

2017 ECOSOC Special Meeting on Innovations for Infrastructure Development and Promoting Sustainable Industrialization

Technical Issues Paper

1 Introduction

The 2016 edition of the Economic Report on Africa (ERA 2016) notes that the strong economic growth of past decades in most African countries has not been matched by economic and social transformation. Africa's growth has been underpinned by improved economic governance and management, increased domestic demand (due especially to higher private investment in infrastructure and energy) and production and export of raw commodities. Within this experience, the public and informal sectors of the economy were the main providers of additional employment opportunities. Most economic growth forecasts paint a bleak future, as the continent is afflicted by impacts of global economic meltdown.¹ While the current global trajectory appears bleak, it also represents an opportunity for Africa to reinvent its economic structural transformation. The latter implies an innovative thinking in industrialization, away from a commodity reliant focus, to higher value adding industrial trajectory that supports and embraces green economic growth. The higher value manufacturing and agriculture, for instance, supports low-carbon, sustainable development that and triggers new investment opportunities. Africa has a competitive edge and could be a world leader in green industrialization and procurement of green infrastructure. The continent has green ingredients in abundance: land, water, energy and natural capital. Moreover, it has a young and better educated population as well as rising middle class.

The objective of this paper is to present a process to initiate and unleash a transformative green industrialization and infrastructure strategy in Africa, as elaborated in ERA 2016. This will ensure that Africa diversifies from commodity dependency to a continent that champions low carbon economic development consistent with the 2030 Agenda and the Paris Agreement, while tapping into its vast natural resources and other potential.

2 Current Efforts to Improve Industrialization and Infrastructure in Africa

This paper recognizes the many efforts at national, regional and international levels, which aim at enhancing industrialization in Africa. The third Industrial Development Decade for Africa (IDDA III) UN resolution, Africa's Agenda 2063 and the 2030 Sustainable Development Goals (SDGs) emphasize the role of infrastructure and industrialization in meeting their objectives. Sustainable Industrialization is considered key for sustaining decent jobs, higher productivity of the countries' resources and greater income and sustainable growth and development. Some examples of high-level initiatives targeting Africa include the Accelerated Industrial Development for Africa (AIDA), Programme for Infrastructure

¹ ECA (2016): Economic Report for Africa: Greening Africa's Industrialisation. ECA Printing and Publishing Unit, Addis Ababa.

Development in Africa (PIDA), the Trans African Highway (TAH) road network, the African Mining Vision (AMV), the African Renewable Energy Initiative (AREI), to name a few.

The AIDA recognizes that there is no country or region in the world that has achieved prosperity and a decent socio-economic life for its citizens without the development of a robust industrial sector. It established seven clusters to accelerate industrial growth in Africa. The first cluster focusses on promoting robust industrial governance and policies as a pre-condition for Africa's success, and which are focused on, and sensitive to, local endowments. The second cluster focuses on upgrading economic performance, quality of processes and products, as well as trading capacities. The third cluster focuses on building dynamic infrastructure and alternative energy, as well as their efficiencies and management. The fourth cluster focuses on skills development in key areas of industrial growth. The fifth cluster is focused on innovation systems that generate the necessary know-how for industrial development. The sixth cluster aims to create an enabling financial architecture made up of internal and external sources to invest in key industrial developments. The last cluster is focused on a sustainable development framework that guarantees responsible industrialization.²

PIDA is a continent-wide programme to develop a vision supported by, policies, strategies and priority regional and continental infrastructure projects in transport, energy, trans-boundary water and ICT. It recognizes the continent's poor infrastructure, which contributes to its low level of productivity and industry's low contribution to GDP. For instance, the tarred road access rate in Africa is 34%, compared with 50% in the developing world, while transport costs are 100% higher. This affects the movement of goods and people, and consequently productivity. More than 620 million people in Africa do not have access to electricity. Poor infrastructure is said to slow Africa's per capita growth by 2 percent annually.³ To close the infrastructure gap with other parts of the world, Africa would need to spend US\$ 93 billion annually on electricity, water, roads and information and communications technology⁴.

