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INFRASTRUCTURE, INDUSTRIALISATION AND COMMUNITY DEVELOPMENT IN AFRICA'S RESOURCE RICH ECONOMIES

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Abstract

Mining continues to lie at the heart of many African economies. In recent years, there has been growing recognition that commodity dependence needs to be overcome, and that the mining economy should be transformed from an extractive to a developmental industry. The minerals-based industrialisation agenda is dependent on the development of supportive mining infrastructure. This paper considers the infrastructural landscape in minerals rich African countries and identifies how financing for mining infrastructure could be geared towards facilitating linkage development, industrialisation and community development. Attention is placed on the promotion of "shared-use" mining infrastructure. We argue that national governments and development finance institutions are central to realizing the developmental potential of the minerals sector.

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Abbreviations

AfDB	African Development Bank
AMV	African Mining Vision
AU	African Union
DBSA	Development Bank of Southern Africa
DFI	Development Finance Institute
DRC	Democratic Republic of Congo
ICA	Infrastructure Consortium for Africa
NEPAD	New Partnership for Africa's Development
PIDA	Programme for Infrastructure Development in Africa
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organization

1. Minerals Based Industrialisation

1.1 The Resource Curse?

Mining is a critical industry for many African economies with the continent holding 30% of the world's mineral reserves in 2015 (Lane, Guzec & Antwerpen, 2015). Recent statistics show that mining constitutes a significant portion of GDP in countries like Zimbabwe, Botswana, Namibia and Tanzania. The sector is significantly embedded in local economies, contributing to export and tax revenues; employment; and both downstream and upstream industry (Turok & Smith, 2017). Despite this, a significant body of literature bemoans the continent's mineral wealth as a curse citing the way in which resource-dependence has frustrated inclusive growth and development. Backing up this perception, a recent report by McKinsey shows that almost 80% of countries whose economic prosperity has been tied to resources have below-average levels of *per capita* income. In addition, more than half of these countries are not "catching-up" with their developed counterparts.

Illustrative of this problem was the recent commodity price slump where mining operations fell by 28% between 2012 and 2013, and dipped by 12% in 2014, a year of heightened price volatility (Lenoro and Thompson, 2014). Prices finally reached their lowest points in early 2016 according to the World Bank. In copper-dependent Zambia, the commodity slump lead to 10 000 job losses (Africa Report, 2017). The Democratic Republic of Congo (DRC) suffered a sharp economic decline as production in mineral resources dropped and GDP growth fell from 6.9% in 2015 to 2.5% in 2016. Similarly, the Zimbabwean economy, suffering from both the commodity slump and a crippling el-Nino-linked drought, saw a drop in the GDP growth rate of 100% between 2015 and 2016 alongside negative per capita income growth in that period (World Bank, 2017). These negative impacts illustrate the pitfalls of mining-dependence in its current form.

1.2 Leveraging Minerals for Development

Despite these recent trends, prices have stabilised since 2017 and mining is entering a period of recovery which will likely have positive ripple effects on key economic indicators. The World Bank predicts African mining output to grow at an even pace over the next few years. Large investments are proposed in Zambia's Copper Belt and in the DRC (Turok & Smith, 2017). In addition, US$18

billion in investment is planned for the development of a number of new mines in copper, gold, diamond, platinum, uranium and coal.

Ethiopia, Mozambique, Rwanda and Tanzania have also been flagged as potential sites of mining growth (World Bank, 2016). Indeed, as global mining recovers, it is predicted that the majority of the share in resource investment will remain in poorer countries, particularly in Africa. However, as the industry recovers, the question of how to encourage mining for socioeconomic transformation will be at the center of policy debates across the continent. It is clear that these investments won't lead to a significant reduction in poverty, inequality and unemployment unless they are leveraged for diversification and structural transformation.

