmers, foresters, fisheries who may be operating on the land. As a result, the local farming population is displaced, expropriated and relocated. Although the revised mining code of 2018 in Annex 18 (Articles 279, 280 and 281) states that that after relocation, then indemnification, compensation and relocation will follow; on the ground, local residents rarely receive such support.

Corrupt politicians work with mining companies to divert the majority of the compensation due to farmers. This is a source of conflict within communities as displaced farmers have limited power due to the primacy of the mining law, but are also rarely compensated despite it being a requirement by law. Once displaced, a farmer then needs to negotiate with the new mining title owner and existing landowners in order to find land to continue farming. Figure 7 illustrates the scale of the challenge. Much of our study area is under some form of mining title (green, grey, and pink boxes) making it difficult for farmers to find land which is not encumbered.

⁶ Red areas show approximate study locations, produced from : DRC Mining Cadastre Portal, 2019: <http://drcllicences.cami.cd/en/>

A senior official in Tshikapa explained that to farm in these ZEAs and private mining areas, farmers must negotiate the agreement with the owners of mining titles. Figure 7 shows very few ZEAs, the remaining are ceded under Exploitation Permits – Small Mines and Research Permits. These permits are usually held by larger scale and junior mining and exploration companies and investors for long periods of time. For example, despite the name ‘Exploitation Permits – Small Mines’ this license category is reserved for operations needing significant capital investment of \$100,000-\$2,000,000 meaning it is out of reach for the type of informal ASM operators that are the focus of the study and dominate the mining sector in DRC (KPMG, 2014). The resulting lack of availability of land is constraining ASM activity and diamond output. This, it was reported, is pushing young people to leave for Angola where they can find jobs more easily in informal ASM activities. High levels of youth unemployment can feed instability, and expelled returnees from Angola represent a security problem in Kasai.

In North Kivu, the shortage of land is a major constraint for farming. A women’s mining association highlighted how, in the colonial era, land was largely owned by the state. After Independence, the Government sold this land to elites at favourable prices in 100 ha tracts. This has fuelled the land shortage. The association estimate that 60% of the prisoner population in Masisi is incarcerated due to land conflicts - such as killing cattle who wander onto neighbours land, while land rents were reported to vary from \$300 to \$800/ha depending upon the distance to a road. The effect of these issues combined was high levels of displacement and migration coupled with low levels of trust in the state and its ability to support farmers.



National level officials in Kinshasa and provincial government staff in North and South Kivu report that farmers have obtained mining permits with no intention of mining, in order to secure the land for farming. The National Ministry of Mines has encouraged support and facilitated this effort.

Focus group with the miners in Nyabibwe, South Kivu

1.2 State support for mining and farming is lacking

Overall, the national, provincial and local government institutions have recurrent functional challenges. While the Ministry of Mines operates 5 agencies (provincial-level Mines Division; CEEC; SAEMAPE; CAMI; CTCPM) to provide technical support to improve the livelihoods and productivity of miners and management of the sector (see key laws and stakeholder mapping in Annex B). But despite being recently reorganised as part of the World Bank PROMINES project they lack the resources and capacity to achieve their official mandates. The same limited capacity is found in the agricultural agencies of the government. Instead, these state agencies have focused their attention on the collection of official taxes, or worse, both miners and farmers reported how officials use their position to collect informal taxes, and often extort, harass and displace them. The large-scale panel survey undertaken by Wageningen University and ODI in South Kivu in 2012 and 2015 showed that, by the later date, public confidence in the willingness or ability of central government to deliver services had collapsed to 13/100 (Ferf et al 2016). The inability of the state to reorganise and support the two sectors is ubiquitous.

Box 2 – Examples of taxes placed on miners by the state by the 2018 Mining Code

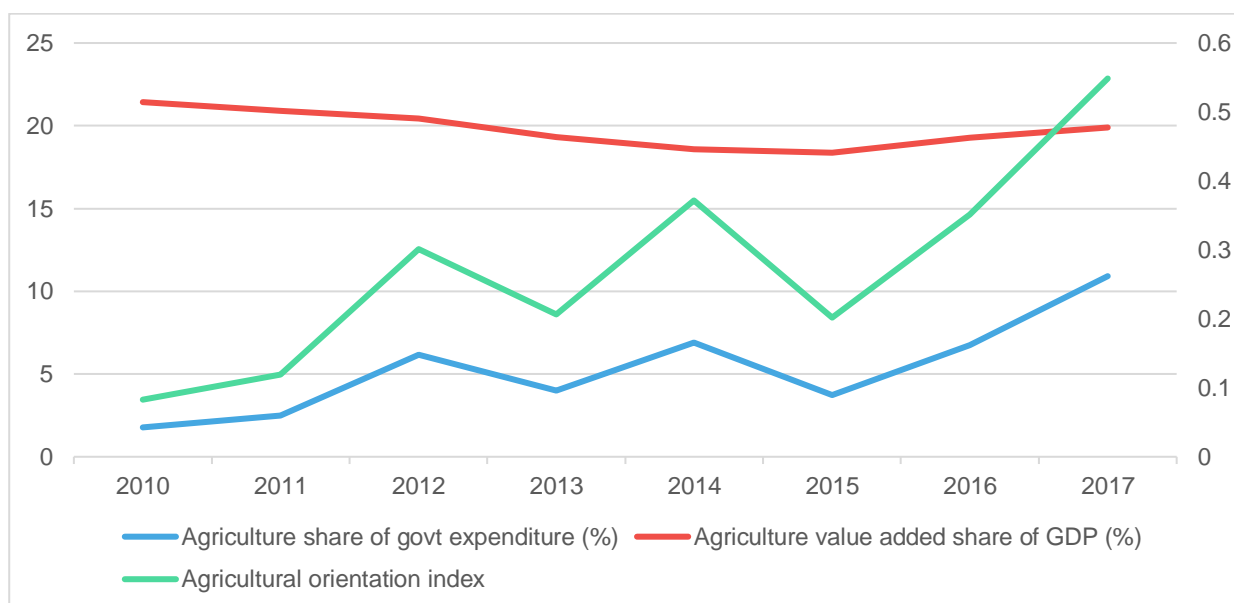
ASM operators, dealers, and exporters are subject to a wide variety of formal charges and taxes which vary according to the mineral and license type. For diamonds, these include: \$25 per year for a card permitting mining (\$20 to the mining cooperative and \$5 to the Ministry of Mines); flat rate of 1% for artisanal (increased to 10% if stone is greater than 1 carat in weight), and 15% for small-scale mines of the market value for stones sold at the diamond buying counters; 1% of production by artisanal paid direct to SAEMAPE for technical supervision; \$10 per diamond well tax; annual fees for the use of equipment and machinery according to the size of the engine (\$1,000-\$2,000 per year); flat rate tax of \$50 per month and 1% of turnover by Category B (small) dealers. In terms of how the revenue is divided, SAEMAPE (40%) and the Mining Division (15%) are the major beneficiaries of formal tax revenues.

The collection of these formal taxes by state agents, however, has also created opportunities for them to collect informal taxes. The splitting of Kasai-Oriental into three provinces (Lomani, Sankuru and Kasai-Oriental) and Kasai-Occidental into two provinces (Kasai-Central and Kasai) during the decentralisation process, without the transfer of adequate funding from Kinshasa, has led to an additional cadre of local government officials demanding ‘taxes’ from miners and others. The police and army are also beneficiaries of formal and informal payments. The consequence is that, rather than deliver of its core mandates to provide training, technical, and financial assistance to ASM cooperatives and operators, improve safety standards, and develop a credit fund, the government agency SAEMAPE is preoccupied with its other mandate of monitoring mineral supply chains and ensuring state taxes are paid. This rent seeking approach from multiple government agencies is a primary cause of instability and continued harassment of the public for payments. As a women’s group member stated in the Kivus ‘The government is full of thieves’.

Government has historically given agriculture a low priority in DRC.

The FAO has published an Agricultural Orientation Index figure for DRC since 2010. This index compares the agricultural share of government expenditure with the agricultural share of GDP, which has remained at around 20%. The index shows overall improvement from 0.08 in 2010 to 0.55 in 2017 which is higher than the regional average for Sub-Saharan Africa (0.2 in 2017). These figures suggest that the proportion of government spending on agriculture has increased significantly from 1.8% in 2010 to 6.8% in 2016 and 10.9 % in 2017. By 2017, therefore, the DRC had met its 10% commitment made as part of the Comprehensive Africa Agriculture Development Programme (CAADP). We have cited the expenditure figures from FAOSTAT and are aware that other figures – showing a much lower level of agricultural expenditure – are available. For instance, the senior official which we interviewed in the national department of agriculture for this fieldwork stated that agriculture received only 3% of the national budget.

Figure 8 – Agricultural value add, government spending and orientation index 2010-2017



Even if it is case that, nationally, government is spending an adequate amount of the budget on agriculture, it is clear that adequate resourcing is not reaching the level at which the state interacts with farmers – agricultural extension workers. Indeed, interviewees in agriculture ministries reported that these workers are not paid. Part of the explanation for this could be the scale of funds which are utilised from the agriculture budget on large projects. For instance, the Bukanga Lonzo agro-industrial park project, is reported to have received US\$92 million of public investment for the planned 80,000 hectare project with South African firm Africom Commodities. The project aimed to establish a large scale commercial farm. It collapsed in 2017 and this questioned government investment in special economic zone initiatives of this type.



President of AMACO (Association of Trader Mothers) on the Kasai River

The lack of state resources at ground level was particularly clear in Kasai where – 11 years after the decentralisation process was agreed in the Constitution of 2008 - the provincial Department of Agriculture has no office, no vehicles and a skeleton staff. In the face of central government resistance to the devolution of finance and control, the decentralisation has been ‘torturously slow’ (Gaynor 2014). Even where government services are well-financed, such as the Ministry of Mines, Government still fails to support local economic development.

The core mandate of SAEMAPE is to support artisanal and small-scale miners. But the experience of miners on the ground was that the agency provided limited support and instead is focused on the collection of formal and informal taxes (Box 2).

1.3 Cooperatives suffer elite capture but progressive coops could be a selective entry point to support miners and farmers

As part of the government’s efforts to formalise ASM, obtaining a small-scale mining permit requires miners to join an approved cooperative. However, it is important to understand that while some form of shared ownership exists mining cooperatives in the DRC (as elsewhere in the region) are structured around a commercial business model – where a small number of ‘founding members’ effectively own the coop – in the same way that shareholders own the equity in a business (see Box 3 and Box 4). Labourers and other ordinary coop members therefore do not receive a share in profits and are excluded from many of the additional benefits a traditional cooperative model can bring.

As a result of elite capture, increasing efficiency, production, and revenue of the mining cooperative will not therefore necessarily improve the livelihoods and incomes of the majority of workers unless additional governance measures are put in place such as formal contracts, social security contributions, and improved working conditions and worker rights (de Haan and Geenen, 2016). As the examples in Box 3 and Box 4 show, the majority of miners receive little benefits from being part of many cooperatives and few are aware of their rights.

Box 3 – North Kivu structure of mining ‘cooperative’ example

- The Chair of the cooperative is a senior politician in the provincial government
- 50 founding members and cooperative owners, who benefit from profit payments and the distribution of livestock (57 cattle, 480 goats). The 3,000 auxiliary members are excluded from these benefits
- All members must pay \$20 annual card to coop, in order to be able to mine
- Coop has a large administrative structure with seven departments employing 56 full-time workers: development, credit grants, audit, technical, prospecting, Dyfemme (gender), and commercial department
- Sells to two societies, SMB (private) and SAKIMA (state-owned) - both pay \$30 per kg for mineral concentrate which is at least 25% Coltan
- For more than a year, the coop is allegedly owed \$4.5 million by SMB for 150 tonnes of coltan (SMB seems to have cash flow problems)
- Miners typically earn about \$6 per day (diggers and washers normally get \$3 for 4-hour shift. Managers get \$10 per day and shaft owner gets \$3/kg. These rates are dependent on yields (production and ore grade) and world market mineral prices.

However, the research team did find examples of better-run cooperatives, such as the Kitamba Mining Cooperative (COMIKI). This is located 30km from Tshikapa in Kasai and started extracting diamonds in 2015 (Box 4). Before relaunching mining activities on family-owned agricultural land, the cooperative members cultivated the land and sold the produce to finance the diamond mining wells. Additionally, in contrast to the examples in North and South Kivu where members received little, if any, support, the cooperative pays for member’s card expenses as well as mining equipment and food. While the profits from activities are reinvested into the mine to finance work and increase the share of cooperative members. Notably, SAEMAPE has been technically supervising COMIKI and linking with diamond processors and buyers.

In their recent ‘Implementation Completion and Results Report’ which reviews the World Bank’s \$50 million ‘DRC-Growth with Governance in the Mineral Sector’ programme between 2011 to 2018, the authors find that support to women’s mining cooperatives has been an effective avenue to build capacity, empowerment and ultimately stability (World Bank 2019a). This project, referred to as PROMINES, was also partially funded by DFID until 2014. Key activities to promote women in mining, included the establishment of RENAFEM the national Women in Mining network following the support to organize two successful National Conferences on Women in Mining in Bukavu in 2015 and 2017. Ten small grants were issued to women mining cooperatives in Katanga to improve their business opportunities and working equipment. A pilot in South Kivu also supported the development of alternative livelihoods for 500 women who were working in mining under dangerous and informal conditions. As a result of these key activities on women in mining (and others), the project target of intermediate indicator 13 ‘support women’s economic and social empowerment working in mining sector’ was deemed to be fully achieved.

In terms of relationships between mining and farming cooperatives, the tension is mainly between the activities rather than the cooperatives and associations. This may be in part because in some cases there is overlapping membership and because people are running mining and farming activities on the same concession as cooperatives.

However, both miners and farmers suggested that the cooperatives could do more to arbitrate and resolve conflict again highlighting the importance of these institutions as entry points to improve technical capacity and wider stability. Many of the good practices that are being implemented by ASM cooperatives are a result of support from NGOs and international agencies who have provided training, capacity building and access to information over the years through various initiatives.

