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Fixing Broken Links:

Linking extractive sectors to productive value chains

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Acknowledgements

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Acronyms

AIDA	Accelerated Industrial Development of Africa
AMV	Africa Mining Vision
CAADP	Comprehensive Africa Agriculture Development Programme
CSR	Corporate social responsibility
EM	ExxonMobil
GDP	Gross domestic product
IFC	International Finance Corporation
OECD	Organisation for Economic Co-operation and Development
SMEs	Small and medium-sized enterprises

Executive Summary

Extractive sectors have been at the core of many African countries' economic landscape for decades. However, despite rich endowments, many countries have not been successful in using their resources to generate and stimulate long-term, sustainable and inclusive development outcomes. Although extractive sectors have contributed positively to foreign investment, revenue generation or foreign exchange earnings, much remains to be done to translate opportunities arising from the good economic performance into real, high-quality employment, business prospects for local entrepreneurs and more broadly, into a solid industrial base that can propel countries a step further, to attain a higher level of development.

One of the main challenges of resource-rich countries is therefore to promote sustainable structural transformation, away from the current *enclaved* structure, which instead, renders countries vulnerable, excessively and persistently dependent on commodity prices and external demand. To maximise on its good fortune derived from the windfall gains associated with the current commodity super-cycle and to minimize the risks of an eventual commodity price burst or depleting finite natural assets, Africa's development strategies have to take a more transformative approach. In particular, it is important to consolidate the growth performance by building strong economic fundamentals around productive sectors. This implies strategies to link up the extractive sectors with the rest of the economy, notably through the *fiscal link*, which can be used as a lever to unlock financial resources to the benefit of other productive sectors.

Taken together, linkages can either operate in a way that activities complement each other or function independently of each other. There are generally three broad categories of linkages, namely:

- *Backward or upstream linkages*, which relate to industries that *supply inputs to* the extractive sector;
- *Forward or downstream linkages*, which consist of industries that *use the inputs from* the extractive sector into other activities;
- *Horizontal or side-stream linkages*, which consist of developing activities that may not be directly linked to the extractive sector, but might have the potential of unlocking indirect business and employment opportunities in other sectors of the economy.

This paper highlights the importance of bridging the gap between the extractive sector and productive value chains in order to foster sustainable structural transformation. In particular, it stresses the importance of:

- creating linkages *within* the extractive sector, notably through focused industrial policy to boost backward and forward linkages;
- promoting linkages *outside* the extractive sector, notably in the field of agriculture, currently the most important economic sector in Africa, identifying concrete areas where extractive industries can contribute positively to value chain production; and
- the global context in which industries operate and the need for countries to position themselves in a strategic manner in the *product space*, notably in the context of global value chains, to make sure they integrate fully into the complex system of fragmented production.

The growing importance of global value chains in the production process is today at the heart of the world's economic system. The commodity super-cycle has given a new impetus to policy makers to define industrial policies to transform resources into higher value added products and hence create an industrial tissue, currently weak in a number of countries. While strong national policies are important, it is however key to ensure that local industries are strategically linked and integrated to global value chains, despite their complexity, if they are to be successful and sustainable in the long run.

Most African countries have not yet been successful to plug into the system and create their own value chain niches in part due weak domestic industries and relative competitive disadvantages *vis-à-vis* other developing economies but also due to the difficulty to link existing industries to geographically dispersed and continuously shifting activities. Beyond linkages, fundamental challenges admittedly remain to be addressed, including setting the right legal and policy context, safe and reliable infrastructure such as power, transportation and telecommunications, key to ensure connectivity and coordination with the rest of the value chain, providing high quality and flexible human resources and the presence of a sizeable local and/ or regional market.

The next big step for African countries is thus to undertake policies towards integrating and creating linkages that fit into the product space and can compete in the complex global value chain structures. Despite the complexity around the structure of these value chains and the fierce competition to get a slice of the chain, numerous opportunities exist.

Attaining an effective structural transformation necessarily requires the systematic *disenclavement* of the extractive sector. Policies must be consistent, sequenced and coherent, and take into account commitments with third partners as well as concurrent policies developed at the regional or pan-African level. Internalising broader frameworks such as the Africa Mining Vision (AMV), the Accelerated Industrial Development of Africa (AIDA) or the Comprehensive Africa Agriculture Development Programme (CAADP) in national strategies are therefore vital.

Acting as a facilitator, Governments must also work in partnership with industries to complement their own efforts and with international development partners, engaged on their side, in supporting national and regional initiatives. Bringing all the stakeholders, including civil society organizations and citizens, to the table to support transformation can only bring more positive and inclusive results.

1. Introduction

Extractive sectors have been at the core of many African countries' economic landscape for decades. More recently, in part largely driven by the boom in commodity prices and increasing demand from emerging markets, many resource-rich countries have experienced impressive growth rates, much heralded after almost two *lost decades*, during which many had to struggle hard to come to grips with macro-economic imbalances and other political challenges.

Despite rich endowments, many countries have not been successful in using their resources to generate and stimulate long-term, sustainable and inclusive development outcomes. While the resource curse is by no mean a fatality, policy-making and the overall trajectories of these countries have been largely shaped by rents created by such resources as well as interests and incentives have generated. Today, although necessary, growth alone cannot do it all. More is needed to attain development objectives.[1]

One of the main challenges of resource-rich countries is therefore to promote sustainable structural transformation, away from the current *enclaved* structure, which instead, renders countries vulnerable, excessively and persistently dependent on commodity prices and external demand. Zooming into the economic structures of many African countries, although extractive sectors have contributed positively to foreign investment, revenue generation or foreign exchange earnings, much remains to be done to translate opportunities arising from the good economic performance into real, high-quality employment, business prospects for local entrepreneurs and more broadly, into a solid industrial base that can propel countries a step further, to attain a higher level of development.

To maximise on its good fortune derived from the windfall gains associated with the current commodity super-cycle and to minimize the risks of an eventual commodity price burst or depleting finite natural assets, Africa's development strategies have to take a more transformative approach.

The purpose of this paper is to highlight the importance of bridging the gap between the extractive sector and productive value chains in order to foster sustainable structural transformation. The paper addresses the question from three angles:

1. First, it highlights the importance of creating linkages *within* the extractive sector, notably through focused industrial policy to boost backward and forward linkages;

2. Complementary to this, it focuses on the promotion of linkages *outside* the extractive sector, notably in the field of agriculture, currently the most important economic sector in Africa. The paper identifies concrete areas where extractive industries can contribute positively to value chain production.

3. Finally, the paper points to the global context in which industries operate and highlights the need for countries to position themselves in a strategic manner in the *product space* to make sure they integrate fully into the complex system of fragmented production.

[1] See Ramdoo (2012).