As mentioned previously, it is a widely-held view that mining is an industry with very little developmental potential, a position embodied by the "resource curse" literature. A lack of technological capacity in local economies, limited local capabilities, the Dutch Disease effect, insurmountable infrastructure challenges and the extractive and disruptive nature of multinational mining firms are all cited as reasons why mining is an inherently "enclave" industry, cut off from other productive sectors of the economy, capital intensive and dependent on foreign inputs and thus possibly doing more harm than good (for a discussion on this see Morris et al, 2012 and Fessehaie et al, 2016). Additionally, previous attempts to realise minerals-based industrialisation on the continent have often collapsed (AMV, 2009).

Yet this has not dissuaded development economists and economic institutions.[1] Indeed, resource-based industrialisation has occurred in the Nordic countries, Canada and Australia. Success in these cases was based on a shared strategic vision between all stakeholders in the economy (business, government, labour and communities), spearheaded by deliberate and proactive government-led collective action.

The continent's major economic institutions and development economists have, as a result, embraced the developmental potential of the mining industry (see Morris et al, 2012). They argue that a predicted upswing in commodity markets should be leveraged for economic diversification and the creation of a strong and competitive industrial base. Africa's major economic organisations have increasingly championed the prospect of a "minerals-based" industrialisation path for Africa's

[1] For example, the "*Action Plan for SADC Industrialisation Strategy and Roadmap*" highlights "mineral beneficiation and downstream processing" as one of the three central pillars that would kick start regional industrialisation.

resource-rich economies. The AU has singled out the mining sector as a catalyst for broad-based growth and development. Its *African Mining Vision* (AMV), prepared in collaboration with the African Development Bank (AfDB), United Nations Conference on Trade and Development (UNCTAD) and United Nations Industrial Development Organization (UNIDO), calls for the "formulation and implementation of workable industrialisation strategies based on our continent's unique strengths"(AU, 2009).[2] The AMV demands therefore that African countries seek to imitate the experiences of the likes of Canada, Norway and Australia.

In 2011, the AU, AfDB and UNECA launched the *Action Plan for Implementing the AMV-Building a sustainable future for Africa's extractive industry: From Vision to Action.* This document lists concrete policy interventions for African countries to follow in order to realise minerals-based industrialisation. These steps, backed up by a UNECA report of the same year, emphasise the stimulation of upstream, downstream and sidestream linkages (AU, 2011).

Economic historians have argued that technology, skills, knowledge systems and proper policies are instrumental in leveraging natural resources for inclusive growth (Fessehaie et al, 2016). The latter is particularly worthy of emphasis. The development and implementation of policies to stimulate backward, forward and horizontal linkages from the mining sector, is crucial to achieving diversification from mineral extraction. A "free-market" approach will only further entrench and feed the resource curse: it is clear that market forces alone will not lead to diversification and state intervention is needed to incentivise multinationals to create linkages. Policies that should be promoted include local procurement, skills development support for upstream and downstream industry, export taxes and incentives to processing industries (Morris et al, 2012).

This minerals-based industrialisation agenda has been taken on by many countries and recent policy developments in Ghana, Tanzania, Zimbabwe and South Africa underscore the appetite for leveraging mining towards broader development. But what has the progress been on this and what more needs to be done?

[2] In the years after the publication of the AMV, the AU, AfDB and UNECA have all promoted minerals-based industrialisation. In 2011, the "Action Plan for Implementing the AMV was published." In 2013, UNECA published "Making the most of Africa's Commodities," calling for the creation of an integrated mining system on the continent. The AfDB also considers the mining industry as a priority. In its recent report, the AfDB called on national governments to implement policies that would move Africa up the global value chain and away from a condition in which the continent is "effectively exporting wealth and jobs (AfDB, 2016)."

2. Mining Infrastructure for Development

2.1 Africa's Infrastructure Shortfalls

Africa faces challenges far more severe than countries that have achieved minerals-based industrialisation in the past. Not least of these are mammoth infrastructure constraints. A recent *Africa Pulse* report places Sub-Saharan Africa at the bottom of developing regions in virtually all dimensions of infrastructure performance (Africa Pulse, 2017). While there have been improvements in terms of access to water and telecommunications, the power sector has not improved in 20 years. 50% of the population of 24 countries in Sub-Saharan Africa do not have access to electricity (Economist, 2015). Transport infrastructure is also dilapidated and showing little evidence of development (Africa Pulse, 2017). In 2009, logistics costs in African mining were 250% of the global average (AU, 2009).

