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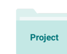

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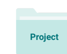

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Struggles Over Value: Corporate-State Suppression of Locally-led Mining Mechanisation in the DR Congo

Ben Radley

Sara Geenen

Abstract: The analytical framework deployed by the extensive Global Value Chain (GVC) literature on African mining fails to consider how and from whom value is transferred within the process of establishing foreign corporate-led mining GVCs, and with what consequences. We explore these questions through a case study of the gold value chain in the Democratic Republic of the Congo. In this context, we argue that a coalition between transnational capital and the Congolese state has marginalised and held back locally-led processes of capital accumulation and mining mechanisation. Based on the findings, the developmental potential of domestically embedded networks of African production is highlighted.

Keywords: accumulation, upgrading, corporations, mining, ASM, Congo

Introduction

Since the 1980s, African governments have sought to (re)industrialise their mining sectors by privatising state-owned enterprises and transferring their assets to foreign investors and corporations within a liberal regulatory framework (Campbell 2008). This process has been facilitated by more than seven hundred million dollars of World Bank loans (Radley 2019a:

798). Supported by the most recent commodity super-cycle beginning in 1999 and peaking in 2011 for most commodities, this has resulted in a significant increase in mineral-seeking foreign direct investment (FDI) to the continent (Ibid.). The scale of the trend has been such that for many low-income African countries, by the mid-2010s, the mining sector represented 'one of the most crucial sources of investment and income' (Farole and Winkler 2014, 117).

Concurrent with foreign-led mining (re)industrialisation has been the marginalisation and displacement of more domestically-embedded artisanal and small-scale mining (ASM) economies. In 2019, there were an estimated 10 million people working in ASM across sub-Saharan Africa (World Bank 2019). Yet despite its economic importance, ASM has been constrained rather than encouraged by African mineral policies and laws (Bryceson and Jønsson 2014, 19; Luning 2008), in part because it is generally perceived as a poverty-driven, low productivity, subsistence activity (Banchirigah 2006; Hilson 2009; Mabhena 2012). Moreover, its informality and illegality are considered to be problematic, especially when they pose a threat to transnational corporations (TNCs) operating in the same spaces. In such cases, artisanal miners are often displaced from the land in government military-led 'sweeps' (Banchirigah and Hilson 2010).

In the mainstream scholarly literature, Global Value Chain (GVC) analysis has provided the conceptual architecture for investigating the African mining sector's contribution to economic development and industrialisation. Yet as Ouma (2017: 502) has argued in an earlier issue of this journal, despite its origins in world-systems and dependency theories, GVC scholarship focusing on Africa has 'largely failed to engage with some of the key social processes that make up capitalist landscapes as well as with the disarticulations that come along with the integration into commodity chains often dominated by lead firms from the

Global North’. As a result, the literature tends to implicitly endorse the current status quo. Its preoccupation with how African firms can integrate into and ‘upgrade’ within industrial mining GVCs led by the supposed expertise and efficiency of TNCs (as explained in the next section) overlooks a consideration of how and from whom value is transferred when recently established TNC-led mines interact with pre-existing and more locally-anchored ASM mines, and with what consequences.

Through a detailed case study of the gold sector in South Kivu Province of the Democratic Republic of the Congo (DRC), the present article aims to address this gap. The main argument is that in this context, a coalition between foreign corporate capital and the Congolese state has marginalised and held back locally-led processes of technological assimilation, capital formation and mechanisation in ASM. Based on the findings, the developmental potential of pre-existing and domestically embedded networks of African production is highlighted, as well as how the trajectory of these networks can be disrupted by TNC arrival.

Empirical data have been collected by both authors during intermittent but often extended field visits to different gold mines across South Kivu between 2008 and 2018. Both qualitative and quantitative data were gathered through the use of interviews, focus groups, surveys and financial logbooks. The quantitative data on ASM incomes and profits resulting from this work and presented below are nothing more than best estimates, and should be treated as such.