2. Extractive industries and other productive sectors: where are the gaps?

Many resource-rich African countries are faced with a dual economic structure. While the extractive sector is characterised with highly capital-intensive activities, little value creation and high rents, the rest of the economy generally operates independently of the extractive sector and is composed of few economic activities, which have a low degree of industrialisation, productivity and value addition.

The context

In most African countries, the first decade of the 21st century was marked by impressive growth performances, averaging 5% per annum, with a handful of countries hitting a growth rate of 7% to 11% annually. Most countries showed strong resilience to the global financial and economic turndown. While in many cases this is attributed to hard work, good will and improved macroeconomic management, much of the growth was nevertheless largely driven by the super-cycle resulting from high commodity prices and increasing demand from emerging countries and high-tech and green-tech industries. Growth rates in resources sector (Figure 1.a) accounted for almost a quarter of Africa's annual growth rate between 2002 and 2007. Looking at other sectors of the economy, the share of output in agriculture and in particular industry remained relatively low and continued to decline over time (Figure 1.b and 1.c), at a level too low to form a sufficient *critical mass* to boost economic performance on their own without strong accompanying policies. This situation is not sustainable over time, in particular given the finite nature of extractive resources.

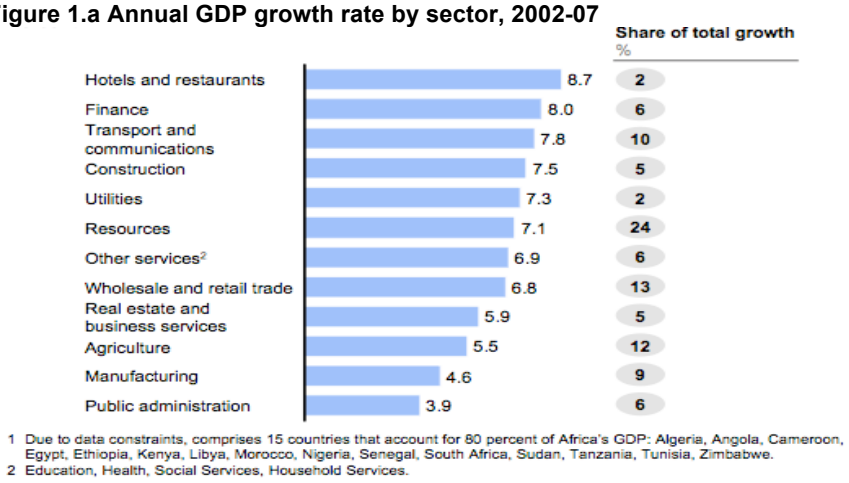
The good performance marks the beginning of a new era for many countries, although the road towards inclusive and sustainable growth is long and not without challenges. The growth-employment nexus remains weak because output production is still driven by capital-intensive sectors, which are generally short of linkages with other productive sectors. Labour-intensive activities in agriculture and in the manufacturing sector also lag behind. In 2011 unemployment was estimated at an average of 7.9%, a rate that is above the world average, estimated at 6.1 %. Although relatively high, the unemployment rate however underestimates the severity of the problem: women faced twice the unemployment of men, estimated at 15% in 2011, while youth unemployment was estimated at around 12%.

Furthermore, there is still a stark contrast between growth performances in urban and rural areas, where there has been less progress: many farmers are still poor, operate in the informal sector and barely produce sufficiently for their own subsistence. Employment opportunities for women and the rural youth continue to be a major challenge. In addition, structural transformation, from low value added to higher value added industrial activities, is yet to become a reality. Industries, which can be a guarantor of employment creation, in particular for the youth, are still in their infancy[2]. Where they exist, industries struggle to move along the productive value chain. Both hard and soft infrastructures are yet to be modernised and adapted to the needs of a buoyant economy. This is a major element affecting the cost of doing business in Africa. Financial resources for structural transformation are still a major issue and many countries continue to depend on external sources of financing to fund their budgets and economic programmes.

[2] See World Bank (2012).

Figure 1: African economic structure

Figure 1.a Annual GDP growth rate by sector, 2002-07



1 Due to data constraints, comprises 15 countries that account for 80 percent of Africa's GDP: Algeria, Angola, Cameroon, Egypt, Ethiopia, Kenya, Libya, Morocco, Nigeria, Senegal, South Africa, Sudan, Tanzania, Tunisia, Zimbabwe.
2 Education, Health, Social Services, Household Services.

Source: McKinsey Report 2012. Lions on the Move

Figure 1.b Share of agriculture output in selected countries

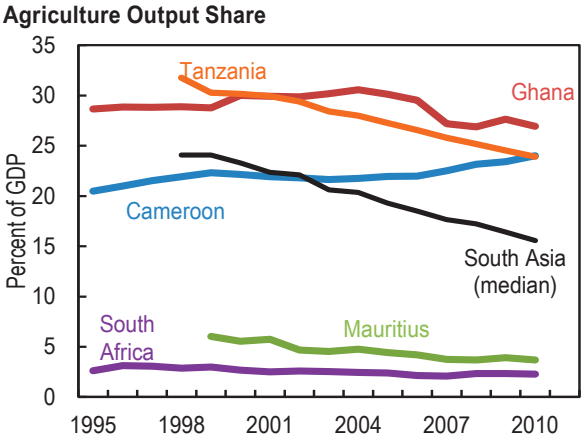
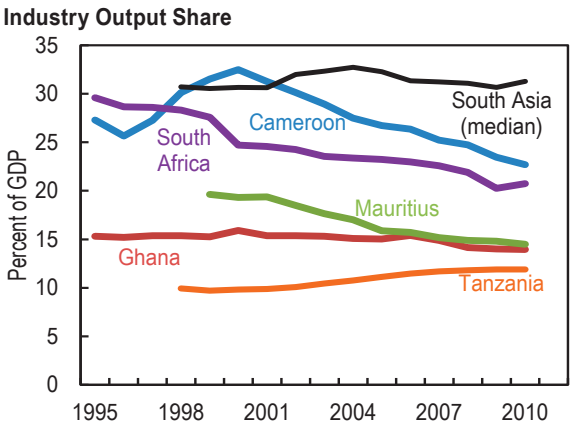


Figure 1.c Share of industry output in selected countries



Source: IMF 2012. Regional Economic Outlook, October 2012

What next?

To overcome the current situation of fragility and persistent dependency on few economic sectors, it is important to consolidate the growth performance by building strong economic fundamentals around productive sectors. To move forward, it is therefore crucial to link up the extractive sectors with the rest of the economy, notably through the *fiscal link*, which can be used as a lever to unlock financial resources to the benefit of other productive sectors.