Box 4 – South Kivu, mining cooperative example

Each miner must pay a one-off fee of \$3 to join the cooperative. Day workers mining in teams of 8 people with a designated manager share half of their production with the CEO, the other half is bought by the CEO at the predetermined site price. This is because the CEO is main investor ‘sponsoring’ miners through the provision of food and equipment as mining operates on cycles, so the 50% given back is essentially a reimbursement of upfront costs. In addition, a 10% production tax is paid to the coop

for administration and to pay a 2% tax to the landowner, an additional nominal \$0.17 per kg is also paid to the chiefdom. With a team of 8 able to regularly produce 50kg of concentrated ore per day depending on the richness of the vein, taking the lower estimate and an exchange rate of CF 1 = \$0.00060 the following estimates can be made: 25kg is given to the CEO, with 25kg sold to the CEO for the site price of CF 7,000 (\$4.19) per kg. This makes CF 175,000 (\$104.78) of which \$10.47 goes direct to the cooperative and \$8.5 to the chiefdom, leaving \$85.81 to be distributed among the 8 workers, making \$10.72 per person. In rare cases, if a highly mineralised vein is found up to 2,000kg of ore could be extracted per day meaning an 8-person team could expect to make \$428.80 in one day. However, this would likely only last a few days before the vein was mined out.

In terms of the benefits that miners derive in return from these payments to the coop, indirectly, they may realise some improvements in improved security, reduction in illegal taxation, and being able to reach international markets. However, there is clearly room for improvement, as the majority (about 80%) reported that they receive nothing in return and only 16% say they have received some credit to buy the equipment and some health care. The majority of members were unaware of their duties and rights as coop members.

1.4 Examples from NGOs

In terms of support from the wider institutional and governance structures, unsurprisingly given the lack of state support and weak rule of law, the majority of support and development is currently provided by the international community. There is a plethora of foreign NGOs and donors providing the most useful support to local farming and mining entrepreneurs in all areas visited for this study. Most however, are focused on emergency responses and are not sustainable. Instead, there is a need for investment in long-term development programming that builds capacity of miners and farmers and cooperatives to properly support their members and for individuals to know and be empowered to use their rights. Similarly, the gap in state support is also replicated in the private sector again, creating a reliance on outside agencies.

1.5 Summary

The picture on the ground is of almost complete institutional collapse in Government services and many civil society institutions. Whilst policies and regulations promulgated in Kinshasa are generally sound, they are simply not being implemented appropriately on the ground. In some cases this is because spheres of local government and line departments like agriculture are not funded adequately. But, even where funding is available, the Government agencies mandated to support miners and farmers rarely provide support – and generally harass and extort the ‘invisible’ people.

Cooperatives and women’s groups could provide an institutional structure which genuinely benefits their members. However, most of the coops reviewed in this study have been captured by an elite – politicians and/or their founder members and they do not represent the interests of ordinary members. And the legal structure of cooperatives in DRC compounds this problem.

All the women's groups the study team met were led by professional women in leadership positions in other organisations. This form of elite capture appeared to the study team to impact less negatively on the activities of these groups, compared with most cooperatives. There is some evidence in the literature to support this impression (see earlier analysis of PROMINES project), however further research is needed to get the strength of evidence up to the level required to shape future aid programming.

The only institutions which appear to focus on the needs of the population are some INGOs. Many of these focus on short-term emergency relief, which is not necessarily appropriate in a context of protracted crisis. But some have a more developmental orientation.

Section 2. The sectors: Agriculture and mining and economic development

2.1 Contribution of ASM and agriculture to livelihoods and viable long-term jobs

ASM

Estimates of the number of people involved in ASM are notoriously difficult to validate. The literature review cited figures of 150,000 people working directly in the sector in 1999, increasing to 1.5 million to 2.0 million people working in ASM today (World Bank 2019). If reliable, this figure represents about 6.5% of the 31 million workforce in DRC.

The capacity of ASM to absorb large numbers of people both directly and indirectly through jobs in associated industries and employment opportunities the sector creates, including in agriculture, demonstrates its importance to rural livelihoods. Known as the ‘multiplier effect’ this is difficult to quantify. However for each person working directly in ASM, 3-6 are said to rely on the sector (World Bank, 2019). Despite fluctuations and cycles in global mineral prices and the ability of industrial mines to retain labour during periods of economic booms and busts influencing employment in ASM, for as long as ASM remains a largely poverty-driven activity and the demand for minerals continues, so will these activities.

ASM activity is largely informal in the sense of miners being self-employed ‘piece workers’ with basic methods and equipment and our focus group discussions highlighted the frequent movement of individuals between mining and agriculture. Almost all miners were previously farmers who had moved to the mining site from elsewhere in the region and many have kept the family farm, to which they return frequently.

The wages earned by miners are variable depending on the geology, international markets, and recovery rates of mining and processing methods and equipment which, according to the literature, often average just 20-30%. Quantitative studies, cited in some detail in the literature review, have estimated mining earnings of \$80-\$150 per month for an individual mine worker. At ASM sites globally activities are informal and at first may appear unorganised, but as found in the Kivus mine site level activities are actually highly-organised with a recognised division of labour between well owners, miners, spotters, porters, washers; agreed payment terms for each category of worker; and, multiple expensive registration documentation. This is an important reminder that markets are always regulated, even in very fragile contexts, but not always by formal rules and legislation (Mallett and Pain 2017).

During the focus group discussions, \$5-\$10 a day (equating to about \$100-\$200 a month) was the most regularly cited wage which miners extracting 3Ts receive. In the Kasai, the earnings of diamond workers are more erratic. This is due to the variation in value of a raw stone depending on its weight (carat) and clarity and extent to which the alluvial deposits contain large quantities of diamonds. During interviews it was reported that a diver as part of the mining team extract on average 1 tonne of sand per day (20 x 50kg sandbags) and that they could earn anywhere between \$17-\$100,000 a day. The higher figure, though exaggerated, showing the high degree of luck associated with diamond mining should a ‘big stone’ be found. In terms of profit sharing of such a rare find, provided the miner has the correct license and paperwork legally they own the stone and must submit to the state agency for valuation by the government agency the Centre d’Evaluation, d’Expertise et de Certification (CEEC) and certification via the Kimberly Process Certification Scheme. In practice, any large find may be kept quiet by a digger where possible to ensure their security and ownership. Although there are women miners, women typically work in parts of the mineral supply chain which are much less well-remunerated such as porters and washers.

Box 5 – Where mining wages are invested



Image of the richer district of Nyabibwe in South Kivu, built largely on the proceeds of mining. Some analysts have suggested that miners tend to invest their wages in urban housing in preference to agricultural investment

In all cases, there is abundant evidence from the focus group discussions that the erratic earnings from mining result in many miners living on credit to pre-finance their operations from the *Négociant* or middleman (the person who buys the coltan from the mining supply chain and sells it to the processing company/exporter). This is common practice in the ASM sector across the world. When mine workers do receive a significant cash payment, spending their earnings may follow a fairly convoluted path. Many miners state that they send most of their money back to the family and the farmstead, and this is supported by empirical analysis of household budgets in settlements around cobalt mining areas which typically indicate that 20% to 60% (South Kivu Panel Survey 2018 and Faber et al 2017) of total household income is derived from miner earnings. As evidenced from other studies in the literature, this income is often spent in the local economy and can create additional jobs in associated industries through what is referred to as the ‘multiplier effect’ (World Bank 2019). Examples of expenditure include in bars, sex work, and the night-time economy as well as transport, mining equipment (pans, shovels, head-torches, shoes etc.), schooling, food, and general provisions.

Whilst ASM mining cash incomes are up to an order of magnitude larger than the average income for a farming household, this does not imply that their livelihoods are entirely secure.

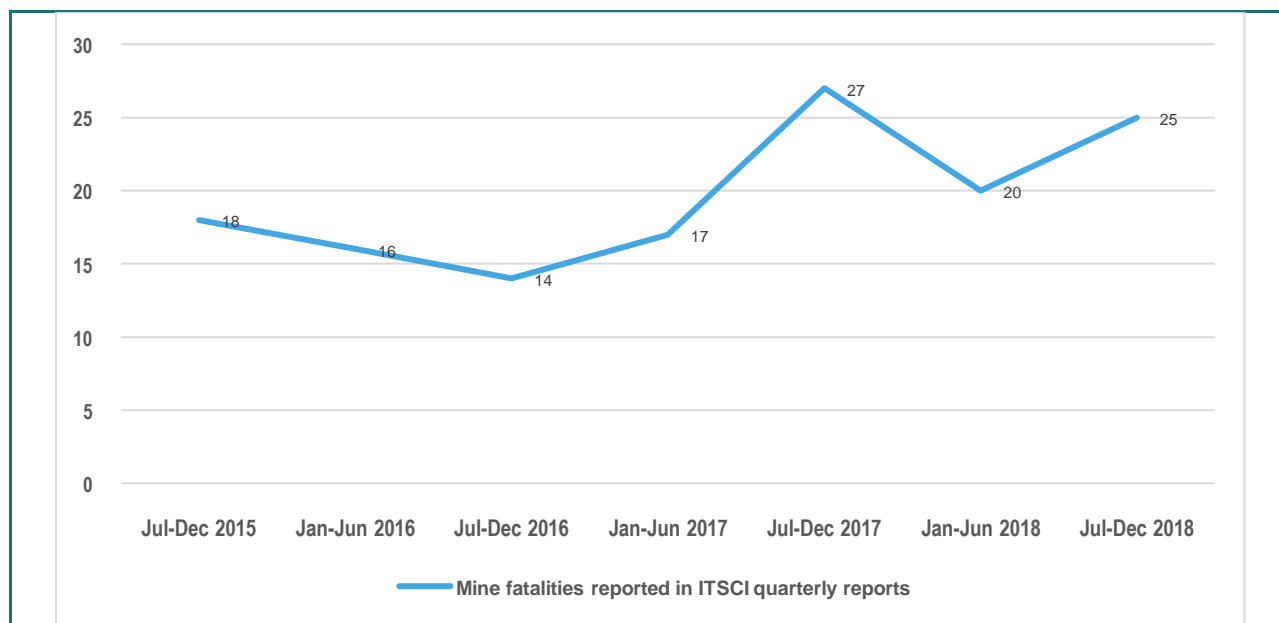
First, mining is a dangerous occupation, even in the context of DRC. Whilst in theory there is long-standing legislation to improve the safety of ASM (Law No. 007/2002, Decret No. 047/2003), in reality due to the poverty-driven nature of activities and limited technical know-how and support miners work with rudimentary tools under significant time pressures and with limited priority afforded to their welfare. An indication of the scale of this problem is the difficulty in gathering any data on ASM safety which, worldwide, is yet to be routinely collected or reported at any scale the sector (World Bank 2019)

One source of data for ASM fatalities that is available are the International Tin Supply Chain Initiative (ITSCI) incident summary reports (see Annex C for an example). Their focus is to ensure compliance with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. As such, the reports are dominated by incidences that contravene OECD guidelines, such as reports of mineral tags being lost, discrepancies in mineral weight records and mineral thefts, and security issues including illegal taxation by state or non-state armed groups and corruption. However, they also record mining fatalities and other human rights issues such as child labour at the mine site.

We have no basis for assessing the accuracy of the figures, although almost all these fatalities involved compensation (normally \$300 per fatality) being paid by the cooperative or pit owner to the bereaved family – so they are unlikely to be an over-estimate. In fact, they may well be an underestimate. For instance, the incident summary report highlighted a huge landslide in D4 Gakombe mine on 7th February 2018 following very heavy rains in the area. Local media reported that between 40 and 100 people died due to the landslide. These numbers, however, had still not yet been confirmed one year after the incident, so have not been included in the time series below.

The reports cover all ITSCI supported 3T mines and supply chains from mine to smelter in North Kivu, including non-ITSCI mines and other minerals when relevant. But do not provide complete cover for all 3T mines in the province as they are remote or covered by a different due diligence scheme.

Figure 9 – ASM fatalities reported in North Kivu



Source: ITSCI Quarterly Incident Summary Reports

This analysis indicates a very high - and rising – trend in fatalities at ASM mines in one province of the DRC where 44 people died in 2017 and 45 in 2018. This suggests almost one fatality per week, based on this partial data for 3T in one province. The peak in fatalities in 2017 coincides with a near doubling of mine workers at ITSCI monitored sites in North Kivu up from 6,810 in 2015 to 13,539 in 2017 recorded at the end of each year. As of December 2018, there were 8,362 miners employed at ITSCI sites (ITSCI, 2015-2018). It is therefore important to contextualise the number of fatalities as a percentage of total employment.

Most deaths are of miners who are killed underground due to landslides and pit collapses although fatalities also include washers drowning in pit reservoirs and from lightning strikes. What is particularly noticeable about the figures is the influence of a small number of particularly dangerous mines. For instance, the Luwowo mine in Rubaya accounts for 57% of total of 137 ITSCI reported fatalities in North Kivu over the past 3.5 years. This equates to two deaths a month on this single mine site. There are several possible explanations for this high accident and fatality rate:

- Luwowo is a very large SMB concession which at its peak had 2,000-3,000 operators;
- the geology of the site is particularly porous with unstable soil; poor mine planning and technical implementation in terms of dangerous tunnels and pits dug; and
- there is a lack of supervision and support from the cooperative owner and state services to monitor, enforce, and help guide and improve mining techniques.

The neighbouring D4 Gakombe site also located on SMB concession faced similar large accidents and mining was suspended for over a year until a comprehensive mine site stabilisation plan was developed and implemented.

The safety record of ASM mines in North Kivu is absolutely appalling. In 2014 a typical fatality rate for industrial workers (including mining) was 3.8 per 100,000 workers per year. In SE Asia and Africa the figures were 9.7 and 21.1 fatalities respectively (Hamalainen et al 2017).

Mining is a dangerous occupation and the fatality rate is 111 per 100,000 workers in the Zambian copper belt. However, the rates of fatalities we have seen in this study are up to an order of magnitude worse than this, 538 per 100,000 for North Kivu and 892 for the Luwovo mine per 100,000 workers.

Box 6 – The dangers of artisanal mining



On the day the study team visited this *mazimba* diamond mine in the Kasai, an internal landslide killed three miners who were trapped underground

Second, ASM is a best available livelihood option. Whilst there are areas where artisanal production has been on-going for centuries, the continued growth of the ASM sector over the past four decades in Africa reflects the growing demand for 3T minerals in personal electronic devices and collapse of many large and semi-industrial mines in the study areas that once offered much better wages and labour conditions and the endemic violence which has rendered agriculture unviable. This suggests that, whilst many miners regard ASM as the most viable livelihood option available, this is on the basis of extremely constrained, and narrowing, livelihood choices in rural economies blighted by instability. On the basis of interviews with people migrating to ASM, Maclin et al (2017) indicate that the economic ‘push’ from rural poverty and joblessness is a more potent motivation for people to move to the mines than the economic ‘pull’ of ASM.