Section two develops the analytical framework deployed by the article, grounded in a critical review of the literature on GVC, linkages and TNCs. Section three reviews the stifled

emergence of South Kivu's ASM gold network during the twentieth century, in the shadows of a predominantly Belgian-led industrial mining GVC, until the collapse of the latter in the late 1990s. The value chain associated with South Kivu's ASM gold is considered in section four, drawing particular attention to the process of ASM mechanisation driven by a relatively prosperous and dynamic group of Congolese managers and traders. Section five then charts the recent return of foreign mining corporations to the province, spearheaded by the Canadian TNC Banro. The section highlights Banro's openly hostile response to ASM mechanisation, drawing on the legal and security apparatus of the Congolese state to suppress an ASM-led upgrading process. The sixth and final section concludes.

GVCs, Linkages and TNCs: Rethinking Value and Upgrading in Mining

In this article, we start from the conventional GVC framework in order to conceptually contest (and expand) its central notions of value and upgrading. A common starting point for GVC analysis is to schematically map how and where value is created, captured and distributed between different actors operating within a variety of commodity chains (Kaplinsky and Morris 2002). Within these global geo-economic maps, upgrading is understood as the process through which domestic firms and groups can move into higher value-added activities (Humphrey and Schmitz 2000).

In African mining, recent GVC research has been theoretically inspired by Hirschman's (1977) seminal work on 'domestic linkages' – the idea that economic growth hinges on the incremental unfolding of linkages between productive industries and the surrounding economy. Two of the most influential policy papers from this literature, Kaplinsky et al. (2011) and Morris et al. (2012), argued that the recent restructuring of the global mining industry away from vertical integration towards outsourcing the supply of goods and services

to independent firms had created opportunities for mining-based linkages to advance industrialisation in low-income African countries.

This can occur through the development of forward (commodity processing), backward (local sourcing of goods and services) and consumption (use of profits and wages) linkages. Two policy options to help develop these linkages are held to be local content and localisation. Local content refers to the local procurement of goods and services, while localisation is intended as a broader concept which incorporates an additional focus on enterprise development, skills training, and industrial development (Esteves et al. 2013).

Taking inspiration from Morris et al. (2012) and Kaplinsky et al. (2011), a burgeoning research agenda investigating the effects of local content and localisation policies on resource-based development and industrialisation in Africa has emerged (AFDB 2016; Bloch and Owusu 2012; Dziwornu 2018; Farole and Winkler 2014; Hansen et al. 2016; Ovadia 2016; Ramdoo 2016; Tordo et al. 2013; White 2017). This predominantly GVC-inspired scholarship emphasizes the importance of an enabling business environment and targeted policies, and has fed into a wave of 'resource optimism' for the continent (Africa Progress Panel 2013; AU 2009; ILO 2016), providing theoretical sustenance to the dominant model of TNC-led mining industrialisation. It is generally uncritical, however, of the underlying assumption that African governments should be focused on integrating domestic actors into and upgrading them within the TNC-led model of large-scale, industrial mining.

Conceptually, this assumption blinds the literature to a consideration of how and from whom value might be transferred within the process of establishing and sustaining TNC-led mines, and with what developmental consequences. In recent decades, the general trend has been for

African governments to favour large-scale mining (LSM) and foreign capital when distributing mining permits (Emel and Huber 2008). These have been political decisions: not just to *create* value, but to *transfer* value to foreign firms. In this process of transferring value from one production mode to another, particular production modes have been *devalued*. This is a deliberate process which, according to Bair and Werner (2011, 990), is linked to 'everyday practices and struggles over value', whereby certain forms and logics of value creation are prioritised and asserted over others. Importantly, the devaluation of ASM is also discursive, with its informality leading it to be labelled as unproductive and illegal, with ASM miners perceived as criminals, invaders or polluters (Hilson and MacQuilken 2014; Geenen 2012).

Below, we explore precisely the 'everyday practices and struggles over value' that are generally absent from the GVC-inspired literature on African mining. We do so through a detailed case study of DRC's gold sector. Several recent studies have shown that TNC-managed industrial mines in the DRC continue to operate as enclaves,[1] with a significant amount of the added value disappearing abroad (Marysse and Tshimanga 2014; Trapido 2015; The Carter Center 2017; Radley 2019b). As Bush (2008, 361) argued in this journal around a decade ago when assessing the African mining industry, 'value remains locked in the industrial centres of international capital'. By contrast, despite a range of socio-economic and environmental problems, a large part of the value added created by Congolese ASM production remains in the country (Marysse and Tshimanga 2013), and ASM enjoys greater legitimacy among local populations (Geenen 2015). In theory, then, the locally-managed mechanisation of artisanal gold production in the DRC, which began about ten years ago, should make it possible to increase the level of value retained in the Congolese economy. In

practice, as our case study will show, such upgrading is held back by a political coalition between the state and corporate mining capital.