Mobilising and managing revenue from the extractive sector is fundamental to empower governments with the necessary autonomous and endogenous sources of revenue. It can provide them with the necessary financial means to fund broader developmental objectives and to invest in productive sectors both *within* the extractive sector, through value creation activities and *outside* the commodity sector notably through activities, which can be developed to serve or complement the commodity sectors, such as the agricultural sector or the services sector. This includes promoting the necessary *linkages* and other business opportunities for local entrepreneurs. These can take many forms ranging from supply contracts, partnerships and joint ventures to the development of activities outside the extractive sector.

Taken together, linkages can either operate in a way that activities complement each other or function independently of each other. Their interests lie in the fact that they can generate synergies with other productive sectors to create more productive jobs and competitive industries. There are generally three broad categories of linkages, namely:

1. *Backward or upstream linkages*, which relate to industries that *supply inputs to* the extractive sector. Examples include industries that produce equipments, machinery or services for the extractive sector or industries that operate at the exploration stage, prior to exploitation and production. Depending on the specific nature of the commodities at stake and the level of technological intensity of the industry, backward or upstream linkages may at times be complex to develop because they require highly specialised technologies, standards, knowledge and skills as well as a number of technical and institutional prerequisites. However, the production process is location specific and therefore many inputs and solution to challenges need to be tailor-made to fit the needs of extractive industries. The sector therefore is likely to require goods and services that are context-specific and locally-based suppliers are likely to have an advantage over global suppliers due to the lower cost of local knowledge.

2. *Forward or downstream linkages*, which consist of industries that *use the inputs from* the extractive sector into other activities. In principle, these linkages provide the opportunity to develop clusters of manufacturing activities around the extractive sector, notably through beneficiation processes towards higher value-added products. These products can then be consumed domestically or can be exported, provided there is a market. Again, depending on the type of commodities being extracted, the potential for value added activities varies. Such types of linkages have the potential to ignite the development of an industrial tissue, currently rather weak in a number of African countries and therefore create employment opportunities. This is a necessity given the low degree of industrialisation. However, geographical proximity of the raw materials may not necessarily confer particular advantages for the local industry, given the fact that manufacturing production processes are rather standardised. This implies that suppliers are likely to source their inputs from most cost-effective places. To benefit from such linkages, supporting incentives are necessary to create the necessary business environment and empower African private sector with the capacity to compete with other suppliers.

3. *Horizontal or side-stream linkages*, which consist of developing activities that may not be directly linked to the extractive sector, but might have the potential of unlocking indirect business and employment opportunities in other sectors of the economy. For instance, there is a possibility to create synergies in services sector, such as logistics provision, distribution services or transport services. Another example, very relevant to many African countries given their dual economic structure, includes support to the development of activities in agri-business. From a strategic perspective, in the short-term, promoting such linkages may be a *low hanging fruit* for policy makers who are under pressure to meet the expectations of the population and who have to deliver on concrete economic results, in particular for local communities that live in the vicinity of extractive activities.

3. Scaling up value creation

The current disconnect between extractive industries and value added activities does not imply that African countries are unwilling to develop those linkages. Rather, it reflects the fact that many African countries need to undertake fundamental reforms to address the numerous challenges that currently hold back investment and business prospects, necessary for effective structural transformation and particularly relevant for the development of downstream linkages. These include bridging the technological divide, dealing with infrastructure deficits, addressing institutional weaknesses that cripple incentives and improving the overall business climate, including the provision of effective logistics and the setting up of *good enough* governance structures, amongst others.

Provided there is a business case to do so, developing linkages therefore requires supportive institutions that create and provide incentives to the business community as well as a set of consistent, coherent and adequate policy sequencing measures, including coupling fiscal, investment, industrial and trade policies in a manner that they complement each other.

In this regard, it is worth highlighting that the context in which countries are today promoting industrial development is far more complex that what it was a few decades ago. Indeed, then, the economic environment was far less liberalised: countries had much more policy space and could avail themselves of trade policies to defend their local industries. Today, countries have created self-imposed international legal frameworks, where they have agreed to bind their commitments to liberalise their economies.

Furthermore, the world is far more globalised and production structures are more complex, sophisticated and fractured all along the value chain. Industrial production operates in a *product space*[3], whereby companies and countries increasingly compete with each other to produce similar and substitutable products, rendering suppliers vulnerable.

Finally, the recent mergers and acquisitions between mining companies and commercial companies have created gigantic structures, which dominate the extractive sector in developing countries, leaving little space for small, local companies to operate.

With the new opportunities offered by the current resource-boom, many African governments are increasingly considering policy options that encourage the use of higher levels of *local content* so that investments in extractive sectors can act as an industrial catalyst, in support of employment, value creation and growth of local industries. To be transformative, the extractive sector can no longer be just a source of raw materials and unprocessed goods produced locally and meant to be transformed elsewhere. It is therefore important to provide incentives to facilitate business opportunities. The development of domestic supply chains is becoming an increasingly complementary imperative and industrial re-engineering and upgrading are acknowledged as necessary to put economies on a long-term and sustainable development path.

3.1. Moving along the value chain ***within*** the extractive sector

One of the crucial strategic questions for African economies, at the time where extractive sectors are getting more and more attention, is *how far is it economically feasible and justifiable to adopt a value added strategy for mineral processing in their development strategy and what strategy to adopt*? While during the glory days of the neo-liberal Washington Consensus many economists seemed to have declared industrial policy out of fashion[4], and to some extent, the *enemy* of efficient markets, those countries that have been successful in transforming their economies have never stopped relying on strong government-backed policies in support of growth and structural transformation. The United States and many European countries have backed (and continue to do so today[5]) their private sector by providing substantial policy support, in particular in the field of technology and research and development.

To move up to a sustainable pattern of development, it is therefore crucial for African governments to define carefully a *set of industrial policies* to promote beneficiation and value addition *within* the extractive

[3] See Hausmann and Klinger (2007), Hidalgo et al. (2007).
[4] See Rodrik (2010).
[5] France and the US have supported their industries to prevent closure and job losses during the crisis.

sector to address the current situation whereby a large portion of value addition processes is taking place outside African countries. The purpose of defining industrial policies to promote value creation is *not to turn miners into manufacturers.* Neither is it a deliberate attempt for governments to *pick winners* from the business community. It is aimed instead at setting up a proper framework, conducive to business development, that will attract and encourage local and foreign entrepreneurs (not necessarily from the extractive industry) to develop complementary manufacturing activities, either by using inputs from the extractive sector or by producing for the extractive sector. This requires governments to provide efficient public goods such as infrastructure and ensure continuous and adaptable human capital formation, which can continuously adapt to the changing dynamics of the economy. It also requires governments to take the necessary measures to address existing market failures[6], which are particularly strong in the extractive sector.