Third, though differing by mineral type and arguably some improvements made through the variety traceability and due diligence schemes over the past decade (Matthysen et al 2019), the harassment of ASM operators by the government officials and rebels (who have stepped into the space vacated by legitimate state activities) continues. Even where miners are registered with the designated cooperative and Ministry of Mines and are working on a designated area for Artisanal Exploitation Zone (ZEA) there remain instances of miners being subject to informal taxes and harassment by the army, police and civil servants. Officials know the mine workers have access to cash and any delay to work prevents them from earning their income - they exploit this vulnerability. At one site women carriers reported continuous invasive physical searches by officials on the pretext of restricting the ‘leakage’ of minerals from the certified coltan supply chain. In many cases the harassment may not even be at the mine itself, but through the creation of roadblocks and checkpoints on arterial roads where rents are extracted (Matthysen et al 2019).

Box 7 – Certifying mineral supply chains

In 2010 the President suspended artisanal mining in the Kivus - it resumed in 2012. This production ban was linked with the passing in the U.S. Congress of a landmark ‘conflict minerals’ provision – Section 1502 of the Dodd Frank Act. This requires U.S. publicly-listed companies to conduct ‘due diligence’ on their supply chains for tin, tungsten, tantalum and gold originating in the DRC. Companies are required to show they are working with the appropriate care and due diligence – to ensure they are not funding armed groups or human rights abuses and to report on their efforts every year to the U.S. Securities and Exchange Commission. This has provided the impetus for organisations such as Pact to implement the ITSCI traceability and due diligence programme, to allow Congolese 3T minerals access to world markets

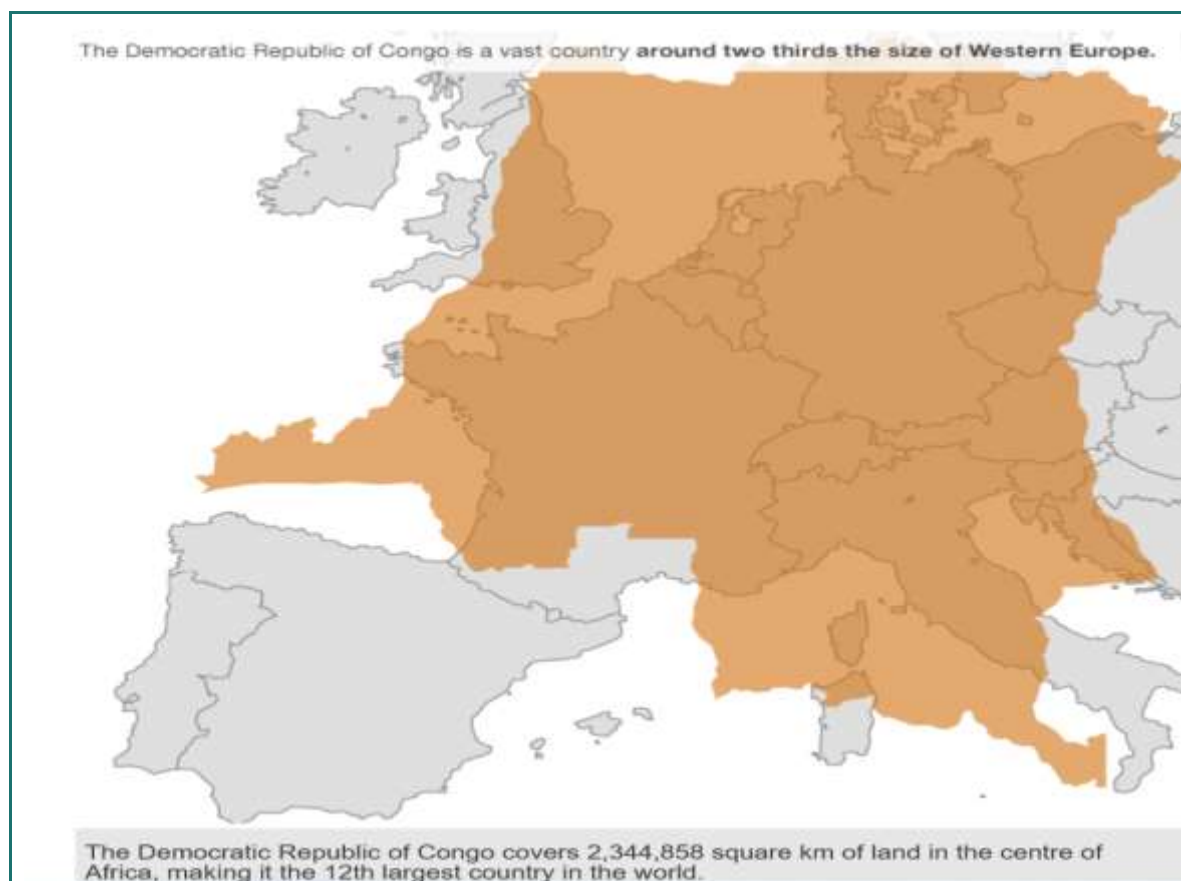
Fourth, while minerals and mining are not a cause of conflict in and of themselves, the extent to which activities exacerbate, or just reflects, pre-existing tensions between former combatants in this 'post-conflict' environment remains a debated topic. The link between mining and conflict may be exaggerated. A recent study examining over a decade's worth of data in eastern Congo found that 'most armed conflicts appear to be unrelated to mining activities' (Matthysen et al 2019). Using geo-referenced data from 1997-2007 the relationship between DRC Governments granting of mining concessions and the intensity of the conflict in that same geographical area, Maystadt et al (2013) show that, at territory level the relationship does not hold, but at the larger district level it does. The explanation for this finding is that clusters of mines have a pacifying effect in the immediate vicinity, but displace conflict into adjoining areas.

The introduction of traceability and due diligence in response to mounting international pressure concerning 'conflict minerals' and the Dodd Frank Act (Box 7) has allowed DRC minerals to continue to be traded on international markets without being smuggled through third countries. However, when first introduced in 2012 the Act had the consequence, effectively overnight, of taking away the livelihoods of many Congolese who were not associated with any armed group. Additionally, Maclin et al 2017 report that it has also enabled armed groups, the police, and military to move into new mining sites and exploit miners in areas they were not operating in previously. In this way, as a study of ten years-worth of data relating to conflict and artisanal mining in eastern DRC found, while armed interference at sites is decreasing over time in areas where responsible sourcing initiatives are being implemented, the authors note there is a greater potential for corruption among state agents who support the implementation of such schemes (Matthysen et al 2019).

Traceability and due diligence schemes therefore allow external buyers to know the origin and chain-of-custody of the minerals they purchase and to continue to trade but require safeguards to ensure unintended negative consequences. Further, though not designed to stop conflict, the traceability and due diligence schemes put in place include measures to record and report risks and incidents of smuggling, violence, and human rights abuses, training and guidance to mitigate such issues, and facilitate multi-stakeholder meetings, all of which have helped to provide a basis for building stability in certain mining areas – however fragile.

For example, in Rubaya which has been a focus of certification schemes since their inception, a complex and precarious situation has played out for many years between the concession holder SMB and the cooperative COOPERAMMA. This tension also reflects the ethnic lines that the cooperative, as many others, are built upon (Matthysen et al 2019). Here, the Tutsi-owned mining society, whose predecessor obtained the site during the incursion from Rwanda during the Congo War and subsequently regularised its mining rights during negotiations with government, has a fractious relationship with the 'indigenous' Hutu miners and cooperative who own the land rights to the site. With the mining law taking primacy over the land rights, the result is that labour disputes at the mine risk descending into tension and even violence between the two parties are expressed along ethnic fault lines. Today, the site maintains a fragile co-habitation.

Significant numbers of mines have an armed group present, whether it be the Congolese army (FARDC) or rebel and militia groups: a recent study of 998 men and women in largely 3T ASM sites in Kalehe, Mwenga, and Malungu in South Kivu found that just under one-fifth of male in-migrants to mines were in sites with an armed group present, whereas almost one-third of women mine in-migrants were in sites with an armed group present (Maclin et al 2017). This could be regarded as a dangerous militarisation of the mining workforce, although the authors conclude that it rather reflects the need and choice of workers – and women workers in particular – to seek some protection against attack from an external armed group.

Figure 10 – The geographic scale of DRC

Agriculture

Agriculture should be able to provide secure and prosperous livelihoods to the 70% of Congolese households for whom this is their main source of income. The quality of agricultural land is almost ubiquitously high and the climate, whilst changing, is benign. During our focus group discussions with farmers, the ability to farmers to achieve impressive yields was clear. Irish potato yields of 12-13 tonnes per ha, maize 3-5 tonnes and beans of 3 tonnes per ha and up to three cropping cycles a year were reported and this an unusually high level of productivity for rain-fed agriculture in Sub-Saharan Africa. The fact that these yields are being routinely achieved by farmers with virtually no quality inputs, equipment, extension services or with no more than a couple of years of primary education is striking. In addition, with such a low population density – just 80 million people inhabiting such a vast country with only about 13% of the cultivatable land currently being used for farming – one would anticipate Congolese farmers having ready access to land.

However, the reality is that Congolese agriculture is in a parlous state. In 2017, the Eastern Congo was only 29% self-sufficient in maize and 76% self-sufficient in cassava – the two most important staple crops. Malnutrition in the Congo is on the rise and Congolese agriculture is not only failing the Country but also farming households. Quantitative surveys cited in the literature review indicate very low farming incomes, at \$20-\$30 per month. For rural households, which often include three generations and ten members, this income level is a very long way below the international poverty threshold of \$1.90 at PPP rates per person per day. As a livelihood option, smallholder farming is either at, or very close to, the point of being 'untenable' (Maclin et al 2017).

IFPRI explains the Congo's very significant failure to do more than scratch the surface of its agricultural potential in terms of the collapse of production and supply chains – between the farm and the market – in three-quarters of the DRC (Marivoet et al 2018). These supply chains have broken down because of a crippling series of constraints on agriculture.

These include climate change and conflict, compounded by structural constraints around the lack of provision of basic infrastructure and public goods.

To give an impression of the extent of conflict in one of our study areas, Annex C outlines the security incidents (not all of which are related to ASM) highlighted around ITSCI ASM mine sites in one of the three study areas in July 2018. To be clear, this is a very partial snapshot of one small area taken 15 years after the ceasefire for the war which claimed the lives of some five million Congolese. What was unusual about this month was that no one was killed (beyond the two deaths of miners in landslides at the mine). What it reveals is the instances of arbitrary extortion of the public by the national army (the FARDC); the absence of the rule of law with non-state armed groups attacking people; and the tensions between organisations working in the mining sector. This level of insecurity has a strongly negative impact on farming, which requires security to access the fields and the ability to transport product to market.

Interviews highlighted two important binding constraints to agricultural development in the study areas, inadequate roads and poor access to land. We also identified a lack of agronomic advice and quality inputs as secondary constraints.

The absence of adequate roads is critical to a sector which is premised on moving bulky products from rural farms to urban consumer markets. A case study of the impact on farm economics of the difference between poor but passable road infrastructure and farmers being cut off from all but local markets, is provided every rainy season. Produce from the rural Kivus can access the Goma regional market during the dry season and relatively high farm-gate prices of \$40 a 100kg sack for potatoes and \$30 for maize are achieved.

However, during the rainy season, the roads become impassable so that produce can only be sold at local markets and farm gate prices drop to \$20 a sack for potatoes and \$9-\$12 for maize. Farm gate prices halve as a direct result of an impassable road substituting for a poor quality road and cutting farmers produce off from the main regional market. This is important because, at the lower farm gate prices achieved during the rainy season, whilst production costs remain constant, the margins reduce dramatically.

One of the consequences of very poor road infrastructure, combined with rural insecurity, is that agricultural activity itself moves closer to the market and becomes increasingly urban. Whilst almost all farm households in the Kasai are rural, in 2013/14 up to 10% of farm households were urban in South Kivu and up to 30% in North Kivu (Marivoet et al 2018).

Farming communities in the study area are not homogeneous and there is evidence of significant social and economic inequality which directly relates to households access to land. Landless agricultural workers are the most vulnerable people in the rural sector, being dependent upon irregular seasonal labour in a very fragile, illiquid rural labour market. Amongst households that farm, the lack of access to land is striking. In the Kivus, even if households have access to a small plot of land, the majority rent additional space, sometimes in a sharecropping arrangement but more normally as a rental agreement. Given the high cost of land rental, it is not unusual for two or three households to rent a 1 ha field.

In the Kasai the pressure on land is much less severe. During the focus group discussions rentals of \$20 per hectare are typical and sharecropping arrangements only involve 10-15% of the harvest.

The absence of support available for farmers was striking throughout our fieldwork. In addition to being unable to offer security and passable roads, the lack of any other Government services was ubiquitous. The predominant contact between public servants and farmers appeared to involve the former extorting money from the latter, normally in the form of informal taxes, rather than providing any useful service.

Box 8 – The land ‘time-bomb’

The difficulty and expense for farmers accessing land, particularly in the Kivus, is striking. Rents of \$300 to \$800 per Ha are routine. The pattern of very large, politically-connected, absentee landlords (‘strong men’) who acquired land on benign terms from the state and use their economic power to extract rents from the local population represents a thread of continuity from the colonial era.

The panel survey revealed an increasing trend to diversify rural livelihoods in South Kivu. 85% of households involved with crop cultivation or livestock in 2012 had diversified their household income by 2015. This diversification included the sales of goods, casual labour and business ownership (ibid 2016). This is unsurprising, given the extremely low returns from agriculture and the binding constraint of accessing land on increasing these returns in the Kivus – and the evidence of a tightening rural labour market. These moves to ‘step out’ from the farm may reflect a nuanced appreciation of the constraints to ‘stepping up’ by upgrading existing agricultural value chains.

It is intriguing that many government departments, farming associations and others regard agriculture as a plausible exit strategy for miners leaving mining. This may reflect a nostalgia for the past (widespread and understandable in the DRC context) rather than a logical assessment of ex-miners best interests. Exit strategies to trade and small business may be more suitable alternatives for ex-miners than agriculture (Perks 2011) because they represent an opportunity to improve on the very precarious livelihood of the smallholder farmer.