Twinned ASM-LSM Trajectories[2]

Unlike in the Congolese provinces of North Kivu and Ituri, where some gold mining has been traced back to the precolonial period, mining in South Kivu began in the early twentieth century. In 1902, King Leopold II of Belgium gave the Belgian industrialist Baron Empain four million hectares of land and mineral rights in his recently appropriated Congo Free State (Young and Turner 1985, 33). The *Société minière des Grands Lacs* (MGL), a subsidiary of the Belgian corporation the Empain Group, started shipping gold to Belgium in 1924. Kamituga was the main mining town during the colonial period, home to Mobale, MGL's most industrialised gold mine.

Following Congolese Independence in 1960, industrial mining in South Kivu avoided the nationalisation that took place elsewhere in the country. In 1976, negotiations with the Congolese government ended with the merger of MGL and other foreign mining subsidiaries into *Société minière et industrielle du Kivu* (SOMINKI). Following the merger, SOMINKI became the largest privately-owned mining company in the DRC, with twenty-eight per cent held by the state and seventy-two per cent by COGEMIN, a Belgium-based subsidiary of the Empain Group.

Yet from as early as the 1950s, a parallel network of informal ASM began to emerge, which was soon to produce volumes of up to thirty per cent of MGL's total gold production. By the 1970s, this network extended to master traders based in Burundi and Uganda and was protected by political, military and traditional authorities. For SOMINKI, these illegal flows represented a loss of between 72 kilograms and 144 kilograms per year (on a total production

of 400 to 600 kilograms). From the end of the 1970s onwards, SOMINKI responded fiercely to these losses, including searches and the use of metal detectors at the factory gates to Mobale. In the early 1980s, Mining Brigades from the Congolese national army were deployed to secure SOMINKI's mines (Athanase 2013, 13). In 1984, SOMINKI tried a different strategy of buying artisanal gold produced outside of its control at a fixed price.

From the mid-1980s onwards, SOMINKI's attempts to suppress and control a nascent ASM gold value chain eased off, as the Belgian subsidiary began to suffer problems of its own. In 1984, tin contributed seventy-four per cent of SOMINKI's turnover, but in late 1985 the International Tin Council fell apart, and the international tin price more than halved. With gold production failing to cover the lost revenue, SOMINKI ran at a loss from 1986 onwards (Kibwe-Kasongo 1994, 33), and the onset of the First Congo War in August 1996 triggered its final collapse. The subsidiary went into liquidation on 29 March 1997, bringing to an end nearly 100 years of Belgian-controlled industrial mineral exploration and exploitation in South Kivu.

With the withdrawal of foreign-led industrial mining and the retreat of the Congolese state during the Congo Wars (1996 to 2002), ASM operated with more autonomy and, encouraged by the beginning of a commodity super-cycle, tens of thousands of people – including displaced families – were drawn into it. It was during this period that the mutually beneficial alliance between gold traders and non-state armed groups (for which the sector has become so well-known) became entrenched, the latter providing security in return for a share in profits. In Kamituga, for example, a Rwandan-backed militia seized half of artisanal miners' production (Vlassenroot and Raeymaekers 2004).

Today, ASM is the most important economic sector and livelihood in South Kivu after agriculture. Available estimates for the total number of artisanal miners working in the provinces of North Kivu and South Kivu put the figure at between 200,000 and 350,000, with between nine and seventeen per cent of the total population directly or indirectly dependent on ASM (Geenen and Radley 2014, 59). Of those working in ASM, four out of five are thought to be mining gold (Weyns et al. 2016, 4). Based on data from 2014, Kamundala et al. (2015, 171) estimate South Kivu to produce around 4,800 kilograms of ASM gold annually, which in 2019 equated to a market value of around $216 million.