The AU's "*Agenda 2063*" maintains that meeting infrastructural challenge will catalyse regional integration and industrialisation (AU, 2014). The AfDB and the New Partnership for Africa's Development (NEPAD), in particularly through the Programme for Infrastructure Development in Africa (PIDA), are also committed to addressing the continent's infrastructure gap and see the importance of deepening regional integration as both a solution and a reward. A number of other regional economic bodies and institutes have focused mandates geared towards alleviating Africa's infrastructural problems. For example, the Infrastructure Consortium for Africa (ICA) was formed in 2005 and is mandated to build quality infrastructure for Africa (ICA, 2016).

Although addressing Africa's infrastructure constraints has been a high priority for states and regional bodies for several decades, solutions have yet to be found with financing remaining a key obstacle. It has been estimated that Sub-Saharan Africa requires US$93 billion annual investment over the next decade to meet infrastructural deficiencies (Deloitte, 2016). The continent is far from securing these levels of funding.

Currently, sources of funds for African countries are increasingly dominated by Asian investors (state and private), with China playing a growing and dominant role. China's Exim bank is believed to be responsible for 75% of what will be directed to infrastructure development in Africa in the coming years and it is expected that cumulative Chinese investment in Africa will amount to US$1 trillion in

Africa in the next decade (Economist, 2015). Japan is also increasing its footprint on the continent and is involved in at least three infrastructure-related activities (ICA, 2016).

Additionally, public capital spending levels in Africa are too low to address infrastructure needs (World Bank, 2017).[3] Moreover, public-private partnerships have not become a significant part of the market in Africa. South Africa, Nigeria, Kenya and Uganda made up 48% of all of these arrangements in infrastructure in the past 25 years (World Bank, 2017). African governments cannot attract private investment for infrastructure projects. This is largely due to its unstable regulatory frameworks. African states currently perform below the global average in regulatory frameworks for procurement in public-private partnerships (World Bank, 2017).

Due to limited fiscal manoeuvring space by local governments and private sector reticence, development finance institutions (DFIs) are becoming integral to realising Africa's infrastructural ambitions. Currently, African regional banks represent the smallest share of infrastructure funding, but the importance of this share cannot be overestimated (The Economist, 2015). The Development Bank of Southern Africa (DBSA) is one of these important role players in delivering solutions to Africa's infrastructure deficiencies.

2.3 Mining and Infrastructural Development

A lack of quality infrastructure is a major impediment to mining development in Africa. The costs associated with rail, road and port infrastructure remain a significant hurdle to growth and investment in the industry. Transport has been flagged as critical to unlocking mining projects in the region.[4] However, rail and port facilities to support the extraction of large mineral deposits, often hundreds of km from the sea, currently do not exist (Ireland, 2013). According to Deutsche Bank, US$50 billion is needed for railways to unlock Africa's iron ore deposits alone (Ireland, 2013).

[3] Annual public spending on infrastructure in the region was 2% of GDP between 2009-2015. Two thirds of this spending was devoted to roads, and about 1/6th was devoted to electricity, water and sanitation each (Africa Pulse, 2017).

[4] For example, in Zambia, a South African firm interviewed for this study has made resolving transport issues a priority, yet cannot implement practical solutions, often due to what they call government inefficiencies. To move copper from Zambia to Durban is a major problem for their business. There are railways for this route, but we were told that the South African and Zambian governments have not enabled copper to move across their countries without obstacles. In order to resolve the issue, the company uses hundreds of 32-ton trucks. However, logistic costs are double the production cost of the copper.

Infrastructure spending in Africa has traditionally, and will in the near future, be tied to the mining industry. This is due to mining's overwhelming presence in domestic economies, determining the size of the fiscus and the spending capabilities of local governments according to the industry's performance. Funding for major infrastructure projects in Africa, both related and unrelated to mining, was restricted during the depressed commodity environment, causing delays and abandonment of new projects (Thomashausen & Ireland, 2015). As mining enters into a period of recovery, uncertainty remains as to how financing should be secured and who should construct own, operate and have the right to use mining related infrastructure (Ireland, 2013). Below we consider these questions within the framework of the African Mining Vision (AMV).