Farmers do however receive helpful support from a broad range of NGOs, including INGOs. Farmers in the Kivus regarded the work of Fopac, AGCDI, Aprona, SENASEM, INERA, WAVE, IPAPE, Apeka, ASF, Oxfam, Christian Aid, Premier Urgence and local associations favourably. In the livestock sector there are a number of programmes which supply farmers with animals where the off-spring are circulated to neighbouring farmers. In the Kasai, local NGOs such as CATIAP, CADEFA, and CAPERT have concessions of several hectares to teach displaced people how to farm and organize themselves to diversify their activities in farming and mining. NGOs supervise displaced people from the Kamwena Nsapu and Angola conflicts. These NGOs mainly support agriculture and animal husbandry activities. The displaced who manage to earn money, invest in diamond mining or in agriculture.

Even if the two binding constraints of inadequate roads and difficulties accessing land in the Kivus cannot be solved, there would be a livelihood benefit of delivering agronomic support and quality inputs to farmers. None of our respondents mentioned the work of ELAN, the DFID market development Project which is working in the seed input sector in the Kivus. However, it would be unlikely that farmers would be aware of the aid project which has incentivised input suppliers to serve the smallholder market – even if they were the beneficiaries of such a project.

2.2 Negative linkages and conflicts between agriculture and mining

The key negative interdependencies between agriculture and mining are: competition in the land and labour markets; environmental degradation; theft of crops; higher food prices fuelling food insecurity; and an increased burden of farm work on women.

2.2.1 Competition in the land market

There are several dimensions to the competition between agriculture and mining in the land market. In section 1.1, the impact of mining rights having primacy over agricultural codes plus the failure of the state to enforce the legal protection of farmers was discussed in detail.

In our interviews we heard of no instances where farmers had been adequately compensated for being relocated from their farms, nor had the specified procedures been followed. This is despite Article 281 of chapter II of Title XI of the mining code explicitly requiring compensation be paid and the exact terms. Further, the Ministry of Mines confirmed that the framework for consultation between the mining and agricultural sectors has never been operationalised.

Given the political economy of DRC, where mining rights tend to be secured by the powerful and politically-connected and land rights are held by the 'invisible' majority (Mallett and Pain 2017) – most of whom lack any formal documentation to define their rights – an inequitable outcome is almost inevitable. Examples from the literature (POM, 2015) of relocating communities, including artisanal diggers, by mining companies has shown mixed results. Poor practices include insufficient information for community, absence of free-prior informed consent, lack of fair valuation of property, no direct communication and negotiation channels between mining company and community, poorly defined role of state.

Good examples cited by the report are the resettlement processes by the Tenke Fungurume Mining mining projects in Lualaba Province and Twangiza Mining (Banro Corporation) in South Kivu province. In both cases there was full consultations throughout, a full resettlement action plan, measures and policies, and the construction of housing and replacement infrastructure at new sites.

The economic consequences of this displacement of smallholders to make way for mining, particularly in the mineral-rich and densely-populated parts of Eastern DRC, is to exacerbate the difficulty and expense farmers have in accessing land for farming. Politically, the consequences of displacing 'indigenous' customary land owners with mining interests held by people perceived as 'outsiders' can be incendiary - as is discussed in the ASM Section above. .

2.2.2 Competition in the labour market

The labour market effect of a mine opening is that large numbers of young men and some young women move to the mine area in search of economic opportunities. Because mines are in rural areas, this normally implies a move from elsewhere in the region. In our focus group discussions, almost all miners had relocated to the mine site. The consequences that flow from this are significant: farming work is left in the hands of older people and women, and there is a tightening of rural labour markets.

The feminisation of agriculture as a consequence of mining can be exaggerated. In Sub-Saharan agriculture women tend to carry out the majority of farm work – even where men are present and mines are not. An IFPRI gender assessment of agriculture found that women comprise 75% of the agricultural labour force in DRC (Ragasa et al 2012). In conflict-affected areas, such as our case study areas, violence has resulted in the premature deaths of many men which has accentuated this trend. In South Kivu, for instance, about 16% of households are female-headed. So mining has reinforced the existing dependence on women at all stages of the agricultural production process.

This has had a number of consequences. Women's groups suggested during our fieldwork that the feminisation of the farming labour force has reduced the status of farming, increasingly seen as a 'menial' activity, and also of women themselves. This perception is reinforced by the marginal viability of smallholder agriculture in DRC. Also, as women assume an ever-greater responsibility in the agricultural labour force, this also sharpens the disconnect between the legal position of women in DRC (gender equity is prominent in the Constitution).

In reality women struggle to gain access to land, inputs, credit, education and representation in governance bodies from the community level and above.



Maize traders in the Kasai

The tightening of rural labour markets, caused in part by mining, is evidenced by increasing agricultural labour prices in all our study areas. Day rates vary between \$1.00, \$1.05 and \$2.40 in the Kasai, South Kivu and North Kivu respectively – plus a ubiquitous food ration of \$0.60 per day. Whilst this increases costs for farmers and so is a negative impact on farming of mining, it is a key indirect pro-poor impact of mining because it benefits large numbers of the most vulnerable people in the countryside.

2.2.3 Environmental degradation



Diamond wells in the Kasai

Whilst agriculture and infrastructure development have the largest impact on deforestation in DRC, mining has a significantly negative impact on the local environment. At the mine site, the removal of the top soil over-burden leaves the mineral-bearing sands exposed and results in erosion. Digging numerous wells can cause ground collapse around the mine site. Wider environmental impacts include: sifting for, and the washing of, minerals which causes serious water pollution. Many people and their animals in rural DRC are dependent upon surface sources for drinking water, fish and cleaning, this has serious negative impacts on downstream water users.

We found no evidence of environmental regulations being implemented by ASM operators at either end of the development pipeline. This is due to the high degree of informality including knowledge, resources, and access to support to meet such environmental standards. The challenges with monitoring and enforcing such regulations are also acute. There is a need to work with miners to increasing their awareness of the requirements, and demonstrate the economic incentives of implementing mining techniques that improve economic and environmental returns.



Cassiterite washers in South Kivu



Sifting for diamonds in Kasai

Damage to crops

Farmers reported that their crops were often damaged by miners trampling through their fields, dropping litter and stealing food from the fields. If farmers attempt to stop miners damaging their fields, the confrontations can become violent. Beyond the loss of output, this also imposes tangible costs on farmers. From focus group discussions, it was common practice for farmers to place two ‘watchers’ per ha to protect the crop from theft – this level of protection costs \$40 per watcher per month.

Increased malnutrition

At a regional level, it is demonstrably the case that areas with concentrated mineral activity in the Kivus and the Kasai are associated with even higher levels of malnutrition than the rest of the DRC.

At one level, this relationship is counter-intuitive. If mining creates a hub of demand for food and this stimulates the agricultural sector to thrive and produce more food in response, one might expect malnutrition to fall. However, what appears to be happening in the case study areas is that mining is emerging in areas which have suffered a dramatic fall in production – primarily as a consequence of conflict. The growth of mining then further weakens the agricultural sector as labour moves off-farm to the mine – so farming has real supply-side constraints to being able to respond to buoyant demand for food. Given fairly unresponsive supply, as demand for food grows, this is reflected in higher food prices. Whilst this does benefit farmers selling surplus crops into the local market, it has a strongly negative effect on the food security of anyone who has to buy food (those living at the mines or in rural areas who are unable to grow all the food that they need), a category which includes many smallholder farmers. Increasing malnutrition rates in mining areas suggest that the losers are more numerous than the gainers as food prices increase.

2.3 Positive synergies between agriculture and ASM

The positive synergies between mining and agriculture include positive resource transfers from mining into agriculture (and visa-versa); the ability of mining to generate liquidity and effective demand for food and other services. There is some evidence of dynamic impacts through infrastructure enhancements and also innovative institutional responses, in the form of cooperatives, to the failure of the state to mediate between mining and agriculture.

Positive resource transfers



Semi-industrial diamond mining in the Kasai

Miners state that they send back to their farmstead a significant proportion of their earnings for agricultural investment purposes, to buy land, equipment or animals. As outlined earlier, there is some evidence from panel surveys of rural households in mining areas from Kivu that earnings from mining make up a significant proportion of total household income. However, there is some evidence which suggests this important synergy is working fairly sporadically.

First, given the very low incomes of farming households (some \$20-\$30 per month) and the much higher incomes of mining households (some \$100-\$200 per month) it seems implausible that most miners are sending a majority of their income to the farmstead if this revenue only constitutes 20% to 60% of household income. These figures would suggest that only a relatively small proportion of mining incomes is being remitted to farms or that only a very small proportion of rural households have access to a miner incomes.

Second, evidence from interviews with women's groups and farmers associations suggests that a high proportion of miners' wages, beyond living costs, are being spent on alcohol and sex-workers at the mine site. There is some evidence that the investments miners are making are in urban housing and cars – and not on their farms.

Third, whilst anecdotal though supported by other studies on trading dynamics in ASM there is reasonable evidence that many miners are living in debt to the *négotiants* to whom they sell minerals. In this way, miners receive pre-financing to undertake activities and in return sell their minerals back at a reduced price. This is common practice in the ASM sector globally. This dynamic means it is unlikely that miners are remitting so much of their income back to the farm and that their income earning potential is reduced due to the credit arrangement they are in. Instead, miners who can earn quite large amounts of money very quickly, relative to their counterparts in agriculture, and whom are operating in a cash-only economy, tend to spend their money swiftly and without any clear strategy. They then get into debt until the next earnings arrive. In contrast to this, many farmers reported using their animals as a savings mechanism, which could be disposed of quickly if the household had a sudden need for funds.

Importantly, there therefore exists an opportunity to provide financial literacy training and micro-savings products to help miners invest their income better, including in farming which would help strengthen the positive linkages between the two. In Rubaya, for example, through ITSCI the Dutch Ministry of Foreign Affairs (DMFA) have supported the WORTH for miners project with the aim of improving incomes artisanal miners by training and strengthening literacy, numeracy, savings and financial skills through an engaging and appropriate curriculum (Pact n.d.).

Mining generates liquidity and effective demand for food and services

The impact of cash arriving in a local economy should not be under-estimated. One thousand miners earning \$200 a month represents a liquidity injection of \$2.4m each year into the local economy. This has a dramatic impact on a rural local economy that is linked to a regional centre by a single road which may be impassable for much of the year. Food prices in the local market increase and, because farms are often close-by, farmers can sell their produce directly to customers. In this way, food sales revenue ripples through the rural economy.

Mining creates a viable market close to farmers and so overcomes the binding constraint of poor infrastructure between the farm gate and the market. Mining does not solve the second binding constraint experienced by farmers in accessing land – and may indeed exacerbate this problem through the land-take for mining activities and the increased liquidity which may bid up the cost of land.

Investment in economic infrastructure



On the main road from Kinshasa to Tshikapa

There is some anecdotal evidence that the road linkages between regional centres and mining areas are less poor than those which do not connect to a mine. This is a typical dynamic effect in a local economy, meaning that the presence of the mine does not automatically and inevitably result in a better road. However, it does raise the political and economic prominence of the mining area and creates powerful political interests around the mine which will tend to favour infrastructure investment. This may then benefit large numbers of

farmers by improving the route to market for their surplus product.

2.4 Gender impacts in the mine and on the farm

The DRC is one of the worst places to be a woman on earth. The World Economic Forum's Gender Gap Report for 2018 benchmarks 149 countries on their progress towards gender parity across four thematic dimensions: economic participation and opportunity; educational attainment; health and survival; and political empowerment. By this measure the DRC ranks 144th out of 149 countries. The only worse places to be a woman are Chad, Syria, Iraq, Pakistan and Yemen. The DRC is also surrounded by low-income neighbours that perform very much better in terms of the role of women: Rwanda (ranked 6th); Burundi (31st); Uganda (43rd); Uganda (119th)⁷ and upper-middle income Angola ranked at 125th.

DRC has since 2006 a Constitutional guarantee of the right of women to fully participate in the development of the nation at all levels and the State is under an obligation to guarantee the application of the principle of equality between men and women. The state has, more recently, ratified a series of international agreements requiring the state to implement the goal of gender equality. The fact that these Constitutional guarantees co-exist with such dismal performance illustrates the sharp disconnect between formal rules and lived reality in DRC.

⁷ Zambia was not included in the 2018 Gender Gap Report. The most recent score from 2015 was 0.650, which puts Zambia in 119th position in 2018 ranking between Tunisia and Benin

Box 9 – Domestic violence in DRC

New meta-analysis using nationally representative household survey data from 3,436 women in the DRC reveal that the levels of violence, and particularly of intimate partner sexual violence, are even higher than has been previously calculated. Estimates (based on multivariate logistic regression) are that 1.6 to 1.8 million women have been raped and over 3 million affected by intimate partner sexual violence. Thus, while most of the attention has been paid to accounts of sexual violence perpetuated in association with the armed conflicts in the country, it appears that violence within the home affects an even higher number of women. There are regional variations in the dispersion of violence, with Nord-Kivu having the highest rates of all types of violence.

Source: Peterman, Palermo and Bredenkamp (2011)

The Wageningen/ODI panel survey taken in 2012 and 2015 showed that, whilst perceived levels of sexual violence are still extremely high, the incidence dropped significantly between the two dates. Female-headed households are significantly worse off than male-headed households in terms of asset and land ownership, housing quality, education levels and participation in local decision-making, but are not more food insecure and have equal access to basic services. Women and IDPs have an even poorer perception of government actors than the rest of the population (Ferdinand et al 2016).



Porters in South Kivu

The study team met and interviewed women miners and negotiators, two of the more powerful positions in the mine. However, the great majority of women working on mine sites work in the least well remunerated posts such as porters and washers. Porters typically receive \$0.18-\$0.30 (CDF300-500) for carrying a 30kg sack from the mine to the wash point – with the higher amount for longer distances of 1km. On an ‘open sky’

site yielding 1,400 sacks per 9 hour day with 50 porters, each porter would typically earn \$8 per day. This is lucrative compared with farming but is back-breaking work and less than the daily earnings of miners and most porters. Porters also face the gender-based harassment and structural violence of transporting material past lines of officials who search porters to ensure they are not smuggling any material out of the mine site. Washers typically receive \$0.09 for washing each sack of material.

Notwithstanding the significant inequalities in access to assets, decision-making and education and the improving but still appalling levels of violence faced by women in the home and elsewhere and low levels of self-esteem, the study team met women who had achieved success.