To achieve this goal, it is necessary to assess the capacity and competitiveness of local suppliers as well as the readiness of the labour market to take up the challenge. Where weaknesses exist, measures need to be taken to improve their productivity and to empower them with the necessary tools to take advantage of economic opportunities. In this context, strong policies are important to provide *incentives* for businesses. These can take the form of training and skills development to address skills shortages and mismatches, employment of local staff, when the skills are available, or preference for the use of local content through local procurement and contractors, again if available and competitive. It is also essential to support and protect innovation as well as research and development. Finally, it may also include financial support measures such as fiscal incentives and access to credit at preferential and competitive rates for small businesses, although it is desirable that such support be temporary to avoid the risk of developing dependent, inefficient and uncompetitive industries.

The potential gains that could be obtained, if countries scale up value chain and if linkages are defined in a strategic manner, are substantial. In addition to identifying linkages, policies must be defined to *widen the scope of the linkages*[7], so that on the input side, such activities increase the value and the share of inputs that can be sourced locally and on the output side, enhance the proportion of commodity production that can be processed by domestic industries. Furthermore, they must also develop activities to *intensify*[8] the extent to which domestic value is created and is added to locally sourced inputs or locally processed outputs. Potential for horizontal linkages have to be assessed, including the extent to which these linkages could be broadened and deepened.

Government's role is key in defining policies, in giving incentives and in facilitating business operations. But it cannot do it alone. It needs a strong support from extractive industries and from the local community. The role of extractive industries is particularly important. They can encourage and promote the development of local businesses around their own activities and foster value creation, by nesting economic opportunities from local suppliers into their core business operation, notably through procurement and local content sourcing along their supply chain. Not only would that create economic and employment opportunities for the local community, crucial to maintain their *social licence to operate,* but it also serves their own interests, as this could save them time and money in the long-run.

[6] These include information asymmetry, notably on the geological knowledge; addressing the pursuit of self-interest behaviours that often shape the (in)efficiency of policies and development outcomes, dominant market conditions of large firms versus inability of local firms to tap the benefits of the super-cycle etc.
[7] See Kaplinsky *et al.* (2012) and Kaplinsky (2011).
[8] Ibid.

To this effect, several companies have attempted to provide support to help local entrepreneurs develop activities that can serve the value chain highlighted in Box 1 in the case of Anglo American local enterprise development in South Africa and ExxonMobil national content strategy.

While these are laudable initiatives, they stand to be replicated where extractive industries operate. The initiative of Anglo American has been very successful and is now been replicated elsewhere, notably in Peru.

Box 1: Cases where companies support local development

Anglo American Local Enterprise Development in South Africa

Anglo American established in 1989 one of the most successful corporate enterprise development programme, through Anglo Zimele, an enterprise development and Investment Initiative Fund. It focused on three core activities:

1. It provided *business development services* to strengthen the capacity of small local business and *financial support* to enable black-owned, local small and medium-sized enterprises (SMEs) to take advantage of opportunities related to Anglo American activities;
2. It worked closely with various Anglo American departments to *identify procurement opportunities* for local suppliers to benefit from value chain involvement and participate in South Africa local industry;
3. It supported *industrial expansion* to facilitate the entry of junior local mining companies into the mainstream mining sector.

ExxonMobil Worldwide National Content Strategy

ExxonMobil's (EM) national content strategy is a corporate initiative, considered as a strategic objective, is aimed at "ensuring that its presence in a host country helps develop human, social and economic capacity content that benefits its people, communities and businesses overtime". Support took different aspects, namely:

1. In Malaysia, EM focused on technical and professional training of local workforce, necessary for existing and future projects and operations;
2. In Chad, in partnership with IFC, EM provided training for local suppliers so that the latter can meet EM's standards and requirements for procurement and contracts.

3.2. Linking the Extractive sector to other productive sectors: The case of Agriculture

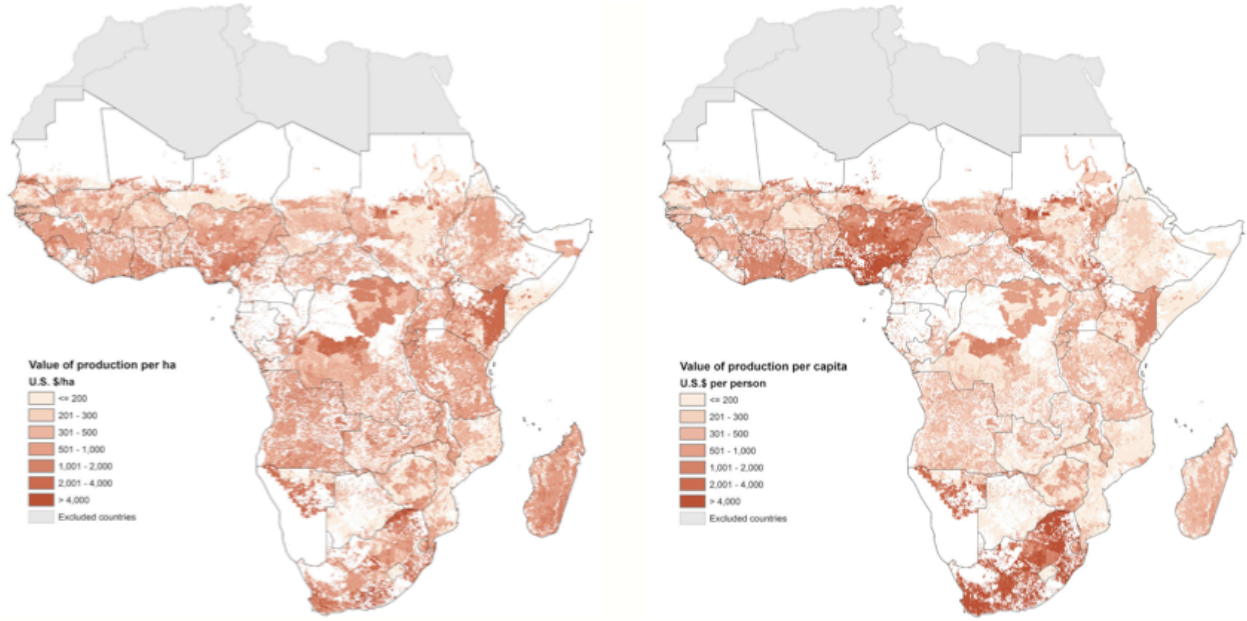
While the share of agriculture varies significantly across countries, it is nevertheless the mainstay of most African economies. Today, agriculture is the largest economic sector in Africa, with a contribution of 30% of GDP on average.[9]

There are two main types of production: the first one is performed on a relatively large-scale, based on plantation systems, producing essentially commodities such as coffee, cotton, banana or sugar. This type of production is the inheritance of the colonial past and is relatively competitive, capital intensive and generally geared towards exports, where its contribution accounts for 40% of export earnings. The second type of production is essentially owned by small, rural and independent farmers, who produce essentially staple food, rarely sufficient for their own subsistence. This makes the bulk of agricultural employment in Africa. In fact, the agricultural sector constitutes 90% of Africa's rural workforce, employs about 65% of the total labour force and makes up for 50% of household incomes[10]. However, production is fragmented: 85% of farmers grow on less than 2 hectares[11]. As shown in Figures 2 and 3, both labour and crop productivity are low (Africa has more than 25% of global arable land yet the continent generates only 10% of

[9] World Bank (2012).
[10] UNCTAD (2012).
[11] McKinsey (2010).