2.3.1 A New Model: Shared-Use

In the developed world, mining-related infrastructure is embedded in local economies in a manner that ensures wide social and economic benefit. Mining in Sub-Saharan Africa however still reveals patterns of extraction akin to the colonial era. Mining companies in the region have traditionally adopted the "integrated" or "enclave" infrastructure approach and have sought to control, own, operate and have exclusive right to use infrastructure related to their mining. This approach has meant that large-scale investments in infrastructure in the industry have been out-of-sync with national development plans of host countries and have been largely de-linked from broader economic activity (Thomashausen & Ireland, 2015).

However, since the launch of the AMV, African countries have increasingly pushed for infrastructure related to mining to operate on an "open-access" or "shared-use" basis. This would mean that other industries (agribusiness, manufacturers and others) can use rail, ports and other facilities constructed for mining, thereby providing spatial linkages to the rest of the economy. Sharing infrastructure in this way can also stimulate local downstream and upstream linkages to the mine if local suppliers and markets can access mines more efficiently than before. "Shared use" is thus a crucial concept for the minerals-based industrialisation agenda (Ireland, 2013; Columbia Center for Sustainable Investment, 2016).

Shared-use infrastructure might involve railway corridors and port facilities facilitating large-scale investments in agriculture and forestry by providing reliable access to foreign markets. It could also involve a power plant constructed for a mine being used to supply low-cost electricity to local communities or the nation's grid (Thomashausen & Ireland, 2015). An example of "shared use" in Africa is the Nacala corridor (NRGI, 2015). Vale along with the governments of Mozambique and

Malawi have agreed to build a railway from Vale's coal mine in Nacala Mozambique through part of Malawi. Local businesses will be able to use the railway once complete.

McKinsey has predicted that US$2 trillion can be generated from shared-use infrastructure investments related to the mining sector in Africa. It also suggests that 70% of infrastructure investment on the continent can be made to be multi-use whilst 30% can be multi-purpose (NRGI, 2015). Mining companies, meanwhile, have begun to consider whether the traditional "enclave" model is sustainable. Rising costs of infrastructure provision, shareholder activism that is demanding lower capital expenditure, pressure from national governments and at the continental level for mining to contribute to development goals, and the increase in infrastructure for minerals deals pioneered by the Chinese State-Owned Enterprises (SOEs) operating in Africa, have opened up space for a new mining infrastructure agenda (Ireland, 2013).

Unfortunately, little progress has been made on the provision of shared-use infrastructure in Sub-Saharan Africa. Something akin to shared-use can be seen in Liberia, Cameroon and Mozambique. Encouraging examples can also be found in the Simandaou project in Republic of Guinea and the Katanga Copper project in DRC, but these are few and far between (Thomashausen & Ireland, 2015; Columbia Center for Sustainable Investment, 2016).[5] The reasons for the lack of progress are varied and are discussed in turn below.

First, although under more pressure to change their business practice, mining companies remain locked into an "enclave" mentality. In terms of infrastructure provision, this approach will remain more commercially attractive for mining firms until "shared-use" funding models are coordinated at a cheaper cost (NRGI, 2015).

Second and related, governments in Africa, as mentioned above, are not regulating the mining industry in a developmental manner. Unless governments act decisively, enclave infrastructure developments will continue to dominate the industry (NRGI, 2015). This will be discussed further in

[5] The Simandaou project has suffered delays and there is currently little appetite for the massive capital investment needed to complete it. The project involves the construction of a railway line and associated port that will be used primarily for export of iron ore but will also be available for use by other mining and non-mining users, including passengers and agribusiness (Thomashausen & Ireland, 2015). The Katanga Copper mining power requirements have been leveraged to improve the power system in the DRC, highlighting the benefits of private-public partnerships and cooperation between government and private sector (Glencore is the private company involved in this case) (Columbia Center for Sustainable Investment, 2016).