The PIDA's Presidential Infrastructure Champion Initiative (PICI), which capitalizes on political championing to accelerate the implementation of prioritized sub-regional and regional infrastructure projects in Africa, is already making a difference in addressing Africa's infrastructure deficits. For instance, the fibre optic link from Algeria to Nigeria via Niger will improve the quality and reduce the cost of telecommunications and Internet access in the three countries and all of the 9 PICI projects are expected to contribute significantly to Africa's regional integration and economic transformation.

The TAH network comprises of transcontinental road projects in Africa which connects capital cities of the continent. This would improve trade links and alleviate poverty through highway infrastructure development and the management of road-based trade corridors. The total length of the nine highways in the network is 56,683 km (35,221 mi). According to current data, only 21 percent of TAH is missing and 79 percent has been completed. So far, the total length of Africa's road network is about 2.8 million km. The length of network coverage increased by 21.9 percent between 2006 and 2015. All sub-regions, except Central Africa, experienced increases greater than 20 percent between 2006 and 2015.

² http://pages.au.int/sites/default/files/Implementation%20Strategy%20%28Final%29_0.pdf

³ The Programme for Infrastructure Development in Africa (PIDA); Transforming Africa through Modern Infrastructure: "Closing the Infrastructure Gap Vital for Africa's Transformation" p. 2

⁴ World Bank, Africa's Infrastructure: A Time for Transformation (Washington D.C., 2009). Available from: http://siteresources.worldbank.org/INTAFRICA/Resources/aicd_overview_english_no-embargo.pdf

The goal of the AMV is to create transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development. It is not restricted to mining, but also prioritizes about inclusive and sustainable development, as it seeks to use Africa's natural resources sector to transform the continent's social and economic development path. The AMV is currently being used by several African countries to reform their own mineral policies, legal and regulatory frameworks (for example, Mozambique, Ethiopia, Lesotho and Tanzania), and by regional economic communities (RECs) RECs to harmonize their mineral policy strategies.⁵

In 2015, the African Development Bank launched five priority areas that the Bank will focus on to advance Africa's transformative agenda over the next 10 years⁶. These "high fives" are: (a) universal access affordable and reliable energy; (b) unlocking agricultural potential through major investments in the sector, (c) investing US\$3.5 billion per year through direct financing and leveraging to implement flagship industrialization programmes; (c) improving integration to facilitate the movement of people, goods, services and investments; and (e) increasing investment in skills development to reach US\$5 billion by 2012.

In Oct 2016, the Third UN Conference on Housing and Sustainable Urban Development (Habitat 3) in Quito, Ecuador launched a New Urban Agenda (NUA) – outlining key items towards sustainable urban development. By 2030, the world's urban population is projected to nearly double⁷. The demand on agricultural services and products from the world's urban centres is expected to increase, placing greater burdens on the natural resources required to supply these needs. The NUA emphasizes developing stronger territorial institutions to sustainably govern and manage resources in urban and rural areas. It also emphasizes urban-to-rural connectivity and integration using improved transport and mobility, technology and communication networks and other planning/policy mechanisms, including sustainable development and management of rural-to-urban value/supply chains. There is clear recognition that the rural cannot exist without the urban and vice versa.

The AREI programme was formally launched at COP21. This initiative recognizes that although Africa is not a large emitter of Greenhouse gases (GHG), its energy needs will grow, and a combination of rapid technological development and falling costs make renewable energy the most sensible option. AREI will demonstrate how low to zero carbon development strategies can be achieved in African countries through climate finance and means of implementation according to the principles of the UN Framework Convention on Climate Change (UNFCCC). AREI will help African countries leapfrog to renewable energy systems that support their low-carbon development strategies while enhancing economic and energy security.

Therefore, any current or future efforts aiming to enhance climate-resilient industrialization should take into consideration all these initiatives, and complement them. It is for this reason that this paper focuses on green industrialization in Africa, including the nexus of industrialization and infrastructure, as the bastion of African economic transformation. The paper also addresses the growth of the African private sector, as champions of investments in infrastructure and sustainable industrialization.