Value and Upgrading in ASM

This section begins with a descriptive overview of the production and trade of gold in South Kivu's ASM network, and the different groups of labour and traders involved in the process, before moving on to consider the distribution and use of value across the chain. Labour at an artisanal gold mine in South Kivu can be placed into three broad categories: site workers, shaft workers, and shaft managers. Shaft managers or gold traders provide the initial financial investment required to construct and maintain shafts, and managers mobilise and organise labour. Site workers are comprised of *mamans bidons* (female water carriers), *motards* (ore carriers), *mamans twangaises* (female ore crushers), *loutriers* (ore washers), and *mamans bizalu* (female waste washers). Shaft workers usually fulfil specific roles, such as timber specialists, drillers or supervisors, but can also work down the mine shafts as generalists.

At the treatment sites (*loutra*), the ore is sieved and grinded to extract the gold. In Kamituga, until recently, this job was done by female workers, commonly called *mamans twangaises*. These women were paid $1.40 to $2.00 to fill a basin (usually cut from a jerry can), containing about 15 kilograms of stones. On average they were able to process one basin per day (Geenen 2015, 84). In the next phase, the tailings from the loutra are amalgamated with

mercury (Nkuba et al. 2019). Workers sell the amalgam or the gold (after evaporation) to local traders who weigh the commodity on a set of manual scales, using old Congolese coins and toothpicks, and offer a price – which is sometimes guided by pre-financing agreements (Geenen 2015).

Local traders travel periodically to sell their gold to *grands négociants* (big traders) in South Kivu's provincial capital city of Bukavu, who will usually heat the gold with nitric acid over a hot stove to rid it of remaining impurities. After heating, the gold is weighed on an electronic scale, and an estimate of its purity is made based on its colour and origin. Next, the Bukavu-based traders sell some of their gold to one of several trading houses operating in the city, but smuggle the overwhelming majority out of the country, primarily to Burundi and Uganda.

Throughout the 2000s, the Indian Bhimji, Pattni and Lodhia families, and the Belgian trader Alan Goetz – all established prior to the Congo Wars - held an oligopsony position over the majority of the eastern DRC's informal gold trade. Operating from Bujumbura (Burundi) and Kampala (Uganda), they were financing a network of Congolese traders beneath them (UN Group of Experts on the DRC 2012). Independent Congolese traders with direct connections to the international market did, however, operate alongside these families (Carisch 2014, 36).

In 2017, the major trading houses in Bukavu were *Mines Propres* – Clean Mines – Namukaya and Kasereka. *Mines Propres* houses its own refinery in Bukavu, where gold is heated to 1,500 degrees Celsius in a cylindrical furnace and once melted, poured into a graphite ingot mould for casting. While *Mines Propres* accounted for two-thirds of all officially recorded exports that year, most of its production was smuggled to neighbouring

countries (South Kivu Ministry of Mines export data, 2017; Interviews with Bukavu traders and Ministry of Mines civil servant, Bukavu, January to March 2017). Government data for 2016 shows that all of South Kivu's official ASM gold exports for that year (a total of 90 kilograms, recorded at a value of three million dollars) went to Dubai in the United Arab Emirates. From Dubai, the gold is exported primarily to Indian- and Swiss-based refiners, which comprise the majority of the world's refineries selling to end users (Sharife 2016).

Considering the distribution of value across this network, Congolese workers, managers and traders capture around ninety to ninety-five per cent of the end value (Geenen 2015; Radley 2019b, 84). From this high level of domestic value capture, successful shaft managers are able to generate relatively significant monthly profits, with estimates from South Kivu ranging from $764 to $1,670 (Geenen et al. 2013, 22; Geenen 2015, 94; Rothenberg 2014, 14; Stoop et al. 2016, 25; Radley 2020, 1969; Geenen et al. 2020). Available estimates for trader profits point to around $200 to $400 per month for small traders[3] and upwards of several thousand dollars per month for big traders operating in Bukavu (Geenen 2015; Radley 2019b, 94).

Reinvestments from these profits have been observed in agriculture, livestock, real estate (particularly in Bukavu), vehicles, motorcycles, commerce and transport, as well as to bring consumer goods, construction material and food produce into the DRC (Geenen et al. 2013, 24; Geenen 2015, 100; Rothenberg 2014, 14; Radley 2020, 1973). Despite the low capital intensity of ASM, a significant share of profits is also reinvested in production. At one artisanal gold mine in South Kivu, for instance, an estimated $200,000 was reinvested in capital inputs in 2017, or nine per cent of the total value created by the site that year (Radley 2019b, 96). The main inputs were timber to construct, maintain and extend the shafts

(sourced locally), and the use of generator-powered machines (manufactured in China and Japan and imported by Congolese traders through Dubai) to circulate oxygen through the shafts and evacuate water.