the next chapter. Yet even once governments commit to a developmental programme there are still significant obstacles in the way. Getting shared-use to operate effectively requires diligent development planning and governments may lack the skills to integrate "shared-use" mining priorities into their developmental infrastructure plans. It is of no value to build a railway for "shared-use" only for more traffic to arrive at an ill-equipped port (NRGI, 2015). Moreover, different types of commodities will require different types of infrastructure development priorities and so different opportunities for shared use or open access with varying cost profiles. Thus, it is very important for government to have a clear understanding of their commodity endowment and conduct careful cost-benefit analysis on shared-infrastructure projects based on this (Columbia Center for Sustainable Investment, 2016). The Columbia Center for Sustainable Investment (2016) suggests governments construct a master infrastructure plan across all sectors and their intersection with the extractive industry (Columbia Center for Sustainable Investment, 2016).

McKinsey predicts that mining companies alone are likely to spend close to US$2 trillion on infrastructure by 2030. Local governments should thus also look to partner in these projects in order to ensure that the infrastructure is for shared-use and not merely extractive purposes (Lenero & Thompson, 2014).

Finally, and perhaps most significantly, a lack of financing is a major impediment to realising "shared-use" infrastructure projects in Africa. In the developed world, where mining infrastructure operates on an "open access" platform, funds for infrastructure come largely from public coffers. This is not possible in Sub-Saharan Africa. As one report concluded, "…the financial commitment of one project could overwhelm a country's entire budget equilibrium" (Ireland, 2013). If "shared-use" is to become a reality on the continent, then new and innovative financing models are required. Currently, financing sources in the region have not adapted to the different lending model.

Ireland (2013) has promoted a private special purpose vehicle (SPV) that would operate in a structure similar to a private-public partnership. This model would balance the needs of mining companies and government's developmental ambitions by allowing new users, gaining political input from government, and granting of founder rights to first mover mining client (Ireland, 2013). If adopted, this structure would allow for more sources of capital to mining infrastructure and unlock funding from development banks and other capital providers that are unable to invest in integrated mining projects (Ireland, 2013). It would also lower the cost of capital for mining company, lower political risk through the establishment of linkages in the local economy and thereby gaining trust

from local government. It could also facilitate cooperation between mining rivals in a particular region (Ireland, 2013). Although there are a number of challenges to successfully rolling out SPV, like cross border complications, regulatory inconsistency by local government, and private company resistance, it is a concept worthy of promotion.

3. State, Capital and Minerals Based Industrialisation

3.1. View from Mining: South African Industry in Africa's resource-rich economies

African mining has generally and historically followed an extractive model. However, our literature survey and interviews with South African mining and related industries on the continent suggest a degree of openness to changing business practices. South African mining companies, in particular, are well placed to assume a developmental role on the continent. South African companies in mining and related industries have considerable expertise in diverse areas of the industry from excavation to energy generation and we have the makings of a powerhouse of infrastructure delivery and the stimulation of economic linkages. Yet what are the prospects for a South African led minerals based industrialisation agenda in the rest of Africa?

Mining companies do not have a glowing record of contributing to social and economic development. The stories of indigenous people in several countries are replete with the slave-like conditions under which they toiled and perished. In his acclaimed book, *Open Veins of Latin America*, Eduardo Galiano eloquently catalogues the misery wrought by the Spanish conquistadors as they emptied the bowels of the earth in South America. Adam Hochschild meticulously pored over volumes of historical records and personal accounts to show us the brutal dehumanization of the Congolese people by the Belgians in *King Leopold's Ghost*. In South Africa, the story was no different as the British forced Africans to labour in the hot, damp and dark underground to bring tons of gold to the surface just a few kilometres from where their shanty towns mushroomed on the periphery of Johannesburg.