⁵ <http://www.nsi-ins.ca/wp-content/uploads/2013/05/5.-Antonio-Pedro.pdf>

⁶ <http://www.afdb.org/en/news-and-events/article/african-development-bank-accelerates-pace-with-high-5-priorities-15879/>

⁷ <http://www.un.org/en/development/desa/population/publications/pdf/trends/Population2030.pdf>

3 Key Issues Underpinning Current Industrialization and Infrastructure Development in Africa

To facilitate infrastructure and industrial developments, Africa as well as countries in special situations need large scale investments, from multiple sources, including domestic investment mobilization. However, there are some issues that need to be addressed as a precondition for a sustainable industrialization process. Below are the top issues, which cut across various industries and infrastructure types in Africa.

3.1 Mobilize domestic private capital and improve creditworthiness of institutions in Africa

For Africa to embark on a structural transformation agenda, the need for mobilizing domestic resources cannot be overstated. Promoting national/regional stock exchanges could be a relevant way to make money available for Africans. These stock exchanges should, however, be promoted in a way that attracts the potential financing sources represented by the savings of the majority of Africa's population who are excluded by the conventional financial systems due to financial illiteracy and other factors. At the regional level, it is also crucial to increase cross-border financial flows from Africa's Diaspora that remains a consistent source of funding for the continent's development. Initiatives to enhance the use of remittance channels, reducing the associated costs and mobilizing remittances for investment purposes, can help channel the Diaspora's finance into the structural transformation of Africa. At the national level, domestic urban-to-rural remittance flows provide opportunities for financing the development of the rural environment.

Addressing these issues would require an enabling regulatory and policy environment that promotes domestic financial markets. Interventions should also focus on mobilizing domestic private capital in Africa to finance farming initiatives (particularly at the meso and micro level to increase resilience of small and meso-scale farming communities and towards coordinated decentralization strategies in planning and managing rural development). There is a need to connect rural farming communities and institutions with urban financial capital centres. This can include the use of mechanisms such as transport, accessible, efficient and equitable direct financing platforms, the use of innovative mobile-based payment systems, mobile microcredit and microfinance infrastructure, and low-cost mobile information solutions (access to climate and weather forecast data, commodity and market data) that will help farmers make better decisions.

Mobilizing resources in Africa would also require improved creditworthiness of African institutions. The scale needed for innovations, infrastructure development and industrialization in Africa requires levels of investments in billions of US Dollars, from a combination of domestic and international partners and organizations, as well as the private sector. However, many African countries and their institutions are not creditworthy, and consequently their political economy can be erratic and unstable. Foreign direct investments, for example, in the energy power sector in Africa have been slow and inadequate because many power utilities are found to be not creditworthy. Therefore, creditworthiness needs to be addressed across Africa so that the continent could be able to attract sufficient amount of investments for its infrastructure development and industrialization.

3.2 Smart industrialization for sustainable development

The industrial sector could contribute to prosperity and employment in Africa, through sustainable solutions to societal challenges – nationally, regionally and globally. The industrial sector worldwide is undergoing a structural transformation that is driven by globalization, digitalization and the transition to a green, resource-efficient economy.

Innovative and sustainable industrial production is digitally connected, flexible, resource-efficient, and environmentally friendly and provides the conditions for an attractive workplace. This smart industry is at the forefront of the digital transformation, has a high level of automation and is well equipped to meet complex customer requirements and new patterns of demand. It competes using both advanced production and products with a high knowledge content, where the boundary between goods and services has been blurred and where large volumes of data create new assets for both customer and supplier. The strategy for new industrialization is to contribute to the creation of the best possible conditions in which the industrial sector and industrial services companies can become more competitive, sustainable and productive. Industrial investments should support the domestic development, protection and incubation of such technologies in Africa's urban centres, and interventions should enable the flow of technology from urban centres to rural areas.

This therefore requires high levels of policy coordination and coherence across (linked) sectors and urban-to-rural settings. For instance, coordination between trade policies, industrial development, and sectoral infrastructure development becomes essential. In order for Africa to achieve its transformative industrial objectives, it needs to ensure innovative ideas on how it can implement smart manufacturing process, which are harmonized across different sectors.

3.3 Innovation in green infrastructure choices

Low carbon, or carbon free industrial development is the hallmarks of the global focus, including in Africa. The continent cannot pursue its industrial development in a fashion similar to that of industrialized countries. The levels of carbon footprint are currently determining industrial investments and international finance. Carbon emitting industrial processes are being discouraged and phased out. There is a global consensus, signified by the Paris Agreement, that countries should be aware of emission levels in their productive industries. Therefore, adopting and investing in "green" infrastructure can significantly lead Africa to a low carbon, but high impact industrial process. The continent, for example, is amply endowed with proven renewable energy resources that include hydro, solar, geothermal, wind and biomass, as well as other low carbon energies, such as natural gas. The sustainable exploitation of these renewables could lead to green energy infrastructure.