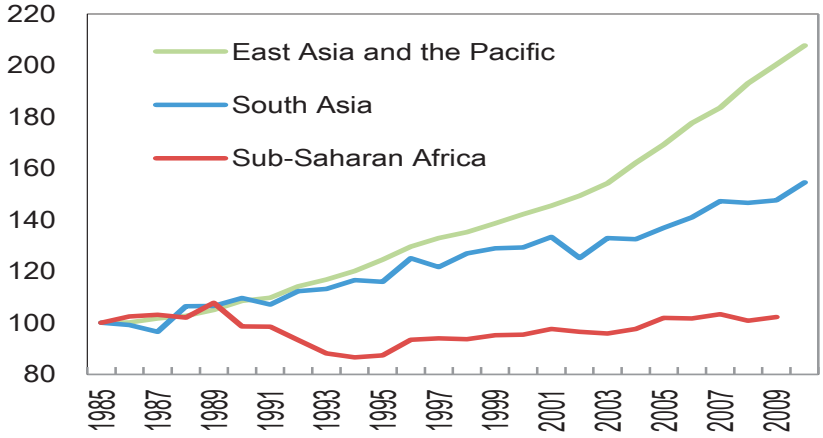
agricultural output[12]) because farmers do not have sufficient access to high-quality seeds, fertilisers, credit or water and the possibility for their produce to be absorbed postharvest value chain remains very limited.

Figure 2: Land and labour productivity of crop production in Africa, 2005-2007



Source: Benin et al. (2011): Trends and Spatial Patterns in Agricultural Productivity in Africa, 1961-2010

Figure 3: Average labour productivity in the agriculture sector 1985-2010



Source: World Bank, World Development Indicators

Having said that, agriculture has the potential to be a vibrant economic activity, that can act as catalyst for Africa's broader economic agenda. If provided with the necessary means to move up the value chain, it has the potential to be transformative. It is widely acknowledged that one of the most sustainable ways to raise income and to trigger long-term economic development, is undoubtedly to encourage the private sector, in particular local SMEs, to increasingly participate in strong and diversified economic activities. In this light, significant improvements in Africa's agricultural development can be achieved if small and medium scale farmers' productivity and competitiveness are increased, if they are provided with robust markets to absorb their output and if they can put in place a solid post-harvest value chain.

[12] Ibid.

Despite the commitments of national governments to increase the share of agriculture in their budgets to 10% and despite the increasing support of the international development community in the sector, successful transformation would, however, require the support of other stakeholders who operate in the country. This is the case of extractive sectors, which operate in many cases in rural areas, where those who do not work in the mines work in the fields, as shown in the story in Box 2.

Box 2: Where mining and agriculture co-exist: The case of Mpumalanga in South Africa

The province of Mpumalanga is South Africa is in a dilemma: it needs both agriculture and mining to realise exponential economic growth to meet its 2020 job targets. However, both sectors face numerous challenges to co-exist in the most effective way for the benefit of both the industry and the community.

The province of Mpumalanga is endowed with numerous minerals resources such as gold and platinum. It is also South Africa's major coal producer and accounts for 80% of the coal that generates power and is exported. However, coal is mined in the province's Highveld region, which is also the leading producer of soya beans (51%), maize (24%) and dry beans (23%). In addition, 60 mines also operate on 13% of river catchments and productive farms in the region.

Reports say that if pending mining permits and prospecting licences were to be granted, 80% of the region's surface would be taken up by mines. This will significantly decrease farming land and food production. In addition, there are increasing environmental concerns regarding the impact of already existing mines, in particular coal mines, on the contamination of water, loss of soil fertility and threat to food security.

The newly released Mpumalanga Economic Growth and Development Path identifies agriculture and mining among key job drivers that need to be used to secure strong and sustainable growth in the next decade. According to the growth and development path, the provincial economy has to grow at between 5% and 7% a year to create nearly 719,000 jobs, reduce the unemployment rate from the current 28% to 15%, and increase the income level of 620,000 individuals to above the poverty line. This cannot be achieved by mining alone nor by agriculture alone.

However, the document does not address the way it is going to address the challenges to maximize benefits from both sectors, which together could meet the province's development objectives.

Source: www.miningmx.com/page/news/energy/1418754-Can-Mpumalanga-s-mining-and-farming-co-exist#.UPpdSqHjnqE

Mpumalanga is not an isolated case: in cases where mines and agriculture co-exist, both are generally key to the local community, providing jobs and food. Although it is not the purpose of this paper to debate on the impact of mining and agriculture, it is nevertheless important to mention that the two sectors are often faced with challenges, where unbridled mining activities can be detrimental to land and water use and cause severe environmental damages. This has often antagonised the relationship between the mining companies and farmers. But more broadly, both sectors, where they co-exist, need to overcome and address these challenges and work together to meet development objectives, including economic goals.

The extractive sector and agriculture have one thing in common: policies are guided by strong political considerations, although for different reasons. In the case of the extractive sector, rents generated create, structure and entertain incentives for rent-seeking behaviours. The relationship between politics and rent has not only impacted on the way resources have been (mis)managed, but has also shaped governments' relationship with citizens. Indeed, low and narrow tax base collection but high revenues have lowered the capacity and the right of citizens to seek for accountability, which has in turn, distracted governments from attention to the needs of the people.

In the case of agriculture, rural and small-scale agricultural farmers make up for a significant proportion of *voters* and history and recent events have testified that food (in)security is a powerful instrument, capable of triggering popular upheavals against the political power in place and hence destabilise a government. While both sectors have their own sensitivities, governments can, however, use the windfall gains from one sector to compensate and lift the other sector to a higher level of development, notably by using financial resources from the extractive sector to promote agriculture, or through support to value chain development and to local entrepreneurship in agribusiness.

Given their strong linkages with the other sectors of the economy, developing, modernizing and promoting such value chains[13] in agri-business can have a significant bearing on the structural transformation of African economies and to their integration at the national, regional and global economy. It requires policies to address the overall challenges facing the sector itself. It also requires innovative policies and strategies that promote competitiveness, efficiency and strong linkages of local SMEs with other sectors at national, regional and global levels. Such policies include strong and sustained engagement of the private sector with public policy makers to ensure policy reforms meet the needs of the sector. Amongst other things, it is crucial to improve the business climate, including addressing the crippling effects of market fragmentation, under-investments in hard and soft infrastructure, in farming models that are business friendly, in innovative technologies, in transportation, warehousing and storage capacity, in skills mismatch and managing highly volatile commodity prices.