Yet the growing protests and community activism in many parts of the world against inhumane working conditions in mines and, more recently, the surge in movements to halt environmental degradation have led some mining companies to respond to the concerns expressed by unions,

communities and civil society organisations. We see this in glossy brochures that extol the virtues of "Green Mining" with annual reports depicting engagement with communities as part of the corporate social responsibility programmes of companies. Sustainable development and inclusive economic models are a big part of the vocabulary in these publications. AngloGold Ashanti has a Social, Ethics and Sustainability Committee and its President of Sustainable Development, David Noko, articulates the new corporate ethos as follows:

> "We also recognize that there is economic value accruing to our business through our sustainable development performance such as in improved safety performance and harmonious relationships with communities and other stakeholders. Our approach will guarantee us multiple benefits that are very significant in modern society where corporate consciousness, values and ethical conduct are considered positive elements for long term business success" (AngloGoldAshanti, Sustainable Development Report, 2016).

This marks a departure from the conventional wisdom of the shareholder value movement which has been the defining feature of corporate philosophy and behaviour for several decades. Now sustainable development is tied to the objectives of improving cash flow and returns and host communities are seen as their most important constituency.

This shift in perspective appears to be part of a change eddying through the mining fraternity.[6] It reflects the broad acceptance (or endorsement) of the triple bottom line thinking that emerged in the mid-1990s. It is a set of performance measures that seeks to strike a balance between corporate profits, social responsibility and environmental sustainability.[7] Interviews that we conducted with

[6] For example, Exxaro, a coal mining company in South Africa, also demonstrates its role in community development through its Assessment of Social Return on Investment (SROI) conducted by KPMG. Exxaro spends about R50 million on community development each year which is channelled through the Exxaro Foundation and the Chairman's Fund. The Assessment covers 21 community development initiatives across the company's operations. The SROI measures social and economic outcomes and values them in monetary terms against the investment made. The community development activities are made up of six main themes: Enterprise Development; Infrastructure Development; Skills Development; Education; Agriculture and Environment. The results of the SROI assessment show that Exxaro achieved an overall weighted average Social Return on Investment of R1.32, showing a return generated by the projects as more than the initial investment.

[7] This perspective is best exemplified by a publication of the World Bank. In 2012, the World Bank Oil, Gas and Mining Unit published its *Source Book on Mining Community Development Agreements* (CDAs). The document lays out in some detail the approach mining companies can take towards establishing structures and processes that contribute positively to long-term local development. The CDAs were developed to facilitate this. It is

South African mining and related industries currently operating across the continent underscores this sentiment.

3.1.1 Interviews with South African Firms

All the companies canvassed have high expectations about the African market for their business. However, and despite challenges of political risk, corruption and security of tenure, all identified infrastructure as a key impediment to expanding their African operations. When asked about how that expansion will fall into a transformative and developmental role, all companies were eager to promote their success stories and their own community-driven projects. All pointed to successful community development initiatives in healthcare, education and training and contributions to local supplier development.

For example, one firm interviewed operates gold mining projects in Ghana and Tanzania (with another project in Mali). In Tanzania, the company contributes to infrastructure development such as roads and water supply in partnership with the government. The company funded pipelines from Lake Victoria to Keita town while the government provided the reticulation in the town.

The company representative acknowledged that both government regulations and community voices are increasingly raising the bar so mining companies can ill afford to continue neglecting their developmental and social responsibility. This is as much a commercial imperative as it is as a moral one. For example, in Peru, a community was successfully able to block a proposed mining project. In Colombia, the challenge to business operations is evident and growing. This approach is not about philanthropy. Rather, it is about how you conduct business in the face of enormous social and economic challenges.

3.1.2 Much Left Undone

While the interviews that were conducted indicate some progress and a formal commitment to sustainable development by mining companies, there is not much optimism that it will bring about

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described as “a tool to enhance community participation and consultation, manage expectations of involved parties, and ultimately maximize pro-poor benefits to impacted communities while helping to establish “social license to operate” for government and industry.”

minerals-based industrialisation. Indeed, even as companies have insisted on community development and social responsibility, A

Mining and other industrial companies' performance in relation to the vision of the African Mining Vision has been disappointing. The mining industry remains dominated by parasitic multi-national corporations whose interest lies primarily in extraction. These firms do provide much needed employment, revenues and other local linkages, but enriching embeddedness in local economies is not a priority. In theory, "lead firms" should be interested in outsourcing some of their functions, yet there seems to be precious evidence of this. Beneficiation is often resisted by mining chambers (as is the case in the South African context) and inputs for mining production still largely come from abroad. Moreover, the relationship between local stakeholders is conducted on exploitative terms (Turok & Smith, 2017). Outside of Corporate Social Responsibility (CSR) drives, mining companies are not motivated to contribute to socioeconomic development and mining remains wholly destructive to the eco-systems of entire communities.