In order to attract private investors to Africa and countries in similar situations in other regions, sustainable energy projects need to be economically and financially viable. In addition to access to capital, the availability of technical and other skills is also crucial. Sector reforms have been crucial to create an enabling environment for private investment in sustainable energy. Rules and regulation need to be clear and predictable in order to enable private investment. In addition, strong national leadership, as well as strengthened partnerships between all stakeholders are important. Regional

collaboration in energy generation, trade and transmission can also help to increase efficiency in energy production and reduce costs.⁸

There are some good examples for green infrastructure development across Africa. These include the national clean production and leather industries in Uganda, agro-led industrialization in Nigeria, modern biofuels development in Malawi, solar energy North Africa and South Africa, among others. Kenya's remarkable experience with innovative diversification of sources of energy as spatial location of industrialization efforts could provide valuable lessons. Urban centres are critical sources of capital required for such infrastructure investments.

There is need to debunk the myth that: (a) investments in green infrastructure is expensive for African countries; and (b) such infrastructure is of power quality than the conventional infrastructure. On the contrary, the costs of green infrastructure goods and services have been decreasing for a number of years and are very competitive.

3.4 Regional integration to drive industrialization in Africa

The value chains of many industrial processes in Africa cut across countries and their benefits can be maximized if these are pursued regionally. The Programme for Infrastructure Development in Africa (PIDA) is demonstrating that pursuing infrastructure development on a regional scale is not only cost effective but is the basis for transforming continental infrastructure to facilitate opening of new markets, as well as intra-African trade. Regional integration connects Africa, creating seamless markets for its industrial goods and services. Improved waterways and rail networks will ensure "green" infrastructure development, as these modes of transportation have less carbon footprint than other modes of transportation. They are also generally less expensive for moving goods between countries. Lower transportation costs will ensure that the goods being transported are affordable to many African consumers.

3.5 SMEs growth and development for structural transformation of African economies

Small and Medium Enterprises (SMEs) are critical for inclusive economic transformation in Africa, however, there is less policy focus on the development of this sector. Providing effective assistance to Africa's SME sector especially, in the manufacturing sector, could ensure benefits in employment creation for its young population. This could also increase the beneficiation of local products, push production costs down, and result in increasing the middle class. The majority of SMEs and startups are initiated and incubated in urban centres, and driven primarily by the young. Urban spaces therefore must be designed in ways that support SMEs and startups.

Being an SME should not be a permanent state but a process towards growth of the enterprise. With adequate support, many SMEs could develop into large enterprises with a greater stake in the economy. However, conditions should be made easier for the SMEs to enter into the main or formal industrial markets rather than being crowded out, as currently is the case. In Africa, SME development is often

⁸ These are results from several meetings on sustainable energy OHRLLS organized in 2016: Regional Meeting on Financing Sustainable Energy for African LDCs held in Dar es Salaam, Tanzania, from 5 to 6 December 2016, see: <http://unohrlls.org/event/energy-ldc-meeting/> and Accelerating Sustainable Energy for All in LLDCs through Innovative Partnerships" on 24 and 25 October 2016 in Vienna, Austria, see: <http://unohrlls.org/event/high-level-seminar-accelerating-sustainable-energy-landlocked-developing-countries-innovative-partnerships/>

associated with and labeled as “informal economy”, which need to be treated separately from the formal economy. This creates a situation where “informal” SMEs are locked out of the formal economy and play very little role in countries’ industrial processes.

4 Supporting Infrastructure Development and Sustainable Industrialization

In order to achieve full, climate-resilient, inclusive industrialization which is supported by green infrastructure, it is important to focus on three levels. The first level is the development of African industrialists (or private sector), mainly supporting the transition from SMEs to large scale industries (see Section 3.5) and mainstreaming them into the formal economy. This, in turn, would increase the African private sector as the bastion for industrialization, as well as domestic investment (Section 3.1). The second is to focus on value chain maximization, by linking production across sectors, as well as capitalizing on low-hanging fruits in infrastructure and industrial development, such as alternative renewable energy systems and smart industrialization (Section 3.2 and 3.3). These could be achieved through enhanced regional and inter-regional cooperation (South-South) in infrastructure, industrialization and trade, as the third level of focus (Section 3.4).