Engaging extractive companies in a constructive dialogue, beyond their traditional corporate social responsibility (CSR) policies is therefore crucial as they have the potential to support the development of local entrepreneurship in agribusiness, in particular in cases where farmers have barely the means to provide for their own subsistence.

The role of the state as a facilitator will have to be enhanced, in particular by providing the necessary complementary guidance and dialogue platform to ensure that companies' support are properly aligned to already existing local/ national/ regional policies such as the Comprehensive Africa Agriculture Development Programme (CAADP) or other national efforts regarding food security and improved agricultural productivity.

There are basically three approaches[14] extractive companies can pursue to support the creation of linkages with and for local farmers: These include:

1. Supporting programmes to encourage *value chain activities* in existing farming activities, by encouraging and supporting the development of integrated activities ranging from inputs to markets. As portrayed in Box 3, numerous initiatives are currently being undertaken by extractive industries operating in rural areas where farming is a major activity in order to develop agricultural value chains. However, the potential of developing agricultural value chains for strategic agricultural commodities, using fiscal or other linkages from the extractive sector, has not been sufficiently explored, at least in Africa.

[13] The value chain concept is rooted in the organisation of different actors and how they interact in their institutional environment. It is a system of organisation and activities that creates, transforms, processes and delivers a range of products or services from the supplier to the consumer. It therefore provides an important means to understand business-to-business relationship essential along the chain and provides the mechanisms to increase value-added, productivity and efficiency.

[14] McKinsey (2011).

Box 3: Existing initiatives to support agriculture

Case 1: Newmont Ghana Gold's Ahfo Agribusiness Growth Initiative (AAGI)

The Newmont Ghana Gold company, in partnership with the NGO African Connections Ghana, launched an agribusiness growth initiative (AAGI) in the Ahafo region in an effort to make a positive contribution to community development in the region where it operates. The programme aimed at building the capacity of farmer-based organisations and SMEs, increase their productivity and product quality with a view to creating jobs, and develop value added economic activities that are independent of mining activities.

Implemented in two phases, the project contributed to:

1. Improve farmers' general and practical knowledge in production techniques;
2. Improve farmers' knowledge on new market demands and opportunities;
3. Introduce farmers to new crops and varieties with high market potential;
4. Train farmers in business and commercial skills as well as on best practices, including on export requirements and industrial procurement standards for the production of five crops having high productivity potentials and ready markets, namely chilli pepper, soybean, ginger, maize, and plantain;
5. Link farmers associations to potential funding sources, such as local rural banks and other financial sources; and
6. Link associations to identified buyers including processors, exporters, commercial and institutional buyers (eg school).

The project was successful in creating a network among suppliers of inputs, farmers and markets: several local companies supplied seeds and inputs to farmers and many others expressed interest to buy from the farmers, once their production would be ready. Likewise, the Grain and Legumes Development Board expressed interest to develop seed bank/seed growing units locally and at low costs to farmers.

In addition, to complement the ongoing crop production interventions and to add value to crops from the producer level, African Connections Ghana Ltd in partnership with Newmont Ghana Gold Ltd and Export Development and Investment Fund (EDIF) set up a processing and storage centre, to process, inter alia, chilli pepper into high quality chilli powder and process and store soybeans. To date, almost 200 farmer groups have been formed in eight communities with a total participation of 2647 farmers.

Case 2: Agribusiness Development in Cuncashca Peru

In 2000, Barrick Gold initiated the Cuncashca Business Development Project in Peru on collaboration with a small remote community of 64 farming families. Building on existing agricultural practices and know-how, the purpose of the project was to improve the skills of local farmers and provide the necessary training and infrastructure to foster local entrepreneurship.

The project integrated farming, livestock and dairy practices with the fundamentals of business development. The main elements of the project included:

1. In partnership with community leaders, a model farm was developed, where local farmers received training in modern agricultural methods and animal husbandry techniques. To complement this, a new water management infrastructure was installed to improve irrigation and to help cultivate grasslands for cattle grazing. As a result, crop production increased significantly.
2. To strengthen the cattle herd, local dairy cows were cross-bred with Brown Swiss bulls. In this regard, over 250 cattle have been genetically improved, resulting in significant increases in milk production. Corrals for livestock were installed to create a more conducive environment for animal breeding.
3. A new dairy plant was built for the manufacture of milk and dairy products, owned by families in the village, to produce milk, butter, cheese, yogurt and ice creams.

4. Entrepreneurial training courses and workshops were conducted for local residents, covering marketing and commercial production methods.

As the local Cuncashca economy continues to gain strength, the project has also created new markets in a variety of areas. This project led to a number of positive results for farmers and supported a shift from subsistence farming towards income generating activities. For instance, the average monthly household income increased from $46 in 2002 to $166 in 2008. The dairy plant produced 4,200 litres of milk per month in 2008, and cheese production increased 400% between 2005 and 2007. Water usage also declined by 40% thanks to conservation techniques, and the rate of chronic malnutrition amongst children under three decreased from 46% to 38% between 2002 and 2008.

Case 3: The Catemu Agricultural Farm, Chile

The Anglo American Chagres Copper Smelter, operating in the region of Catemu un Chile implemented a project in 2003 aimed at supporting self-sustaining techniques and skills for goat and bee honey producers in Catemu region.

The company provided assistance to small goat producers by means of a breeding plan, which included cross-breeding to improve the genetic quality of the herd for improved production of meat and milk. In addition, a technical programme was implemented to improve the herdsmen's productive practices and the quality of the cheese. In two years, the programme trained 300 people, improving the latter's productive capacity and therefore their income. In 2005, the Lomas brand was launched to market farms products. The programme also focused on bee keeping, helping to cut diseases in bees by 30%.

2. Pursing a *breadbasket* approach, if they operate in regions that have high agricultural potential by virtue of their relatively good rainfall, soils, infrastructure and proximity to local markets. Such initiatives focus on investments in infrastructure, agricultural research to increase yields and crop productivity and market development strategies. The breadbasket strategy seeks to strengthen linkages between small farmers and the larger, market-oriented farming operations, encouraging small farmers to grow staple food and ensuring that they can sell their surpluses on the local/national/regional markets.

3. Developing *spatial agricultural activities* along infrastructure corridors, which in any case is needed for the extractive sector. This includes support to storage, warehousing and processing facilities around major infrastructures – The Beira Corridor, which links Malawi, Mozambique and Zambia (see Box 4) and that of TAZARA railway connecting Tanzania to Dar-es-Salaam, are cases in point. In both cases, mining companies provided the impetus and it was widely supported by governments, to unlock value-chain potential in rural agricultural regions.