McKinsey's work with extractive companies have led them to draw up some disconcerting findings that. According to McKinsey, extractive companies prioritise activities that do not match the interests of local stakeholders, including the host government. This is because a company's development or community programmes are often drafted without proper consultation with government and done either in an ad-hoc manner or simply in bad faith. Companies are also not seeing the long-term benefit of contributing to economic development of their host country. Instead, their decisions are influenced by short-term gains (Lenero and Thompson, 2014).

The behaviour of mining companies in Zambia presents an example of this. Foreign companies that have systematically moved away from local procurement in a context of liberalization dominate Zambia's mining industry. Chinese and Indian companies have been flagged as the main culprits, yet this is an industry wide trend (Fessehaie et al, 2016). Mining in Zambia has drawn the ire of the World Bank, which has called on companies to turn away from fighting tax increases and play their part in environmental management and local content initiatives (World Bank quoted in Fessahie et al, 2016). [8]

[8] Although mining companies overall have resisted localisation, it is important to point out some positive examples. As mentioned above, Ghana has managed to report good relationships between state and business, leading to increasing higher local content spend in the mining over the course of the past few years. South African mining and industrial firms boast that they comply with and participate in Zimbabwe's indigenization and other localisation requirements. The South African firms interviewed for this research claim that

3.2 The State Must Lead

Our research shows that mining and related companies are able to adjust their business practices to facilitate socio-economic development and industrialisation. Ultimately, whether or not this adjustment is pursued will depend on the local state's ability to steer economic activities towards developmental ends. This was a point endorsed by South African firms interviewed in this research study.

They would like to see, however, that the goals of integrating infrastructure projects for broader social and economic benefit are clearly articulated in national development plans. They also suggested that the conceptualisation and final responsibility for execution rest with the local government and not private business. They feel funding for these initiatives should be sourced and channelled via the state.

This highlights the imperative for ambitious industrial policy by states on the continent, able to shape the mining industry to fulfil socioeconomic priorities. This is crucial if extractive industries are to be leveraged for infrastructure provision and the development of spatial linkages in the industrialisation process.

3.2.1 AMV: An aspiration rather than reality

The performance of African states on policy formulation and implementation in relation to minerals-based industrialisation has been poor. Due to government inaction, most states in Africa continue to exhibit colonial economic profiles. Governments have not intervened in mineral regimes as the AMV would have hoped. This could be explained because of a lack of political will or insufficient policy capabilities. Yet in some cases it is clear that many states view mining as merely a source of royalties and taxes, something that could lead to unproductive rent-seeking (Morris et al, 2012). In other cases, the issue is ideological in nature. Certain states have embraced "free-market" or neoliberal

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localisation and value addition is a priority for their work across the continent. In DRC, Hanlin (2011) has identified BANRO Corporation's operation at Twangiza as a blueprint for mining local content. Hanlin notes that BANRO has made serious efforts to source products from local markets. OCP, a Moroccan phosphate company, has followed a similar model. OCP has made it a company priority to boost its local content spend, developed a portfolio of targeted sectors and judged their spend in terms of its potential contribution to local GDP. The company also how best to localize content and engaged with joint ventures with international firms to ensure their suppliers in local economy gained requisite skills, developed special economic zones and assisted their suppliers with volume guarantees. OCP has set up a dedicated office responsible for supporting its local content policy (Lenero & Thompson, 2014).

policy frameworks and so avoid pursuing aggressive government intervention in industry (Jourdan, 2012).

Recent developments however indicate that African states are warming to regulating the minerals sector. In some cases, this pursuit has been quite aggressive. The Zambian government, for example, has made diversification a priority and has formally championed minerals based industrialisation. It hopes to achieve this through participating directly in the mining industry through ZCCM Investment Holdings and enforcing local procurement and other localisation requirements consistent with its "*Mines and Minerals Development Policy*" of 2013.