4.1 Supporting African private sector

Promoting sustainable industrialization in Africa should meet the requirements of SMEs which constitute the backbone of the private sector on the continent. Indeed, a sufficiently large base of local entrepreneurs is a key component of a country’s domestic capacity to industrialize, foster competition, enhance efficiency and transform its economy. The private sector has also a high potential to create jobs for local populations with the majority of such activities generated in urban places. Achieving these objectives would specifically require a number of actions.

Firstly, based on dialogue with the private sector it is crucial to identify industries that provide the greatest potential for growth to SMEs, taking into consideration domestic endowments (e.g. infrastructure, including technologies and skills).

Secondly, industrial policies that are coherent with trade policies that promote value addition is critical. Such industrial policies could include ‘smart protectionism’, from which nascent industrial sectors can develop productivity through learning-by-doing, technology upgrade, support from leading firms and reducing tariffs on imported inputs, as well as reducing barriers to imports of services that are inputs to the industrial sector. Industrial policies should also pay attention to developing producer services, such as design, marketing and branding that promote a “Made in Africa” brand. For example, more than two-thirds of Tunisian Olive oil is exported in bulk to foreign markets such as Spain and Italy, where it is mixed with local oil before being bottled and marketed as a product of those countries. This situation prevents Tunisian olive oil producers from obtaining a premium they could get if more of locally produced oil is bottled in the country before it is exported. To achieve this would require investments to promote “Made in Tunisia” branded products (bottled olive oil). This will also require strengthening the regional intellectual property (IP) regulations, laws and institutions, as well as providing protections on the buying side and finding innovative ways for producers to effectively monitor compliance.

Thirdly, in the context of globalization with the rise of global value chains (GVCs) that are controlled by transnational corporations (TNCs),⁹ it is critical to create a level playing field for the actors, particularly by supporting SMEs to compete with big players. Typically, this would entail enforcing and reinforcing competition law in African countries so as to limit or prevent potential market power of highly integrated TNCs. This is as important as addressing high finance cost and skill needs for SMEs.

4.2 Value chain maximization and regional cooperation

A strategy for African industrialization should begin with a focus on the benefits of regional markets through increased trade, with special emphasis on agro-processed products and value addition in its mineral sector. For example, transforming the continent's mineral export volume by just 5 percent before exporting them can create 5 million jobs a year. Moreover, African countries spend some \$30 billion a year to import processed food.¹⁰ This trend can be reversed through value added agro-processing that would contribute to creating countless jobs, especially for the growing youth population.

Regional and continental markets have the potential to serve as drivers of Africa's structural transformation through industrialization. Indeed, the continent's large population and its growing middle class are driving demand for goods. At present, most of these products are imported from outside Africa due to the relatively low value addition across the continent; African intra-regional foreign value added (VA) is below 10%. In comparison, Asian intra-regional foreign VA is well above 35%.¹¹ However, the ongoing initiatives, including negotiations for a Continental Free Trade Area and the implementation of the Action Plan on Boosting Intra-Africa Trade, could contribute to increasing trade between African countries. However, this would require that infrastructure, especially transport infrastructure including ports and corridors, road and airline networks are properly developed.

For Africa to achieve its structural transformation, the importance of South-South and Triangular cooperation cannot be overstated. This form of cooperation is recognized as an invaluable contributor to an inclusive and sustainable development, especially in view of achieving the SDGs in developing and least-developed countries. African economies are increasingly engaged in South-South cooperation, especially with emerging economies such as China, India, Brazil and Arab countries, through travel, financial flows, technology exchange, mutual learning, and knowledge sharing. These emerging forms of cooperation have become an increasingly important source of development assistance and technical cooperation for Africa. Under South-South and Triangular cooperation, significant support is being provided to the continent to leverage its comparative advantage to embark on a new path of economic transformation and sustainable development.