Crucially, there is also evidence that productive reinvestment has stimulated economic upgrading, through a locally-led process of increasing sectoral productivity via technological assimilation, capital formation and mechanisation. In Kamituga, artisanal miners gained access to the town's most productive deposits following SOMINKI's liquidation in the late 1990s. Around a decade later, however, they began to notice a decrease in the quality of the extracted ore. Many sites, no longer profitable to exploit, emptied out. In 2007, a German gold trader, who owned the trading house Aurex in Bukavu, wanted to access the Kamituga gold market. To do so, he entered a partnership with *Société minière du Congo* (SOMICO), a state-owned mining enterprise established by President Laurent Kabila in 1998, and sent six ball mills to Kamituga (Geenen 2015, 36).

About the size of a cement mixer, the ball mills are powered by generators and grind large rocks into a fine powder, at a much faster rate than the *mamans twangaises*. They can also grind what was previously considered *déchets* (waste). While a *maman twangaise* could break down around 15 to 25 kilograms of rock per day, one of the ball mills could process 300 kilograms in around half an hour. The partnership with Aurex failed to take off, however, as shaft managers were distrustful of the mills, suspecting they would lose some of their gold in the machines.

Around four years later, in November 2011, a Congolese entrepreneur brought three ball mills to Kamituga from Misisi, a large artisanal gold site further south, where the mills had

been in use since around 2009. He had imported the mills from Tanzania at a cost of around $7,000 each, and set them up at Calvaire, one of the artisanal mining sites at Kamituga (interview with shaft worker, Kamituga, 23 April 2017). Shortly after, a former Congolese employee at Aurex opened a ball mill repair workshop in town, and soon after again, the mills began to be manufactured locally (interview with shaft manager, Kamituga, 22 April 2017).

Through the use of these machines, sites that had previously been exhausted by artisanal techniques once again became productive. By the end of 2012, around 70 ball mills were active across the three main artisanal sites of Calvaire, Bipasi and D3, the latter two on SOMINKI's former Mobale mine (interview with Kamituga civil society representative by telephone, 9 February 2018). Around ten of the mills were owned by shaft managers, with the remaining 60 owned by local gold traders or entrepreneurs. Those wanting to use the mills paid 10,000 Congolese Francs (around six dollars) for every 100 kilograms of treated ore.

Around the same time as the ball mills were being introduced, shaft managers in the area also attempted to respond to decreasing production by connecting sites to the local electricity grid (run by a hydroelectric power station built by SOMINKI). The aim was to facilitate the use of machines to circulate oxygen and extract water, thereby allowing for production to continue at deeper levels underground. In many cases, explosives were used alongside the machinery, to blast through the hard rock encountered at deeper levels of shaft construction.

Through the increased use of machinery, explosives and ball mills, then, Congolese managers and traders in Kamituga were driving a domestically-managed process of economic upgrading towards a semi-mechanised mode of production, with origins in extractive

techniques previously adopted at other sites in South Kivu and the wider region. Their major problem, however, was that they were doing so in a site of strategic importance to the recently arrived Canadian TNC, Banro.

Return of Foreign-led LSM

The liquidation of SOMINKI in 1997 was part of negotiations begun in 1995, whose outcome signalled another shift in the relationship between the Congolese state, foreign mining corporations and ASM operators. Between 1995 and 1997, a group of British-Canadian investors – who would eventually centre around the Toronto Stock Exchange-listed junior mining corporation Banro – negotiated a number of agreements with the Congolese government to acquire control of SOMINKI's assets for $3.5 million. By the official end of the Congo Wars in April 2002, Banro had secured full ownership of SOMINKI's major gold deposits under a 30-year mining convention. Due to the continued presence of armed groups in the region, it wasn't until 2005 that Banro started its own exploration programme. Banro's eventual entry was facilitated by the Congolese army in the context of a military operation against remaining rebels, and supported by the customary chief who was politically well-connected and later co-opted in the provincial parliament.