However, Zambia has failed to reap the benefits of joint participation as the government seems to prioritise tax increases and fiscal linkages (Eunomix, 2015). Moreover, the state has an inconsistent local content policy and is slow to enforce its own rules on export transparency which would encourage local beneficiation (Fessehaie et al, 2016; Eunomix, 2015). Fessehaie *et al.* note that organised manufacturing interests have had to take the lead in advancing their own interests due to government's inability to confront entrenched mining interests in the economy (Fessehaie et al, 2016).

In Zimbabwe, where the World Bank has flagged mining as central to growing local manufacturing and industrialisation, minerals beneficiation and value addition constitutes one of the four pillars of the country's "*Agenda for Sustainable Socio-Economic Transformation"* (Fessehaie et al, 2016; The Herald, 2014). Although the government has prioritized the mining sector in its developmental framework, it remains inappropriately focused on indigenisation through direct state ownership and has failed to coordinate its minerals policy with broader trade and industrial policy. It also insufficiently targets backward linkages and suffers weaknesses in the formulation and enforcement of local content policies (Turok & Smith, 2017).

Ghana's Minerals and Mining Act of 2006 (Act 703), amended in 2015, governs mining in the country and calls for the promotion of localisation and economic linkages. The government takes 10% in mining operations, reserves small-scale mining for Ghanaians, enforces preferential treatment legislation and skills development requirements, and targets increased local employment in the industry (Morris et al, 2011). Ghanaian suppliers are prominent in the mining value chain with the country's gold mines showing impressive local content stock and spend; in 2015 this stood at 28% of total revenue. However, little refining of gold takes place in Ghana. The government has a number of

policies geared towards minerals industrialisation but suffers from lack of finance and severe implementation capacity (Turok & Smith, 2017).

Tanzania's "*Development Vision 2025*" foresees mining's contribution to GDP at 10% in 2025, while also contributing to economic diversification and industrialisation (The Citizen, 2017). However, the government has been slow to develop consistent legislation on local content and seems to be focused on fiscal benefits (Morris et al, 2011). The introduction of new legislation in 2017 shows some progress with emphasis placed on local content provisions, environmental and community protections, increasing royalties and demands for state equity at 16% of mining operation (Woodroffe et al, 2017).

The DRC is predicted to be the "mining colossus" of Africa in the coming decades and is already the continent's largest copper producer. Yet minerals policy in the DRC suffers from incoherence and inconsistency, with the state seemingly unable to draft and implement a lasting minerals agenda. The mining industry, as we shall discuss further in the following chapter, is also implicated in corruption with government officials (Turok & Smith, 2017). A recently developed Mining Code is hoped to bring some improvement in DRC's regulatory regime (Oxford Policy Management, 2013).

Conclusion

Africa hosts some of the world's most resource rich economies. However, it also hosts some of the world's poorest and undeveloped countries. Although it has traditionally been thought that a country's mineral deposits were more of a curse than a blessing, a minerals-based industrialisation agenda has been championed by the African Union (AU) and its associated bodies and certain national governments. Sceptics maintain that the declining share of mining to GDP, the unpredictability of commodity cycles (and the concomitant effect this has on jobs), unfavourable exchange rates, and the environmental impact of mining, suggest that a mining based industrialisation drive remains unrealistic. While we appreciate these arguments, we are convinced that the massive investments that are forecast for mining over the next 20 – 30 years must be leveraged towards developmental ends.

If minerals-based industrialisation is to take off however, then mining-related infrastructure investment will need to adapt from an "extractive" to "shared-use" model. Such changes will require the development innovative financing solutions pioneered by interventionist states and developmental finance institutions. Indeed, translating mineral wealth into broad socioeconomic development will not be led by mining firms and the vagaries of the market although there are indications from mining companies that they subscribe to a changed and socially conscious mandate. As we reveal in the preceding pages, much more needs to be done to realise the African Mining Vision (AMV). Ultimately, structural transformation of Africa's resource rich economies will only be guaranteed by supportive governance and the empowerment of local communities and broader civil society.

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