Some on-going initiatives include the "*Industrialization and Job Creation for Africa*" aiming to make Africa the next manufacturing hub for global markets by helping it to seize the opportunity for industrialization arising from the relocation of light manufacturing from China and other emerging market economies;¹² the "*Purchase From Africans For Africa*" (PAA) Programme, a joint initiative

⁹ UNECA (2015). Economic Report on Africa 2016: Industrializing through Trade. United Nations Addis Ababa.

¹⁰ UNECA (2016) Economic Report on Africa 2016: Green Africa's industrialization

¹¹ UNECA (2015). Economic Report on Africa 2016: Industrializing through Trade. United Nations Addis Ababa.

¹² United Nations Office for South-South Cooperation (UNOSSC) (2016). Good practices in South –South and Triangular Cooperation for Sustainable Development. Available at

<http://ssc.undp.org/content/dam/ssc/documents/e-library%20docs/Good%20Practices%20in%20South-South%20and%20Triangular%20Cooperation%20for%20Sustainable%20Development.pdf>

between five African countries (Ethiopia, Malawi, Mozambique, Niger and Senegal), and development partners including Brazil, United Kingdom and International Organizations (e.g. FAO, WFP) to promote food and nutrition security and income generation for farmers and vulnerable communities in African countries.¹³

However, for all these initiatives and others to be shared and replicated successfully so as to fulfil their expected goals to transform Africa's economies for a more sustainable growth and development, there is a need to address data and policy gaps which often limit the understanding and assessment of South-South cooperation. It is also crucial when devising projects under such cooperation frameworks, to consider the interest of beneficiary countries.

4.3 Resource Mobilisation

Improving domestic resource management in Africa is no easy feat. Governments need to commit to taking action on a broad range of areas, including a targeted overhaul of taxation frameworks and fiscal policy, as well as strengthening and deepening of financial markets, to better respond to the needs of individuals and private enterprise. Urban centres are where financial, social and intellectual capital and resources tend to agglomerate. Therefore, urbanization strategies are required in domestic resource mobilization efforts. To that end, domestic resource mobilization can be achieved in a number of ways.

- Through domestic government revenue. In 2012, Africa's domestic revenue reached US\$520 billion vis-à-vis less than \$50 billion in foreign aid received. LDCs are still in need of ODA but its quality needs to be improved and it should be used more to enhance the availability of other resources.
- Through financial markets. Stock market capitalization in Africa rose from US\$300 billion in 1996 to US\$1.2 trillion in 2007.
- Through pension funds, which can provide reliable financing for long-term development projects that would normally face difficulty attracting suitable investment.
- Through sovereign wealth fund. More than 10 African countries already have sovereign wealth funds, including Algeria, Angola, Equatorial Guinea, Gabon, Ghana, Libya, Nigeria, the Sudan and Sao Tome and Principe.
- Through remittances, which quadrupled between 1990 and 2010, reaching nearly US\$40 billion in 2010 and US\$62 billion by 2012.
- Through diaspora bonds, as in the case of Ethiopia which generated US\$400 million to finance a large hydroelectric project.
- Through public-private partnerships. The PPPs investment in developing countries across different sectors – water, energy, telecommunications and transport – grew from about \$30 billion in 1995 to \$140 billion by 2009.

5 Conclusion

In order to successfully industrialize, Africa as well as countries in special situations need a supportive infrastructure that allows businesses to operate at competitive cost through efficient routes of transport, fast telecommunications and reliable electricity, among other factors. The gap in Africa's

¹³ Source : <http://paa-africa.org/about/general-information-2/>

infrastructure significantly raises production costs: transporting goods and people across the continent takes longer and remains more complicated than anywhere else in the world.

Sustainable infrastructure and services in energy, transport, water, sanitation, and information and communications technologies for urban and rural locations are essential enablers for Africa's regional integration and transformation for sustainable development that leaves no one behind. The Continent's development blueprint, the Agenda 2063, emphasizes the need for "world-class integrative infrastructure that crisscrosses the continent", as a key requirement for attaining the development goal of a peaceful and prosperous Africa.

It is therefore important that innovative ideas and actions should be developed on how to achieve African vision of sustainable industrialization, which will not only bring in goods and services, but will be fully inclusive and owned by Africans, as well as conforming to climate change concerns.