The Congo Wars also ended with the introduction of a new Mining Code in 2002. The World Bank provided $163.5 million in loans to oversee mining sector reform in the DRC (Radley 2019b, 101), working 'in close collaboration with a Congolese committee on the drafting of the mining law' (Mazalto 2008, 58). As was taking place elsewhere across Africa at the time, the Code moved to privatise state-owned mining enterprises and attract fresh FDI by offering a generously liberal fiscal regime, including tax holidays and exemptions and low royalty rates. Foreign investors responded to the call. FDI inflows to the DRC increased by a factor of 17 between 2002 and its peak in 2012, from $188 million to $3.3 billion (Radley 2019a,

801), and were heavily concentrated in the mining sector (Englebert 2014). From 2007, official copper and cobalt production began to rise, followed by an increase in official gold production from 2012 onwards. Along with Banro, the rise in gold production was driven by the Kibali project in Haut-Uélé Province, led by a joint-venture between the Canadian TNC Randgold Resources and the South African TNC AngloGold Ashanti (now Barrick Gold).

In South Kivu, Banro holds 12 exploitation permits that cover 2,848 square kilometres (South Kivu Provincial Ministry of Mines mining permit dataset, 2017). In September 2012, Banro began commercial gold production at its flagship Twangiza mine, which in 2019 remained the only industrial mine at the production phase in the province. Yet the corporation also holds exploitation permits at nearby Lugushwa and – crucially for the process of economic upgrading in ASM – Kamituga.

The Mining Code accorded ASM a legal status, requiring it to take place in officially recognised *zones d'exploitation artisanale* (ZEA) – Artisanal Mining Zones (although these could be closed down if deposits suited for industrial exploitation were to be found). Within these zones, artisanal miners must self-organise into cooperatives, apply for individual mining permits, and comply with security and environmental regulations (Geenen and Radley 2014, 61). Yet progress has been slow, with only seven ZEAs covering an area of 250 square kilometres established in South Kivu as of 2017. By contrast, that same year, 16,000 square kilometres was covered by foreign-owned, large-scale mineral research and exploitation permits (South Kivu Provincial Ministry of Mines mining permit dataset, 2017). As a result, most ASM activity in South Kivu (including that of Kamituga) is illegal, as it takes place outside of ZEAs and/or within industrial concessions.

Banro had, nonetheless, initially tolerated the presence of ASM on its Kamituga concession, where the corporation had not yet started commercial production. Yet the increased productivity of ASM extraction, generated in particular by the use of ball mills from 2012 onwards, tested the limits of this tolerance. In 2017, Banro's former CEO, John Clarke, explained that the corporation's strategy was to have the Kamituga and Lugushwa mines in the production phase in the next ten years (interview with former Banro CEO, John Clarke, UK, 26 October 2017). By depleting the value of the corporation's deposits more rapidly than had been the case under purely artisanal techniques, ASM mechanisation in Kamituga posed an increased threat to this longer-term vision. As the Public Relations Manager of Banro's Congolese subsidiary Kamituga Mining succinctly noted: 'For us, it is about the mechanisation of mining exploitation…. we continue to tolerate the presence of [artisanal] miners up to now, but under the condition that they remain in artisanal mining only' (cited in Buraye et al. 2017, 361-362).

In January 2012, the mining administration at the level of Mwenga Territory attempted to formally ban the use of ball mills due to their illegal encroachment onto Banro's concession. This had little effect, so in early 2013, Banro opened legal proceedings against the mill owners, informing them that the mills would be appropriated by the Congolese state if they were not moved off the Mobale deposit. In September 2013, after the mill owners had failed to heed this warning, around 30 mills were appropriated by state agents with the support of local military and police, and transferred to state custody in Bukavu. According to one of the local policemen involved in the operation, 'police officers and soldiers were instructed to clear all the crushers at Mobale. This was difficult for us, but we had to follow orders' (interview with local policeman, Kamituga, 22 April 2017). Following this appropriation,

mill owners formed and registered the cooperative Kamituga Development to represent and defend their interests (interview with local policeman, Kamituga, 22 April 2017).