Box 10 – The story of Madam Zawadi



Madam Ernestine Zawadi is married to an artisanal miner. The couple used his earnings to buy land for agriculture and now have 100 ha of land. Though the price paid is not known, typically agricultural land in Nyabibwe costs \$300-500 per ha and \$3,000-3,500 for mining land, both reducing in price with distance from the centre due to increased transport costs to markets and reduced accessibility. Together, Madam Zawadi and her husband grow horticultural products and, as they have got more elderly, rent out an increasing proportion of their land by sharecropping and tenant farming. They have just signed a memorandum of understanding with FAO to reforest 50 ha of their land. They were able to educate all their children and currently run the busiest restaurant in the centre of Nyabibwe.

In summary, mining livelihoods contrast sharply with those of farmers. An individual mine worker will typically relocate to the mine site from a farm and earn between four to ten times as much as a smallholder household. As elsewhere, mining appears to be a very dangerous livelihood in the DRC with about 20 people dying on mine sites in ITSCI mines in North Kivu each quarter and mine workers often hassled and extorted by government workers. Meanwhile, traceability and due-diligence schemes while having helped to promote stability over the past decade, also have unintended consequences by bringing miners into contact with more government agencies meaning that without proper safeguards there is the potential for corruption. There are links between mining and a variety of government and non-government armed groups, but it is not straightforward.

Despite the agricultural potential of DRC, farming livelihoods are being depressed by two binding constraints. The roads are so poor physically and in terms of harassment by officials that it is difficult to transport produce to market and, in the Kivus, access to land by smallholders is difficult and expensive. Secondary constraints are the lack of access to quality inputs and the near absence of Government agronomic support. The consequence of this is that smallholder agriculture is becoming untenable for many and there is evidence that farm households are increasing diversifying to earn income off-farm.

There are real, tangible costs to farming communities from mining activity. The two biggest cost drivers in farming – land rent and labour – become more expensive as land is lost to the mining sector and rural labour markets tighten. The environmental regulations for mining do not appear to be being implemented, with negative implications for downstream users and farmers living near the mine sites. Soil erosion, ground collapse, pollution and the trampling and theft of crops impose real costs on farmers. A weakened agricultural sector receives a boost in local demand for food but is unable to respond adequately to the surge in demand for food from mining and so food prices increase to the detriment of the food security of the majority.

Overarching and reinforcing these negative effects is the incapability of the state to implement its own laws to protect land rights, the natural environment, the public and particularly women. The benign effect of the considerable volume of laws, regulations, organisations and policies in Kinshasa purporting to support farmers and miners are not only almost completely absent on the ground in the study areas, but the organisations that purport to implement these formal rules have been transformed into powerful groups whose primary engagement with the public is to harass and extort them.

But inherent to these negative interdependencies, two really important positive aspects stand out. First, the tightening of rural labour markets increases the price of agricultural labour which we know to be one of the most powerful early indicators and generators of broad-based economic development. Second, although the supply side response by agriculture to rising food demand from mines is unable to prevent food price increases and food insecurity, mining is clearly providing a stimulus to agricultural development.

The positive synergies between mining and agriculture is the evidence of mining wages being recycled back to smallholder households – some of which is used for agricultural investment. Given the difficulties of transporting agricultural produce to urban consumer markets, the emergence of buoyant demand for food in rural areas provides an important boost to farmers in areas surrounding mines. There is some anecdotal evidence that mining sites can stimulate the improvement in road infrastructure between the mine and the urban regional centre. This has important spill-over benefits for farming because it, at least partially, releases one of the binding constraints on agricultural development in DRC.

The gender context in the DRC is bleak. Notwithstanding Constitutional guarantees, women are almost uniquely marginalised and subject to appalling levels of gender-based violence in the home at work and elsewhere. Despite this, women are responsible for 75% of agricultural work on the farm and work in all roles at mines – although they tend to be concentrated in the lower wage parts of the minerals supply chain. This considerable level of economic activity does not appear to translate to a higher status within Congolese society and women find it harder than men to access the land and finance that is necessary for empowerment.

Section 3. Recommendations

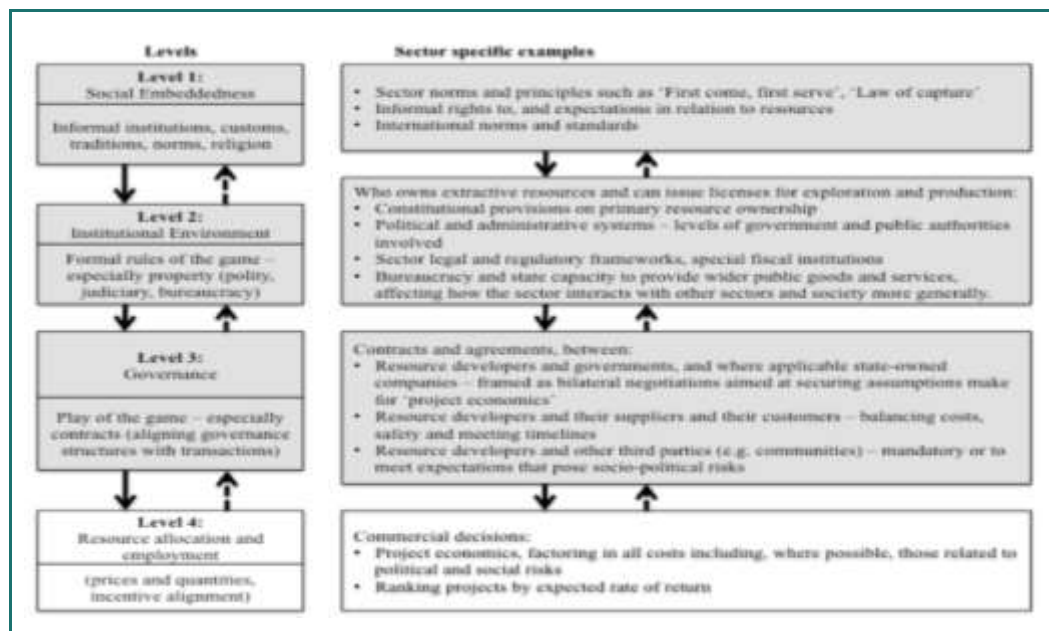
How can the mining sector strengthen smallholder agriculture development and visa-versa (and mitigate current conflicts)?

The recommendations arising from this analysis are wide-ranging. They range from highly complex proposals that, in effect, require a change in the political economy of the Congo as a prerequisite - to more achievable suggestions that can be implemented by an international development agency without significant progress on the binding structural constraints to broad-based development.

To help us differentiate between recommendations which are good ideas but likely to face insurmountable barriers to successful implementation from those which can be implemented with a reasonable prospect of delivering short-term positive impact, we have drawn upon the insights of others. Institutional economists, such as Oliver Williamson at the World Bank, have been working on the political economy of extractives and the governance of the resource sector since the early 2000s. Their insights on issues which are very relevant to this study, such as the importance of institutions for the political economy of resource governance and defining the space within which third parties (such as international development agencies) can minimise the likelihood of unintentional negative outcomes and make a meaningful contribution, are helpful (Dietsche 2017).

The framework below is based on Williamson’s analysis and it illustrates the impact of institutions on economic, political and social outcomes at four different levels. Level 1 is **social embeddedness**. This recognises that economic systems are embedded in social networks and relationships and is based on customs, traditions and norms. These institutions are very powerful and show a great deal of inertia. Level 2, the **institutional environment** provides the ‘formal rules of the game’ for economic transactions. This covers countries political, bureaucratic, economic and social systems – such as property rights and legal and regulatory system. These systems change over decades and may mark distinct political eras. Level 3 **Governance** is the ‘play of the game’ captures the institutions that formalise the commitments of the parties involved in economic transactions, the contracts and agreements which may last a few months or years. Level 4, the **efficient allocation of resources** captures the conventional market analysis based upon the interaction of supply and demand sets prices and the institutional arrangements that work in the background of markets are assumed to remain constant within the shorter-term time frames in which market participants make their decisions.

Figure 11 – Williamson’s ‘economics of institutions’ applied to the resources sector



Source: Dietsche (2017)

The value of this is that provides a framework for understanding how many aid-funded governance programmes fail. For instance, the temptation to propose policy reform in light of the findings of this study is considerable. However, as we have seen, many of the Level 2 institutions, the ‘formal rules of the game’ in the form of written policy in the DRC are already fairly sound – the problem is that they are not implemented on the ground. And this implementation failure may be less a consequence of the all-too-obvious weak governance capacity at Level 3 institutions than progressive policies being regarded as being at odds with strongly-held belief or norms about the vested interests of the status quo amongst the elite at Level 1.

Short term aid programmes are particularly ill-suited to bring about positive institutional change when they are predicated on a misdiagnosis of the fundamental barrier to change. Changing institutions at Level 2 and 3 often requires complementary changes to be negotiated in relations to Level 1 and 2 institutions. Changing the social norms which have underpinned the behaviour of the Congolese state, arguably for the past 140 years, is a challenging task to fit into a five-year donor logframe. However, the Building Sustainability Framework suggests that it is precisely these ‘building blocks’ that have to be tackled in order to develop a sustainable development outcome.

It is with this understanding that we propose the following recommendations.

3.1 Recommendations which would deliver huge benefits but would be extremely challenging to implement

Rationale: The rationale for these recommendations is based upon seeking to bridge the very significant implementation gap between the generally sound policy environment in DRC and the on-the-ground reality. The lives of some 50 million smallholder households would be greatly enhanced if they had more secure and equitable access to land; access to agronomic support; less violent conflict and harassment; and, they could transport their surplus on functional roads. The lives of 2 million people engaged with ASM would be significantly improved if they experienced less harassment; safer working conditions; and, the support of SAEMAPE. 40 million women would benefit from the equality guaranteed in the Constitution being translated into tangible support in the economic and social sphere.

Recommendation 1: Government officials should deliver on their mandates and perform basic state functions effectively. Priorities should include renovating roads; providing security with the military and police; and provide technical support through SAEMAPE to miners and agricultural extension support to farmers.

Recommendation 2: Existing laws and regulations on environmental management; mining titles; gender equality; mine safety and dispute resolution should be implemented impartially by the state.

Recommendation 3: Government should implement its commitments to value agriculture by ensuring that the benefits of the considerable budget allocation benefit farmers on the ground.

Recommendation 4: Government should implement an independent review of previous land and mineral titles to overturn corrupt decisions made in the past.

Analysis: These recommendations are aspirational. They are framed around the normative building stability framework building blocks of ‘fair power structures’, ‘inclusive economic development’, ‘conflict resolution mechanisms’, ‘effective and legitimate institutions’ and ‘a supportive regional / global environment’. If implemented, these recommendations would have a huge positive impact. However, using the framework of institutional economics, they are unlikely to be implemented because they are predicated on a fundamental change to the customs, traditions and norms of the politically powerful and an acceptance by the elite to unilaterally relinquish the revenue streams derived from the implementation gap between policy and current reality.

3.2 Recommendations which could feasibly be implemented in the context of a five year aid programme

Rationale: The rationale for these recommendations is that they do not challenge the fundamental interests of the elite and, therefore, are much more likely to be implementable. The analysis in this report indicates that the lives of farmer and miners would be incrementally improved if financial literacy and financial services were improved for miners to help them manage their erratic incomes and transmit the liquidity of the mining sector more effectively into the rest of the local economy. In the context of an almost complete collapse of effective institutions, support to progressive cooperatives, women’s groups and private sector suppliers represents an attempt to rebuild civil society institutions that can advance the interests of the vulnerable.

Recommendation 1: Building on existing ELAN, GIZ and DMFA interventions, DFID develop and market a commercial savings (and later credit) product to miners and farmers, with associated financial literacy training, to improve household cash-flow management and investment in agriculture.

Recommendation 2: DFID work with accountable and effective cooperatives and women’s groups to support the empowerment of vulnerable farmers, miners and women.

Recommendation 3: Building on existing ELAN interventions, DFID extend working with the private sector to improve access to quality agricultural inputs and agronomic support to mining areas.

Analysis: There is much to commend these recommendations. Experience suggests that they are implementable and the outcomes are somewhat predictable, precisely because they do not directly challenge powerful vested interests. The drawback of these initiatives is the flip-side of their advantages, they are relatively incremental and will improve the lives of specific groups of people living in mining areas somewhat.

3.3 Recommendations which recognise the political economy of DRC and seek to change it by thinking and working politically

Rationale: These recommendations retain the ambition of those in Section 3.1 and represent a meaningful effort to implement the Building Stability Framework. They are predicated on understanding the political economy of DRC and so are more likely to work. This approach recognises that powerful actors have vested interests and claim rents currently. It is not politically feasible to cancel these claims without compensation. Understanding incentives and working politically, there are win-win ‘deals’ that could be brokered to allow progressive policy to be implemented.

Recommendation 1: DFID to undertake a detailed political economy analysis to understand the methods of rent extraction, who currently benefits and how this subverts the policy implementation process. Powerful actors with (and those without) an interest in progressive reform will be identified.

Recommendation 2: Making full use of DFID’s convening power with other donors and progressive interests in the elite DFID, working politically to develop policy reforms that create stronger incentives to implement policy and incorporate actors who may otherwise undermine the system.

Analysis: This is a high-risk strategy, which has not been attempted before in DRC. However, DFID has significant experience in the extractives sector in complex environments like Nigeria where, using the ‘thinking and working politically’ approach, donors have been able to stimulate change to incentive structures that have delivered better development outcomes in very challenging contexts.

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Annex A Terms of Reference

Introduction

On 31st May 2019, DFID DRC proposed a research study exploring the link between agriculture and artisanal small-scale mining (ASM) in the DRC to the Decision Support Unit (DSU). This Terms of Reference (TOR) aims to develop this initial request into a full research proposal. Sections included within this proposal:

- Background including a brief initial overview of some key literature on agriculture-ASM linkages to provide the context for the study;
- Objectives of the study relative to DFID DRC's initial request;
- Methodology for delivering the research;
- Budget, team and workplan for the study implementation;
- Constraints, dependencies, and risks of the proposal.

Background

In Africa, it is estimated that there were one million artisanal miners a decade ago. More recent statistics indicate that there are nine million people working in the sector and about 54 million people dependent upon it (Geenen et al 2013⁸).