Box 4: Supporting agriculture along infrastructure corridors

The Beira Growth Agriculture Corridor

Launched in 2009 at the World Economic Forum in Davos, the Beira Agricultural Growth Corridor (BAGC) initiative is a partnership between the Government of Mozambique, private investors, farmer organisations and international agencies. The Corridor aims at drawing smallholder farmers out of the cycle of subsistence farming by providing them with infrastructure, finance and training needed to improve their productivity. Following a cluster approach whereby agriculture is developed around existing infrastructure, it therefore provides the necessary access to electricity and water supplies, for irrigation, and road and rail networks for access to markets. It is expected to stimulate increases in agricultural production along the Beira corridor and to improve the productivity, competitiveness and incomes of small-scale farmers, notably through proper coordination between public and private sector investments along agriculture value chains; leveraging existing "anchor" investments in the mining sector and railways to benefit agriculture and the development of agriculture projects in commercially-viable activities that will drive growth and benefit local communities.

Source: www.beiracorridor.com

Effective implementation necessitates defining clear responsibilities among companies, governments and the local farmers. This will ensure that once the companies' support to specific projects terminates, local farmers can sustain their activities. This has been a major critique of CSR policies and related support of extractive companies to local development.

4. Linking domestic industries to the global value chain

Most products, be it man-made or natural (with the exception perhaps of animals and plants that grow in the wild) are dependent in a way or another on inputs or by-products from the extractive sector. This ranges from fertilizers, necessary for the agricultural sector, to rare minerals so critical for high-tech and green-tech industries or to metals and their by-products, critical for the construction or transport industry. Given its increasing importance, the extractive sector has been the nerve of an economic war between, on the one hand, industrial counties, that wanted to secure the supply of strategic raw materials for their sophisticated industries and on the other hand, resource rich countries that wanted to keep their resources for their own development. This led to escalating international strategies[15] and policies and a tug of war among resource-dependent and resource-rich countries, showing the vital and strategic importance of raw materials in the global value chain.

Part of the strategy to secure access to key raw materials was materialised through the strategies adopted by large multinationals. Recent mergers and acquisitions have led to the creation of *mega* companies, that are not only involved in extraction activities but also operate all along the value chain and product space, including in the commercialisation of activities[16]. The latest case in point is the Glencore-Xstrata merger. Today Glencore is the world's largest commodity trader, with a share of 50% of zinc market and 60% of copper market. It trades, manufactures, refines, ships, or stores at least 90 commodities in some three dozens of countries. Xstrata is a major player in copper, coal and nickel, vanadium and zinc and largest producer of ferrochrome. The merger is expected to create the world's most integrated and most powerful global mining company.

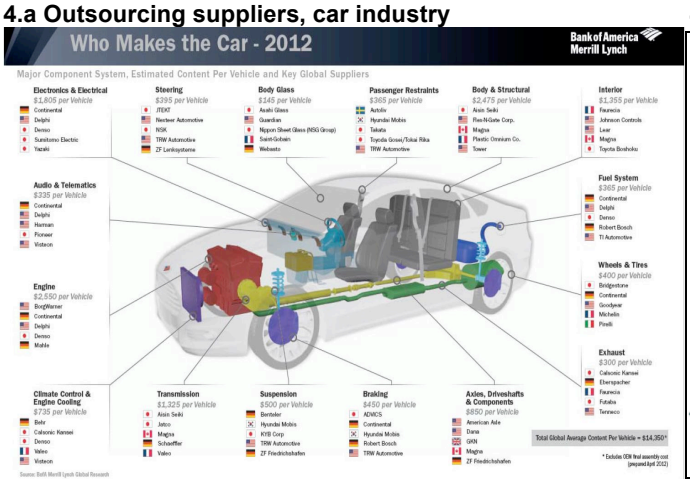
In addition, companies increasingly outsource or offshore some of their tasks, either in countries where critical raw materials are found or in the most cost-effective and productive countries, therefore leading to the fragmentation of the production processes across different countries, often through complex cob-web like operational structures. Figures 4 a-d are particularly telling about the complexity of the global value chain. Figure 4.a shows how fragmented the supply chain of a typical car manufacturing activity can be in terms of the number of countries involved in producing different components. Figure 4.b shows the trade network of the different components. The size of the bubbles is proportional to the average trade volume of countries and therefore reflects the main actors in the industry. Figures 4.c and 4.d show the different outsourcing supplies involved in the manufacturing of the Boeing 787 dreamliner – in total, it was estimated the global value chain involved some 287 suppliers, from 22 countries. Here the mapping does not include supplying countries of the primary minerals and metals needed to make the technology work.

[15] In 2008 and 2011, the European Commission released two Communications termed Raw Materials Initiative highlighting EU's concerns regarding the need to secure raw materials to maintain jobs and industries in Europe. The US and Japan also released their strategies regarding their policies to secure access to strategic raw materials. On their side, a number of resource-rich took protectionist measures to limit exports of certain key raw materials. For instance, China reduced its export quotas for rare earths. See Hipert and Mildner (2013) and Ramdoo (2011).

[16] See Berne Declaration (2010).

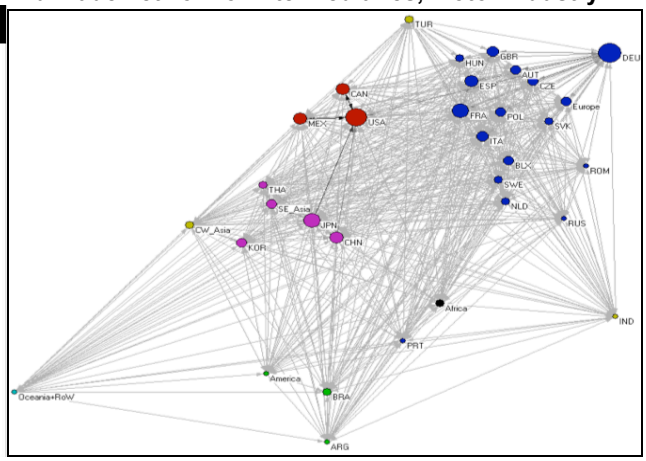
Figure 4: The complexity of the global value chains