By 2017, while mills were no longer present at Mobale, they continued to operate at Calvaire, a site of less strategic value to Banro. Yet no judgement had been passed on the court case opened by Banro against the mill owners, and as a result their future remained unclear. As the president of a miners' association in Kamituga reflected: 'Since 2012, artisanal miners have been leading a life of uncertainty. They continue in their work, not knowing what day their enemy will surprise them, inciting local authorities, police and military to appropriate their machinery' (interview with miners' association President, Kamituga, 24 April 2017). This testimony proved somewhat prescient, as in April 2018 the General Prosecutor in Bukavu informed the mining police in Kamituga that the case against mill owners at Calvaire was still open, and that a visit would soon be undertaken 'to proceed to the suspension of all related [ball mill] activity' (letter 'For the state against the Calvaire ball mills', 14 April 2018).

However, this foreseen court visit has yet to take place, possibly as both Banro and the Congolese state have been distracted in recent years by their own struggles and processes of change. In December 2017, Banro entered Canadian government creditor protection and went through an extensive recapitalisation and restructuring (Radley 2019a, 807). In March 2019, one year after Banro emerged from creditor protection, the corporation split it assets and the Chinese investment fund Baiyin International Investment (one of Banro's two principal shareholders) acquired full control of the Twangiza mine (Clowes 2019). Six months later, in September 2019, Banro's remaining Congolese subsidiaries suspended all activities and its CEO wrote to the Congolese Ministry of Labour requesting the suspension of all worker contracts for reasons of *force majeure* (letter from Banro CEO Brett Richards to the DRC

Government Ministry of Labour, 24 September 2019). Meanwhile, Félix Tshisekedi was appointed as the new President of the DRC in January 2019, replacing the outgoing Joseph Kabila, who had been in office since 2001. Shortly after, in April 2019, Theo Ngwabidje Kasi was appointed as the new Governor of South Kivu (the highest political position at the provincial level).

Banro's ongoing difficulties and the new political climate offer some possibility for a shift in the balance of power away from foreign-controlled LSM and towards more domestically anchored ASM operators in the region. Yet, aided in particular by the recent recovery in the gold price, LSM might still regain its foothold. Moreover, events preceding these recent changes have demonstrated the historical continuity of corporate-state ASM suppression in South Kivu across different political regimes, from SOMINKI in the 1970s and 1980s through to Banro in the 2000s and 2010s.

Discussion and Conclusion

The main argument of this article is that, in the context of South Kivu, the coalition between foreign corporate mining capital and the Congolese state has functioned to marginalise and hold back a locally-led process of ASM mechanisation via technological assimilation and capital formation. Conceptually, these 'everyday practices and struggles over value' (to return to the work of Bair and Werner) were revealed by extending the conventional GVC framework to incorporate a broader consideration not only of how value is created and distributed in GVCs, but from where (and whom) it is *transferred* within this process. Through its focus on how domestic actors can integrate into and upgrade within large-scale, TNC-led mining networks, the GVC-inspired African mining literature has so far been unable to speak to these dynamics.

By taking a broader look at the co-evolution of ASM and LSM, the case study of gold mining in South Kivu has unveiled historically persistent structural patterns of capital accumulation, value transfers, and devaluation. During the latter half of the twentieth century, the Congolese state and SOMINKI acted in tandem in their efforts to suppress and control the growth of ASM. More recently, Banro's alliance with the Congolese government has actively repressed a locally-managed process of economic upgrading in ASM, using a combination of force and legal means. We have shown that artisanal miners are 'tolerated' in the concession as long as they do not enter into direct competition with TNCs – meaning, not target the same deposits (see Pijpers and Luning 2017 for the case of Ghana).

The restrictions placed on Congolese ASM in terms of where it can locate itself and which technology it can use are commonly justified by referring to the Mining Code. Yet this obscures more important questions about who makes the law, and whose interests it serves. Mining companies need to gain access to underground resources, which are usually held by the host government. Decisions to grant concessions to TNCs are thus political decisions to take these resources away from communities and/or artisanal miners, and give them to foreign corporations to be extracted. The 2002 Mining Code was tailored to the needs of foreign mining companies, who lobbied hard to protect their interests in the revised Mining Code that was adopted in 2018. Although the new Code raised royalties, its tax regime remains among the most liberal in the world (Custers 2019). In addition, corporations rely heavily upon the Congolese state apparatus, such as Banro's use of its army and mining police to effectively occupy its Twangiza concession in 2005, and repress recurring protests (Geenen 2014).