Artisanal and small-scale mining (ASM) is a particularly significant economic activity in DRC. The country has rich deposits of diamonds and metals (notably gold, tin, tantalum, tungsten, copper and cobalt) and a formal mining sector which has been subject to highly volatile cycles since 1960. These have ranged from freedom from colonial exploitation to coercive nationalisation in the 1970s to economic collapse in the 1980s and violence for most of the past twenty years. As a consequence, miners with some training from formal mines have often been retrenched in areas containing rich deposits of some of the most valuable deposits on Earth with weak regulation and few alternative livelihood options. The consequence has been a rapid increase in ASM activity in areas of the DRC with workable deposits.

According to the International Fund for Agriculture Development, about 70 percent of the employed population is engaged in agriculture, mostly for subsistence; however, only about 10 million of the country's 80 million hectares of arable land are under cultivation.⁹ It is not, therefore, surprising that researchers and policy makers have recently started to examine the relationship between cash-based ASM as an economic activity and agriculture. Conceptually, it is easy to conceive of how a rapid turnover, cash-based industry like ASM could benefit a slow return largely subsistence sector like agriculture. ASM could support on-farm investment in inputs and equipment and demand for the food grown on farms. There is often a seasonal complementarity to the two sectors, with agriculture labour demand peaking at the start of the rainy season at the same time as working informal mining shafts becomes even more susceptible to shaft collapses than usual.

⁸ Sara Geenen, Daniel Fahey, Francine iragi Mukotanyi (2013) *The future of artisanal gold mining and miners under an increasing industrial presence in South Kivu and Ituri, eastern Democratic Republic of Congo* University of Antwerp Discussion Paper

⁹ 'Democratic Republic of the Congo: Agriculture and Food Security', May 2019, <https://www.usaid.gov/democratic-republic-congo/agriculture-and-food-security>

In the literature, different facets of this relationship between the sectors are examined. For instance:

- Mining is better adapted to an unstable context (i.e. constant displacement, fear of violence, inability to travel safely, disintegration of agricultural markets) than traditional agricultural markets (Kelly 2014)¹⁰. This accounts for expansion of ASM in farming areas subject to unrest;
- Mining provides a crucial source of off-farm income for many but the contribution of this to expanded agrarian wealth or increased subsistence capacity appears to be limited at micro (household) or meso (local area) level. Miners are more likely to invest any profits in urban housing rather than agriculture (Radley 2015)¹¹;
- ASM produces large numbers of relatively well-paying jobs. During a high production phase, a shaft manager can earn \$4,586 per month, with individual miners earning about \$92-\$139 per month. In South Kivu typical monthly wages are much lower (as of 2012): agriculture \$17; informal business \$20; public administration \$25 – but agriculture is still the principal livelihood for 80% of households in South Kivu¹²; and
- Low financial reward as well as long time lag between sowing and harvesting makes petty trading more appealing as an alternative livelihood to artisanal miners than agriculture (Mukotanyi 2016)¹³.

Objective of the Study

DFID DRC's research request proposal outlines the following objective for the study:

The study will draw directly on the Building Stability Framework to provide an evidence base which broadens DfID's understanding of the stability and livelihoods promoting qualities of the agricultural and mining sectors. A key part of this will be to examine interdependencies between artisanal and small-scale mining (ASM) and small holder / subsistence farming at different levels: this will identify the dependencies between the sectors and explain how livelihoods traverse them. It will explore areas of synergy between these sectors and identify how these can be leveraged to increase the economic and social power of marginalised groups. Furthermore, the study will look at how to harness more effectively, the livelihoods aspect of the sectors, including how and if ASM sustains subsistence farming or vice versa. It was also look at the areas of tension and flag up conflict sensitivity risks. The study should clearly identify any key recommendations arising from the research findings.

Through further consultation with DFID, it was clarified that **the primary objective is to develop a strong evidence base to inform DFID's understanding of the stability and livelihoods promoting qualities of the agricultural and mining sectors.** The study will use informant interviews to test the assumption that people working in ASM are looking for 'alternative' livelihoods and establish whether there is instead a pro-poor case for promoting 'diversified' livelihoods. It will provide insights and pose further questions to stimulate work on what this means for safe and good quality jobs, income growth and stability.

¹⁰ JTD Kelly (2014) This mine has become our farmland: Critical perspectives on the coevolution of artisanal mining and conflict in the Democratic Republic of the Congo *Natural Resources* 40 pp100-108

¹¹ Ben Radley (Oct 2017) *The interplay between artisanal and industrial mining and rural processes of social differentiation in the DRC: Household survey evidence from Luhwindja, South Kivu* International Institute for Social Studies for GIZ

¹² Greenen S et al (2014) *ibid*

¹³ Mukotanyi F (2016) Will artisanal miners every turn into farmers? Trying a bottom-up approach in the reorganisation of artisanal mining in the DRC.

Recipient

The primary recipient of this consultancy will be DFID DRC. However, it is envisaged that through the communication of the findings, via appropriate technical and non-technical means, the results of this product will be disseminated, as a public good, to other bilateral, multilateral, private sector, and NGO actors; who work in the space of economic development in the DRC.

Research questions

The following research questions will be addressed by this study. This is a marginal restructuring of the original research questions included by DFID in the research proposal request. Following discussions with different ASM experts in the DRC in the process of developing this TOR, we are proposing that in order to keep the study centred on DFID's core objectives (the relationship between ASM and agriculture), the research questions on the regulatory and policy environment should not be included, in order to ensure the analysis and final output remains as focused and concise as possible.

Research questions

Wealth Creation & Economic Development:

1. What is the role of ASM in contributing to diversified livelihoods?
2. What are the opportunities and barriers to creating viable long-term jobs in the ASM and small-holder sector?
3. What are the average household income levels for the two sectors in different types of mining and agriculture in the DRC?
4. Does the advent of ASM affect gender patterns of agricultural work?

ASM and Agriculture Nexus:

5. What are the interdependencies between the Agriculture and ASM sectors (employment, infrastructure, markets)? How do they impact the livelihoods of communities (households) dependent on them?
6. Are these interdependencies beneficial? If yes under what conditions and what are the drivers? Do they help in conflict reduction at community level?
7. Are there tensions between the two sectors? Do they lead to conflict at the community level? What are the causes?
8. How can the linkages between ASM and agriculture be strengthened in order to create a foundation for improved livelihoods and wealth creation? What are the key constraints (technical, financial, security, organisational or regulatory constraints? What lessons can be learnt from other relevant countries?
9. How can mining sector investment strengthen agricultural value chain and local agribusinesses? Where are the opportunities to further incentivise this?
10. How can the synergies between ASM and agriculture be used to promote stability in a DRC context? How can policy and regulation facilitate this? What sort of local level interventions can facilitate this?

Geographical Focus

DFID's initial outline of requirements stated that "analysis should be situated in DRC and limited to the DFID focus provinces; North Kivu, South Kivu, North Ubangi, South Ubangi, Equateur, Kasai and Kasai Centrale."

Through the process of developing this ToR, conversations with experts and stakeholders engaged in the ASM sector in the DRC made clear that ASM activities were more extensive in the Kivus and the Kasai than the Equateur region. This fact, combined with the

approximate budget ceiling the DSU team are working towards for this study, it was agreed that the target provinces for fieldwork and analysis would be North Kivu, South Kivu, Kasai and Kasai Centrale. We believe this makes sense from both a practical and methodological purpose, though if the initial phase of in-depth literature review suggests this indication is incorrect, then we could make a decision to change the selection.

Methodology

Building on secondary literature from DRC and comparable countries, this research study will include two discrete phases of analysis:

- In the first phase, the study will provide a detailed secondary literature review of the linkages between ASM and agriculture, both in terms of actual and potential in the DRC. Our preliminary investigations reveal a rich range of material available and some significant institutional infrastructure in the Kivus;
- In the second phase, the consultancy will collect primary data on artisanal miners and small-holder farmers – and any interactions between the two sectors – in the Kivus and the Kasai. Based on this data, the study will generate a better understanding of the situation of ASM in some of DFID’s target provinces and the scope for this sector to support agricultural and broader developmental outcomes.¹⁴

In the **first phase**, the study team will look at the role of ASM and how the sector impacts upon livelihoods and inclusive economic growth in a broad and exploratory way. The area of particular interest is to look at how the ASM sector interacts with small-scale agriculture with respect to interdependencies and linkages, and how any positive linkages can be strengthened.

Beyond summarising the responses in the secondary literature to the research questions outlined earlier, the first phase will also:

- Identify the knowledge gaps which need filling during the second phase;
- Determine the fieldwork locations for the second phase of analysis, including identifying the key themes and questions to be tested in the fieldwork that may be different between the Kivus and the Kasai;
- Identify key stakeholders impacting upon the governance of ASM and agriculture in the Kivus and the Kasai.

Our initial understanding is that ASM in the Kivus is much more extensively-researched than in the Kasai, which is partly a reflection of the extent of ASM activity, as well as the extent of the presence of research-focused institutions in these provinces. Therefore, the output of the first phase will be used to define the focus of the second phase, to ensure that this latter phase collects information to address these research questions which is not already available in the existing literature. This may relate to specific research questions above or may be focused on addressing the questions for particular commodities in specific geographies, where our knowledge from the existing literature is deficient.

In a **second phase**, the study team will collaborate with a local NGO with an ASM mandate to ‘fill in the gaps’ in our knowledge from the literature around these same research questions. The second phase will start with kick-off meetings in Kinshasa, allowing the field team to meet with DFID and the Ministry of Mining (in particular the technical services SAEMAPE) and Ministry of Agriculture, and other national level stakeholders, to debrief them

¹⁴ It is expected that this qualitative data collection will be particularly useful for gathering normative information to inform questions 8-10 (i.e. to answer the question about what should be, rather than what is, which is fairly extensively covered in the secondary literature which tends to be based on large, quantitative surveys).

about the research, to gain necessary permissions, and to collect additional information. Following this, the study would collect primary data from artisanal miners and farmers and other relevant stakeholders in the Kivus and the Kasai.

Depending on the findings of the first phase (as discussed above in terms of the pre-existing data and information between selected provinces), we suspect that the second phase of data collection is likely to be rather different in the two different locations with different types of data collection – most likely Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) in the Kivus and the Kasai, but likely complemented with an additional quantitative survey in the Kasai. In the Kivus, it is likely that the review of secondary literature will reveal that there is no need for any additional quantitative survey information. In this case, the research will focus on collecting qualitative data from miners and farmers and KIIs with key relevant stakeholders in the study area. For instance, agro-dealers, aggregators and local councillors often have a nuanced understanding of the workings of the local economy.

Finally, the study **write-up** will take place after the fieldwork is complete with the report structured around the research questions.

Deliverables

For the **first phase**, the deliverable of this study will be a report of approximately 15 pages on the actual and potential linkages between ASM and agriculture in DRC and other relevant contexts. The report will be structured around the research questions.

The final draft of the **first phase** report is to be submitted to DFID DRC at the start of September 2019.

| Milestones for Phase 1 | Date |
|--|---------------------------------|
| Submission of report outline | 11 th September 2019 |
| Finalisation of work plan for second phase | 13 th September 2019 |

For the **second phase**, the deliverables will be a full draft and then final overall research study report. The timing of the **second phase** is proposed to start in Kinshasa on Monday 23rd September and to last approximately 17 working days – until about 11th October.

The draft report will be submitted to DFID on Friday 8th November 2019. Following feedback, we will then aim for finalisation by the end of November.

| Milestones for Phase 2 | Date |
|--|---------------------------|
| Submission of the draft report for DFID feedback | 15 th November |
| Feedback on the draft report by DFID | 22 nd November |
| Finalisation of report | 6 th December |

Reporting

The first draft and final version of the reports as well as all other written documentation should be presented, in Microsoft Word format, to the DFID DRC DSU SRO based on the Terms of Reference's requirements. Survey results will also be provided in Microsoft Excel format.

Team and roles

The proposed study team for this research piece is a collaboration between OPM/DSU, Pact UK and CEGEMI, given the complementary capabilities, capacity and experience of the three organisations in respect to the requirements of this TOR. The study will be led by the DSU's

project director, Jonathan Mitchell, who will also lead on the in-country fieldwork. It will be managed by Alistair Grattidge, the DSU's assistant project manager, who will ensure the smoothness of fieldwork planning, implementation and reporting to DFID as well as ensuring the output meets the high standards of the DSU.

Pact UK is a UK-registered charity and experienced DFID service provider, which includes places on various frameworks such as the Governance and Security lots of the International Multi-disciplinary Programme Framework, and the Conflict Security and Stabilisation Fund. **For over 15 years Pact's 'Mines to Markets' programme (M2M) has assisted mining-dependent communities to gain lasting benefits from the mineral sector.** M2M uses an integrated, holistic approach to bring together government, industry and miners themselves to make artisanal and small-scale mining (ASM) formal, safer and more productive. M2M is currently undertaking mining projects in 12 countries around the world, 10 of which are in Africa.

Pact M2M is regularly engaged in in-depth research, data gathering exercises and fieldwork in some of the hardest to reach communities and most challenging locations. Each one of Pact's M2M programmes begins with detailed baseline assessments and research to understand the local ASM communities and dynamics. In the DRC, Pact has offices in Kinshasa and Goma, and multiple active interventions relating to ASM in and around Kolwezi, Lualaba Province, as well as a project reducing the worst forms of child labour in Haut Lomani Province. As the implementing partner of ITSCI, Pact undertakes ongoing fieldwork activities across many Eastern and Southern provinces.

Through this extensive research experience, knowledge of mining, and their presence in the DRC, Pact has been selected as the DSU's key study partner and will be providing the bulk of the inputs in terms of the fieldwork design and implementation in both the Kivus and the Kasai, as well as support to phase one of the study and the final report writing. More specifically they will:

- Quality assure the literature review undertaken by the researchers at CEGEMI;
- Advise on fieldwork locations and make introductions to facilitate fieldwork planning and preparations, including determining exact fieldwork locations across all four provinces;
- Draft fieldwork survey instruments based on pre-existing survey tools developed by Pact;
- Leading with the fieldwork in both the Kivus and the Kasai. The Pact regional director, Yves Bawa, and a national senior agronomist and ASM expert, Professor Jean Claude Monzenga, will lead the fieldwork in the Kasai. A national researcher and Tshiluba speaker (to be identified) will also form part of the team in the Kasai, while a national Pact researcher and Swahili speaker, Vincent Songe, will join Jonathan Mitchell and Jean Claude Monzenga for the fieldwork in the Kivus.
- Translation support for KIIs, FGDs and survey;
- Final report writing.