4.a Outsourcing suppliers, car industry



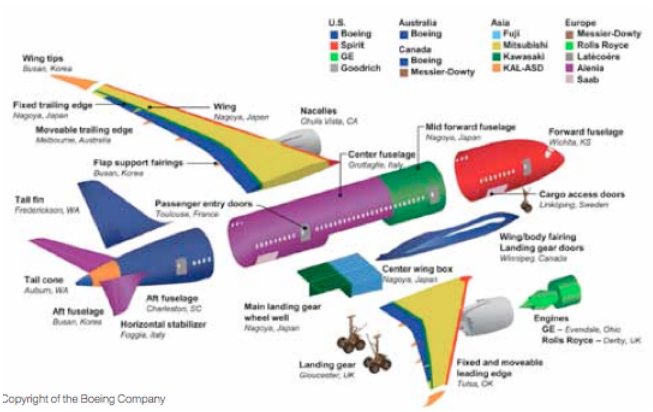
Source: Financial Times, 2012

4.b Trade network of intermediaries, motor industry

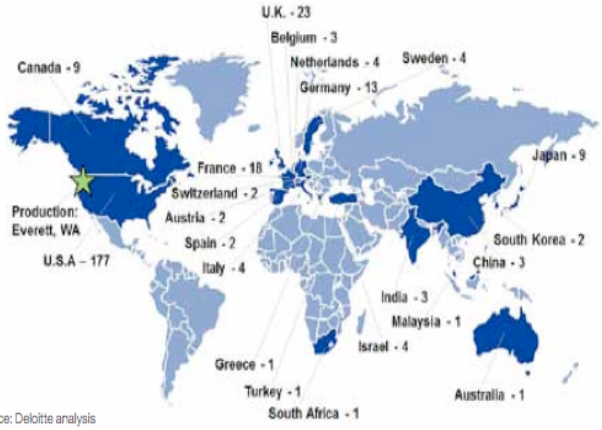


Source: Mapping Global Value Chains (OECD 2012)

4.c Boeing 787 Dreamliner outsourcing suppliers



4.d Boeing 787: 287 suppliers across 22 countries



Source: World Economic Forum 2012. The Future of Manufacturing. Opportunities to drive economic growth

To add to the complexity, the distinction between manufacturing and services is increasingly blurred. This is because industrial sectors rely on a multitude of service providers to produce their goods, ranging from telecommunications, logistics providers, and banks, to name but a few. This is also not reflected in Figures 4.a – 4.d. Industrial sectors and services are highly synergetic and both sectors have strong multiplier effects on demand, income and employment. It is estimated that, in general, the manufacturing sector created more than US$ 900 billion a year in demand for service inputs, while service companies generated US$1.4 trillion of demand for manufactured goods in the United States in 2010[17].

The growing importance of global value chains in the production process is today at the heart of the world's economic system. The increasing unbundling and fragmentation of production processes, coupled with countries' specialisation in specific tasks and business activities, as well as the growing role of networks, global buyers and suppliers have all shaped industrial activities and policies[18]. This is reflected in the rising

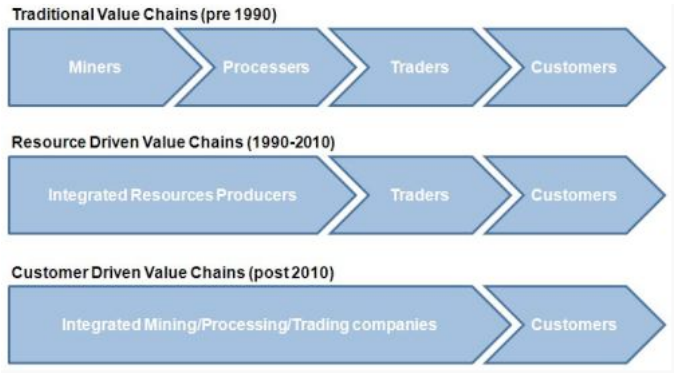
[17] See McKinsey (2012).
[18] OECD (2012).

share of trade in intermediate inputs, estimated[19] to represent more than half of imported goods by OECD countries and almost 75% of imports of countries such as China and Brazil.

Africa has not been spared from the trend: most countries have not yet been successful to plug into the system and create their own value chain niches in part due weak domestic industries and relative competitive disadvantages vis-à-vis other developing economies but also due to the difficulty to link existing industries to geographically dispersed and continuously shifting activities. Beyond linkages, fundamental challenges admittedly remain to be addressed, including setting the right legal and policy context, safe and reliable infrastructure such as power, transportation and telecommunications, key to ensure connectivity and coordination with the rest of the value chain, providing high quality and flexible human resources and the presence of a sizeable local and/ or regional market.

Vertical integration has been a significant driver of acquisitions in the mining industry. However, over time, the nature of mergers and acquisitions have changed to include the next step in the value chain, increasingly moving from products to task-based specialisation. This new trend is not unique to extractive sectors: the race to cost effectiveness has created more customer-centric moves, as shown in Figure 5, creating supply power for leaders. While locations in which these tasks are performed differ according to the comparative advantage of factor endowments, geographical proximity between places where raw materials are found and places where production occurs is no longer determinant. This is largely offset by the way companies organise the global value chain.

Figure 5: Shifting nature of value-chain integration



Source: http://thebusinessofmining.com/2010/05/21/vertical-integration-in-mining-the-traders-value-chain/

5. The way forward: What's in it for Africa?

The commodity super-cycle has given a new impetus to policy makers to define industrial policies to transform resources into higher value added products and hence create an industrial tissue, currently weak in a number of countries. While strong national policies are important, it is however key to ensure that local industries are strategically linked and integrated to global value chains, despite their complexity, if they are to be successful and sustainable in the long run.

First, it is important to address the governance and economic challenges that have crippled African economies for decades. The next big step for African countries is to undertake policies towards integrating and creating linkages that fit into the product space and can compete in the complex global value chain

[19] World Economic Forum (2012).

structures. Despite the complexity around the structure of these value chains and the fierce competition to get a slice of the chain, numerous opportunities exist.

For instance, one of the key factors that affect the competitiveness of global industries is the cost of energy and the associated transport costs, due to the different sourcing locations of intermediary products. And the price of energy is expected to continue to rise. Africa is well endowed with fossil fuels and the recent discovery of oil, gas and coal in numerous countries is going to reinforce its presence on the global scene. It is therefore important to turn this endowment to the advantage of the continent to reduce the cost of energy and transportation provision. This can certainly become a competitive advantage.

In addition, today, China is the epicentre of the global value chain in various fields, and in particular in the most labour-intensive ones. But as China continues on its growth path, wages are expected to rise and its currency is expected to appreciate. As a result, the production chains are gradually expected to shift away from China. Africa is the next frontier where labour costs are still relatively low and has therefore the potential to attract footloose industries that seek low labour cost. It is therefore important that African countries position themselves to capitalise on this potential cost-effectiveness.

But more broadly, attaining an effective structural transformation necessarily requires the systematic *disenclavement* of the extractive sector. Policies must be consistent, sequenced and coherent, and take into account commitments with third partners as well as concurrent policies developed at the regional or pan-African level. Internalising broader frameworks such as the Africa Mining Vision (AMV), the Accelerated Industrial Development of Africa (AIDA) or the Comprehensive Africa Agriculture Development Programme (CAADP) in national strategies are therefore vital.

Acting as a facilitator, Governments must also work in partnership with industries to complement their own efforts and with international development partners, engaged on their side, in supporting national and regional initiatives. Bringing all the stakeholders, including civil society organizations and citizens, to the table to support transformation can only bring more positive and inclusive results.

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