While the law provides for ASM zones and offers some room for reallocating 'unused' parts of LSM concessions (Kamundala 2013, 19), it falls short in its implementation. As mentioned above, very few ZEAs have been created, and the procedures for creating a cooperative and obtaining a license are costly and burdensome, resulting in elite capture of miners' cooperatives (De Haan and Geenen 2016). The Congolese Ministry of Mines (2010; 2017a; 2017b) has repeatedly called for the transformation of artisanal mining into a small-scale, semi-industrial sector, yet little has been done to achieve this objective. Indeed, in a context where eighty-three per cent of the DRC's known gold reserves belong to mining TNCs (Mupepele 2012, 57-58), it is difficult to see how such an agenda might be meaningfully advanced in the foreseeable future.

In sum, the devaluation of ASM is evident in the limited (legal and literal) space that is created, the bureaucratic and political hurdles to formalize, and the repression of upgrading opportunities. As mentioned, it is also discursive, as seen in the description of artisanal miners as poverty-driven, subsistence miners, or illegal encroachers on LSM concessions. Similar findings have come out of other African countries, including Ghana (Crawford and Botchwey 2017) and Uganda (Fisher et al. 2020). In the case of South Kivu, there has been a historically consistent pattern of transferring value to foreign corporations though concession-making, the dispossession of local communities, and the disempowerment of Congolese miners. While the GVC-inspired literature focuses on the possibilities for and actualities of value creation and value enhancement by integrating into GVCs, it remains blind to the value that is created outside these chains, and the impact of TNC arrival on these pre-existing networks.

In this sense, our findings hold relevance beyond the mining industry, by drawing attention more broadly towards the existence, economic contribution, and developmental potential of pre-existing and more domestically embedded networks of African production, and how the trajectory of these networks can be disrupted by TNC arrival. To be sure, these alternative networks are not necessarily wholly inclusive or sustainable, and their emergence would be wrought with their own tensions and contradictions, inevitably creating winners and losers in the uneven and contingent process of (capitalist) economic development. This article for instance does not address how ASM mechanisation is altering social and labour relations, and there remains plenty of scope and need to investigate these dynamics further (Verbrugge and Geenen 2020). Recent research from South Kivu and elsewhere, for example, has suggested that women and unskilled workers at the bottom of the ASM labour hierarchy have been the most negatively affected by mechanization and the introduction of new technologies (Mulonda et al. 2019; Lanzano 2020; Verbrugge 2020; Libassi 2020). Rather, the focus of this article has been to draw attention to the scope for domestically-led processes of capital formation and mechanisation, and how these can be purposefully suppressed by powerful GVC actors. This story is consistent with the work of development studies scholars like Harriss-White (2010), Meagher et al. (2016), Mezzadri (2010) and Phillips (2011). Taking a structuralist view on informality, they have argued that global capital tends to inhibit upgrading and accumulation within petty production units, which are deliberately kept small and informal (see Verbrugge 2020).

The World Bank remains committed to promoting the potential benefits of TNC-led industrial mining across Africa (Hilson 2019). Yet African governments are beginning to depart from this prescription, taking a more confrontational stance in their dealings with foreign mining corporations (Biesheuvel et al. 2019). The Tanzanian government, for example, has begun to revoke certain TNC concessions, returning them to ASM operators;

although Jacob and Pedersen (2018, 290) note this may be more reflective of expedient populist politics and internal tensions within the ruling party than an ideological break with the past. Based on the findings presented in this paper, it is to be hoped that this shift is more representative of the latter than the former, and that GVC-inspired scholarship on African mining and other industries expands its analytical framework to consider forms of value and upgrading that lie in networks outside of the currently dominant but all too often disarticulated and disruptive TNC-led incarnations.

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[1] For a fuller elaboration of the enclave economy in post-colonial Africa, see Bond's (2007: 30-32) discussion of Guy Mhone's theorisation.

[2] This section is based primarily on archival material presented in Geenen (2015) and Radley (2019).

[3] Based on a monthly survey carried out among 19 small traders in Kamituga during the whole of 2009 (except for the months May and June), Geenen (2015) found that small traders (*maison d'achat*) bought on average 196 grams of gold (average turnover of $4,847 per month). On each gram they take about a $2 profit margin, which makes for an average profit of $392 per month.