Created in 2011, the Expertise Centre on Mining Governance (CEGEMI) is a centre where academic researchers are at the service of Congolese as well as international actors to help understand the multiple dynamics of the Congolese mining sector. With about thirty researchers from different disciplines (economics, law, social sciences, environmental management and development studies) and different continents, the CEGEMI studies 'mining' in an interdisciplinary way, and using different methodologies, both qualitative and quantitative. Its research experience includes (but is not limited to): conflict minerals, linkages between artisanal mining and agriculture, local governance, macro-economic aspects, land conflicts, value chains, mining legislation, poverty, food markets,

environmental impact, coexistence between artisanal and large-scale mining, alternative livelihoods, corporate social responsibility, etc. It has to its credit approximately ten projects carried out and about sixty publications (articles, working papers, blog posts, theses etc.), several conferences organized as well as a great experience in gathering data on the mining sector. Through two researchers, they will be undertaking the literature review for phase one of the study, as well as providing advice on research locations, methodology and any relevant contacts for the fieldwork.

Core team profiles

Jonathan Mitchell – Research Study Lead and DSU Project Director

Jonathan is a development economist specialising in the design, management and evaluation of private sector development projects. He is currently the DSU's Project Director having also served as the interim team-leader in 2017. He has excellent knowledge and experience of the PSD portfolio, having served as the project performance review and management lead for the MTE, and has undertaken primary data collection for the DSU. He has a focus on market-based approaches to poverty reduction, enterprise development and poverty reduction. From 1996 to 2001, Jonathan was the Provincial Development Planner for Mpumalanga Province in South Africa and the economic advisor for the Premier. He developed a provincial economic strategy and coordinated the provincial technical input for the Maputo Development Corridor (the most successful Spatial Development Initiative in Africa). From 2001-2005, Jonathan headed the Local Economic Development (LED) work-stream at the European Commission delegation in South Africa and designed and implemented three large provincial LED programmes. Returning to the UK in 2005, Jonathan worked for seven years at the Overseas Development Institute leading the Rural Livelihoods Programme. From 2005 to 2011, Jon was Programme Director for a multi-country action research programme for the International Development Research Centre, providing technical and managerial leadership in examining the impact of upgrading various value chains for inclusive and green development – the results were later written in the co-authored book 'Markets and rural poverty reduction: upgrading in value chains'. Jonathan spent four years at Coffey International Development heading the Economic Growth practice before moving to Oxford Policy Management in 2016 to lead the Finance and Private Sector Development portfolio. He has an appreciation of private sector development projects from the perspective of donors, research and think tanks and also the consultants seeking to implement them.

Yves Bawa (Pact) – International Lead Expert, ASM and Agronomy in DRC

Yves is Pact Country Director for the African Great Lakes Region (DRC, Rwanda, Burundi and Uganda) and the regional Technical Director for all Pact's Mine to Markets projects. With over 18 years of experience in social development covering democracy and governance, education, community development, agriculture and natural resources management programs with international organisations and donors including DFID and USAID, the private sector, Yves fulfills roles as diverse as technical leadership; team management and mentoring; policy advocacy; donor, government and partner liaison; new business development; research; and oversight of programmatic and financial management.

Used to operating in high-risk and conflict zones including with demobilized soldiers, Yves has a strong track record of working in peace-building and natural resource related conflict resolution and is widely experienced working with artisanal mining communities in Central and West Africa. Yves has extensive experience of working with the private sector, particularly with mining companies carrying out baseline research studies, social development and conflict reduction planning, and fieldwork. Yves holds foundational

masters and bachelors degrees in Agronomy and Development and is fluent in French, English, Swahili and Lingala.

James McQuilken – International Expert, ASM formalisation and agriculture interlinkages and research

James is an experienced social scientist specialised in artisanal and small-scale mining in sub-Saharan Africa, with over 10 peer-reviewed publications and reports on the sector. He has expertise in qualitative research methods; mineral governance, political-economy, macroeconomic, stakeholder and policy analyses; social network and value/supply chain mapping; responsible sourcing; and ethical mineral certification schemes. He has a wide array of practical experiences through leading both desk and field research, project management, writing and publication of multi-author reports and academic papers, and communications. Currently he is the Project Manager and Technical ASM Expert on DFID-funded Sustainable Development of Mining in Rwanda (SDMR) and World Bank and Pact-funded Delve initiative – a global platform for ASM. Among many other relevant publications, he was one of the lead report authors for the 2019 *State of the Artisanal and Small-Scale Mining Sector* – a collaboration between Pact and The World Bank, exploring key data needs for the sector and identifying ways to improve data collection methodologies.

Francine Iragi Mukotanyi

Francine Iragi Mukotanyi is a researcher at the CEGEMI and an assistant within the Faculty of Economics at the Catholic University of Bukavu (UCB) since 2011. She holds an Msc in Development Studies from the IOB/University of Antwerp through which she has been awarded in 2012 a Development Cooperation Prize by the Province of Antwerp for her master dissertation entitled "Artisanal and Small-Scale Gold mining in South Kivu: a threatened livelihood?". In 2015 she started her doctoral research project on the linkages between artisanal mining and agriculture in eastern DRC at the IOB/University of Antwerp. She has extensive experience in collecting data in mining sites as well as several publications on mining and agriculture in the Democratic Republic of Congo. She has already presented some of her findings both at national and international conferences. Francine Iragi Mukotanyi resides in Bukavu (Eastern DRC) but is currently in Antwerp (Belgium) until December 2019 as part of her doctoral research.

Janvier Kilosho Buraye

Janvier Kilosho Buraye holds a PhD in Development Studies (main fields: Economics and applied Economics) from the University of Antwerp. He has a decade in research on socio-economic aspects of artisanal and industrial mining exploitation and on mining governance. His current research focuses on certification and traceability mechanisms for 3Ts and Gold and on value chains of development minerals in East DR Congo. His peer review publications are in *Resources Policy*, *Conjoncture congolaise*. He has also published many working papers and policy briefs. He has participated and presented many of his papers at international conferences and seminars on artisanal and industrial mining both in DRC and abroad. He is a lecturer of microeconomics, quantitative methods in economics, business statistics and sampling methods in the Faculty of Economics and Management at the "Université Catholique de Bukavu" and in the Department of Business Administration at the "Institut Supérieur Pédagogique de Bukavu. He is a researcher within the Expertise Centre on Mining Governance (CEGEMI).

Professor Jean Claude Mozenga (Pact)

Professor Jean Claude Mozenga Lokela has over 18 years' experience undertaking research in agriculture and natural resource management, including artisanal and small-scale mining (ASM). He is Professor in Agriculture and Head of the Plant Science

department at the Institute of Agricultural Sciences of Yangambi (IFA-YBI). In this role, as well as conducting world-leading research, Jean teaches, trains, and lectures on appropriate agricultural practices, the production of disease-free food crops, crop adaptation to soils relative to the environment, sedentary farming, management of natural resources, and ecological management of the environment through waste recycling. He is also a visiting Professor at multiple higher-education institutes, regularly collaborates with NGOs and participates in agricultural production by setting up demonstration fields in rural communities. Jean has both personal and professional experience of artisanal mining having lived and worked in mining communities to finance his studies, and later, while working as an expert field researcher on the World Bank and DFID-funded PROMINES project to support the Congolese government reform its mining sector. Through his various research activities and participation and presentations at international conferences, Jean is used to working and developing relationships with a range of international development stakeholders from the community-level to government. This includes World Bank, DFID, FAO, Royal Belgian Society of Entomology, Catholic University of Leuven. Jean also has key skills and experience using statistical and mapping software (QGIS).

Vincent Gbolo Songe (Pact)

Vincent has a wide range of experience working with Pact for 12 years including leading our partnership with AngloGoldAshanti in the Ituri Region, managing the implementation of multiple USG (USAID and US Department of State) funded programs on ASM. Vincent is currently overseeing the implementation of International Tin Supply Chain Initiative (ITSCI) programme in seven provinces in the Eastern DRC and as such, has demonstrated key skills in programmatic, financial, administrative management of the programme; in conducting awareness-raising campaigns; in capacity building of mining companies, mining cooperatives, artisanal miners, and state services; and in natural resources management, including the development of alternative livelihood activities around protected areas and of land use plans. Vincent is based in Goma.

Oliver Bance (Pact) – International Senior Expert (contracting, quality assurance, advice)

Oliver is a Senior Manager at Pact UK with over 10 years relevant professional experience, including extensively with DFID and he brings an up-to-date understanding of current policy, programming and procurement contexts. He provides oversight of Pact UK's DFID and EU portfolios with respect to new business development, existing programme oversight, and proposal design, and also provides technical inputs into programme design and delivery. He has significant FCAS experience, with country experience in Afghanistan, Iraq, Kenya, Nigeria, and Somalia, both in terms of programme design and management – this includes restructuring existing programmes to realign strategy and increase impact for poor, vulnerable, and excluded beneficiaries.

Michael Frayne – International Principal Expert, Security

Michael is a highly experienced strategic security and risk management professional, with 35 years of hands-on experience and knowledge most recently applied in the private, hydrocarbon, diplomatic and international development sectors, involving direct engagement with governments, the private sector development organs, and local communities. He has extensively travelled, living or working in over 20 countries, including many high-risk environments in the Middle East and Africa. Michael has designed and managed highly complex programs within challenged environments, focusing on critical infrastructure and movement security – managing large and evolving multi-national organisations, as well as leveraging host and coalition nation resources and support.

Indicative time planning and resourcing

The following indicates the weekly activity plan for the study, including deadlines for both the DSU and DFID:

| | July | August | | | | September | | | | | October | | | | November | | | December | | |
|--|------|--------|------|------|------|-----------|-----|------|------|------|---------|------|------|------|----------|------|------|----------|-----|-----|
| Week Commencing | 29th | 5th | 12th | 19th | 26th | 2nd | 9th | 16th | 23rd | 30th | 7th | 14th | 21st | 28th | 4th | 11th | 18th | 25th | 2nd | |
| Proposal Submission | S | | | | | | | | | | | | | | | | | | | |
| Feedback on the proposal by DFID (05/08) | | F | | | | | | | | | | | | | | | | | | |
| Revisions and resubmission | | S | | | | | | | | | | | | | | | | | | |
| Approval by DFID (13/08) | | | A | | | | | | | | | | | | | | | | | |
| 1st phase | | | | | | | | | | | | | | | | | | | | |
| Desk-based literature review | | | | | | | | | | | | | | | | | | | | |
| Fieldwork preparation (determining locations; arranging logistics; security plan etc.) | | | | | | | S/A | | | | | | | | | | | | | |
| Submission of report outline | | | | | | | S/A | | | | | | | | | | | | | |
| 2nd phase | | | | | | | | | | | | | | | | | | | | |
| Draft fieldwork instruments | | | | | | | | | | | | | | | | | | | | |
| Kick-off meetings in Kinshasa | | | | | | | | | | | | | | | | | | | | |
| Fieldwork in Kasai | | | | | | | | | | | | | | | | | | | | |
| Fieldwork in Kivus | | | | | | | | | | | | | | | | | | | | |
| Report writing | | | | | | | | | | | | | | | | | | | | |
| Submission of draft report for DFID feedback | | | | | | | | | | | | | | | | | | | | |
| Feedback received on draft report by DFID | | | | | | | | | | | | | | | | | | | | |
| Finalisation of report | | | | | | | | | | | | | | | | | | | | S/A |
| S= DSU submission to DFID deadline | | | | | | | | | | | | | | | | | | | | |
| F= DFID feedback to DSU deadline | | | | | | | | | | | | | | | | | | | | |
| A= DFID approval for next phase deadline | | | | | | | | | | | | | | | | | | | | |

Annex B Key laws and Stakeholder Mapping

Key laws and regulations governing ASM and agriculture

| Law/regulation | Description | Relevance to ASM/Ag nexus |
|---|---|--|
| <p>LOI N° 007/2002 DU 11 JUILLET 2002 PORTANT CODE MINIER TELLE QUE MODIFIEE ET COMPLETEE PAR LA LOI N° 18/001 DU 09/03/2018</p> <p>(LAW N ° 007/2002 OF 11 JULY 2002 CONCERNING THE MINING CODE AS AMENDED AND COMPLETED BY LAW N ° 18/001 OF 09/03/2018)</p> | <p>Article 3: The landowner should in no way use his title to claim any ownership right in the mineral deposits, including groundwater and geothermal deposits contained in his concession.</p> <p>Aims to promote the emergence of a middle-tier of ASM operators through training, providing technical assistance and financial support; ensure that all production is funnelled through official routes to reduce illegal activity and increase tax revenue; contribute to the wellbeing of ASM communities; improve safety; ensure the integration of women in ASM; encourage ASM operators to invest in other economic sectors; support creation of sources for finance for ASM.</p> | <p>This provision clearly states ownership of land does not confer ownership of mineral rights below ground and could help reduce conflicts over land and claims of mineral ownership by landowners.</p> <p>(1) if the working conditions of minors are regulated and controlled, this should limit the negative impacts; (2) control of smuggling and illicit sale as well as control of the destination of taxes could ensure that the state is able to levy taxes and invest in other sectors (in agricultural sector); (3) investment in other sectors may be beneficial to agricultural activities as well.</p> |
| <p>Décret n° 047-C/2003 du 28 mars 2003 portant création et statuts, d'un service public dénommé Service d'Assistance et d'Encadrement du Small Scale Mining ou production minière à petite échelle (SAESSCAM today SAEMAPE or Service d'Assistance et d'Encadrement de l'Exploitation Minière Artisanale</p> <p>(Decree No. 047-C / 2003 of 28 March 2003 on the establishment and statutes of a public service called Assistance and Supervision Service for Small Scale Mining or Small-scale Mining Production (SAESSCAM today SAEMAPE or Assistance Service and Supervision of Artisanal Mining and Small scale)</p> | <p>Aims to promote the emergence of a middle-tier of ASM operators through training, providing technical assistance and financial support; ensure that all production is funneled through official routes to reduce illegal activity and increase tax revenue; contribute to the wellbeing of ASM communities; improve safety; ensure the integration of women in ASM; encourage ASM operators to invest in other economic sectors; support creation of sources for finance for ASM.</p> | <p>(1) if the working conditions of minors are regulated and controlled, this should limit the negative impacts; (2) control of smuggling and illicit sale as well as control of the destination of taxes could ensure that the state is able to levy taxes and invest in other sectors (in agricultural sector); (3) investment in other sectors may be beneficial to agricultural activities as well.</p> |

| Law/regulation | Description | Relevance to ASM/Ag nexus |
|--|--|--|
| <p>LOI N° 11/022 DU 24 DECEMBRE 2011 PORTANT PRINCIPES FONDAMENTAUX RELATIFS A L'AGRICULTURE (LAW N ° 11/022 OF 24 DECEMBER 2011 CONCERNING FUNDAMENTAL PRINCIPLES RELATING TO AGRICULTURE)</p> | <p>This law establishes measures for the regulation of agricultural activities. For example, Article 10 and 13, advocate equitable access to agricultural land and the establishment of an agricultural land register to ensure the proper administration of land. In its second chapter, the law establishes regulations relating to the provision of basic agricultural inputs and infrastructure. In its fourth chapter on the marketing of agricultural products, this law advocates the development of marketing infrastructures, the establishment of information systems on markets and prices of agricultural products and the promotion of agricultural export sectors.</p> | <p>If implemented this law could potentially make the agricultural sector more prosperous, boosting agricultural income and limiting the flight of labour from agriculture to ASM. A land register will also help resolve conflict and competition over land claims between the two sectors.</p> |

Key national-level ASM stakeholder mapping

| Mining stakeholder | Role and mission | Impact on sector governance |
|---|--|---|
| Government agencies | | |
| <p>National Ministry of Mines (Ministère National des Mines)</p> | <p>Main services are: the "Cabinet du Ministre", the "Secrétariat Général", the "Directions des Mines, the CTCPM", the SAEMAPE and the CEEC. The mission is to coordinate the objectives and actions of each of these services as it over-see them. This Ministry represents the State in promoting and in regulating the mining sector. "The State ensures the development of the mineral substances of which it is the owner by calling upon private initiative in accordance with the provisions of the mining Code (Art. 8, Section 1, Chap 2 of the mining Code). Specifically to the national ministry of mines, Article 10 (Sect. 1 , Chap. 2) of the DRC' mining Code attests 21 roles for this ministry, the first four being: (1) to grant/refuse to grant mining and/or quarrying rights for mineral substances other than construction materials that are commonly used; (2) to forfeit the holder, to withdraw the mining and/or quarry rights ...; (3) authorize, by way of derogation, the export of ores in their raw state by inter-ministerial decree deliberated by the Council of Ministers; (4) establish artisanal mining areas.</p> | <p>The Ministry and its related services develop policies that address the problems that are hindering the emergence of the Congolese mining sector. The national ministry of mines participates in inter-ministerial committees where ministers from agriculture, land affairs and the environment participate</p> |
| <p>Cadastre Minier (CAMI)</p> | <p>This service of the national ministry of mines is responsible for registering Artisanal Exploitation Zones (AZEs) in the national database and it ensures that mining titles that are granted to mining companies do not encroach on AZEs.</p> | <p>CAMI, under Ministry supervision, verifies the location of AEZs and associated mining titles This verification aims to avoid titles' overlapping. This reduces conflicts and tensions between holders of land and mining rights.</p> |

| Mining stakeholder | Role and mission | Impact on sector governance |
|---|---|---|
| <p>Agence Congolaise de l'environnement (ACE), La Direction de protection de l'environnement minier (DPEM)</p> | <p>Protecting the environment. The ACE evaluates and approves environmental and social studies. It is a service of the Ministry of environment. The ACE monitors the implementation of mining projects, relative to the Mitigation and Rehabilitation Plan, Environmental and Social Impact Studies and the Environmental and Social Management Plan. ACE issues an administrative document called the Environmental Certificate ("Certificat environnemental"), this certifies that the execution of the project and its operations comply with the principles of environmental and social protection.</p> | <p>ACE, DPEM and FNPSS are from the Ministries of Environment, Mines and Social Affairs, respectively. They are involved in fulfilling the commitments made in the MoU between local development committees (CLD) and extractives companies that are operating in the area.</p> |
| <p>Cellule Technique de Coordination et de Planification Minière (Technical Coordination an Mining Planning – CTCPM)</p> | <p>Created in 1978, it aims to: (1) harmonize and coordinate relationship between ministries and other organizations that are interested in solving mining problems, (2) program national mining activities that are related to research and value mining indexes for production, processing, transportation and commercialization of mineral products.</p> | <p>CTCPM facilitates the flow of information among mining public services and mining actors to strengthen mining activities and to guide governmental policy.</p> |
| <p>Centre d'Evaluation, d'Expertise et de Certification (CEEC)</p> | <p>Created in 2009, CEEC is a technical public service with objectives to expertize, analyse and certify in DRC : (1) precious mineral substances, (2) semi-precious and colour stones mineral substances, (3) mineral substances of artisanal production. For each of its mission, CEEC provides certificates of origin and/or of transfer.</p> | <p>CEEC ensures transparency and reduces fraudulent practices in providing data and information.</p> |
| <p>SAEMAPE (Service d'Assistance et d'Encadrement Minier Artisanal et à Petite Echelle)</p> | <p>SAEMAPE (previously SAESSCAM) is a technical service of the National Ministry of mines and is mandated to:</p> <ul style="list-style-type: none"> - promote the emergence of a Congolese middle class in the small scale mine sector; - provide training and technical and financial assistance to mining cooperatives and operators in the small scale mine sector, with a view to strengthening their managerial capacities; - ensure the monitoring of the material flows of the small scale mine from the site to the point of sale in order to channel all production into the official market channels; - disseminate safety standards at operating sites and ensure their strict application; - to initiate and participate in the creation of a mining credit fund and its management for the promotion of small and medium-sized mining companies. | <p>By providing direct technical support to ASM, SAEMAPE plays a key role in supporting the professionalisation of the mining sector and promoting best practices. I's mandate aims to address multiple key issues such as unlocking finance, training, capacity building, and improve operating standards.</p> |
| <p>Development partners</p> | | |
| <p>DFID, GIZ, International Organization for Migration (OIM), USAID, World Bank</p> | <p>Support government initiatives and actions to promote good governance in the mining sector. They also support approaches and programs of non-governmental organizations (NGOs) and institutions that are involved in the development of the DRC mining sector.</p> | <p>These partners contribute to the development of other sectors by supporting the mining formalization process.</p> |

| Mining stakeholder | Role and mission | Impact on sector governance |
|--|---|---|
| <p>Organisation for Economic Co-operation and Development (OECD), International Tin Association (ITA)</p> | <p>Facilitate formalisation of the mining sector by providing standards and mechanisms and training to miners for due diligence and traceability that meet international regulations such as the Dodd Frank Act, Section 1502. These ensure minerals are certified as conflict-free and are able to reach international markets. The ITA's Traceability Supply Chain Initiative (ITSCI), operated and implemented by international NGO Pact since 2011, is the largest traceability and due diligence mechanism of its kind comprising a bagging and tagging system focused on the 3Ts across DRC, Burundi, Rwanda and Uganda. Recently, several other traceability systems are also becoming available and initiatives have also extended to gold. These include the Better Sourcing Program, Just Gold project, and multiple projects by partners of the Responsible Minerals Initiative.</p> | <p>These standards and mechanisms have helped to promote stability and enable a route to international markets by ensuring mineral supply chains are free from conflict financing, human rights abuses and other risks. conflict-free and</p> |

Key national-level agriculture stakeholder mapping

| Agriculture stakeholder | Role and mission | Impact on sector governance |
|--|---|--|
| <p>Government agencies</p> | | |
| <p>Ministry of Agriculture and its related services</p> | <p>With the general mission of ensuring the development of the DRC agricultural sector, this ministry defines and implements the national agricultural policy. In addition, it coordinates provincial agricultural programs. To accomplish this mission, it relies on the various services under its responsibility:</p> <ul style="list-style-type: none"> • <i>National Extension Service (Service National de Vulgarisation - SNV)</i>. Responsible for the extension of new technologies in the agricultural sector. • <i>National Seed Service (Service National des Semences - SANASEM)</i>. Controls the seed chain. • <i>National Service of Fertilizers and Related Inputs (Service National de Fertilisants et Intrants Connexes - SENAFIC)</i>. Ensure the distribution of agricultural inputs. • <i>National Service of Agricultural Statistics (Service National des Statistiques Agricoles - SNSA)</i>. Responsible for collecting, monitoring and evaluating data related to the agricultural sector. • <i>National Service of the Agricultural Motorisation (Service National de la Motorisation Agricole - SENAMA)</i>. Promotes the use of mechanical energy in agricultural activities. | <p>The Ministry and its related services can develop policies and implement initiatives that can address the problems that are hindering the emergence of the Congolese agriculture.</p> |

| Agriculture stakeholder | Role and mission | Impact on sector governance |
|---|--|---|
| National Advisory Council on Agriculture | This council is established by a decree deliberated by the Council of Ministers, which determines its composition, organization and functioning. Its mission is to improve the coordination of actions at the national level in order to avoid duplication and overlap | Bringing together all public and private stakeholders in agricultural activity, including local communities, this council provides a framework for consultation on all issues related to agriculture. |
| Ministry of Rural Development | Its mission is to ensure the development of rural areas in the DRC. In collaboration with the Ministry of Agriculture, is responsible for the organisation of farmers in cooperatives and associations and their supervision in order to increase agricultural production; and in collaboration with the ministry responsible for public works and infrastructure, its ensure the development, construction, rehabilitation, and maintenance of basic socio-economic infrastructure in rural and peri-urban areas, including agricultural feeder roads. | Due to cross-cutting focus, there is potential to promote mining and agriculture under a shared vision and programming for rural development. |
| Ministry of Environment and Sustainable Development | Responsible for regulating all activities that may affect the environment, biodiversity and ecosystems, as well as promoting and coordinating all activities related to the sustainable management of the environment, forest, wildlife and aquatic resources, and nature conservation | Can regulate and manage the adverse effects of agriculture on the environment while ensuring agricultural productivity. |
| Ministry of Higher and University Education and Ministry of Scientific Research | Mission includes directing scientific and technological research towards the country's reconstruction and development, as well as publishing and disseminating the results of scientific and technological research, ensuring that in practical terms these results contribute to the country's development. Oversees the National Institute for Agricultural Study and Research (L'Institut National pour l'Étude et la Recherche Agronomiques - INERA) which conducts agricultural research oriented towards the selection and maintenance of varieties, introduction and adaptation of new plant and animal species. | Can provide technical support to address issues of seed availability and productivity and can be engaged to develop strategies that address farming and mining challenges. |
| Ministry of Land Affairs and Ministry of Regional Planning, Urban Planning and Housing | In collaboration with the Ministry of Agriculture, they are responsible for all land issues. Their mission is to popularize land legislation, manage and grant land titles, subdivide and grant parcels of land for development purposes. | These ministries have the ability to influence land policies in favour of agricultural development. |
| Ministry of Gender, Family and Children | In collaboration with all other ministries, this ministry is responsible for the protection and promotion of the status of women, children and the family; as well as for the study and implementation of all measures to put an end to discrimination and violence against women | Has the ability to work against gender discrimination and promote an equitable distribution of agricultural tasks |

Annex C Security incidents

| Security incidents around ITSCI mines in North Kivu during July 2018 | | |
|--|---|----------------------------|
| NK-2018-0123 | Reportedly, FARDC at gold mining sites about 100km from Bandulu are forcing miners to transport gold for them and are perceiving illegal taxes that they call "war effort tax". Reportedly, miners were also arrested arbitrarily. This does not concern 3T mines. | 2 July 2018 |
| NK-2018-0118 | Nyatara rebels arrived in Kinigi. They had a misunderstanding with PNC/ Kibabi following the arrest of a Nyatura rebel. Two PNC officers were kidnapped and freed in exchange with the arrested Nyatura rebel on 5 July. | 3 July 2018 |
| NK-2018-0122 | There is a dispute between the cooperatives COMIDEI, COMID and land owners, due to the land owners wanting to increase payments to be made by the cooperatives. | 4 July 2018 |
| NK-2018-0121 | During the night, FARDC soldiers from the CNLFM were patrolling and found a group of ten miners illegally working at a pit. FARDC immediately arrested the miners and brought them to the military barracks. The cooperatives and PMH asked FARDC to free the miners but to no avail. Allegedly, PMH had authorized the miners to work during the night. Members of the cooperatives called FARDC hierarchy in Walikale. Mining activities temporarily came to a halt as miners were protesting. When FARDC soldiers realized that their behaviour might have serious consequences, they released the miners on 16/07. FARDC still asked for payment of an administrative fine of FC 100,000 and this was paid. This fee is illegal. Activities resumed in the afternoon. | 16 July 2018 |
| NK-2018-0119 | Shots were heard during the night. According to PNC, armed bandits tried to break into a house in the village Kasura, about 2km from Rubaya. Reportedly, they were threatening the house owner following which his wife shot at them. The bandits shot back and the house owner was injured. | 21 July 2018 |
| NK-2018-0120 | Between Nyakajanga and Mushaki along the mineral transport route between Rubaya and Goma, road bandits have been active throughout the month. Reportedly, they attack passing cars regularly. There was so far no impact on ITSCI minerals and no illegal taxation. | 28 th June 2018 |
| NK-2018-0134 | Shots were heard in Rubaya during the night. Armed bandits attacked a PNC commander on his way home. The commanders' bodyguard and two civilians were injured. | 30 July 2018 |
| NK-2018-0130 | Reopened NK-2018-0007: FARDC soldiers erected a barrier at about 2km from Rubaya town on the road towards Goma. Reportedly, the soldiers at this barrier are asking passers-by to pay money (about 5 USD) and are also checking mineral transport and documents. The CLS identified a series of barriers and sent a report to the Ministry of Mines. | 31 July 2018 |
| NK-2018-0131 | Reopened NK-2018-0008: FARDC soldiers have erected a barrier more or less 30 minutes walk from the Koyi mine site in the village of Kasumo. On this barrier, harassments are reported by miners and other people who pass by this road. Reportedly, they also took away minerals from one miner. | 31 July 2018 |
| NK-2018-0136 | Following recurrent shootings and insecurities, FARDC blocked the village Rukaza to search houses for arms. During the search, they found a total of 153kg of untagged minerals. They were seized by PMH and sent to Goma. | 31 July 2018 |

Source: ITSCI incident reports for July 2018