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ECA POLICY BRIEF

Innovations and infrastructure development for sustainable industrialization in Africa

The present policy brief draws on background research materials prepared by the Economic Commission for Africa for the special meeting of the Economic and Social Council on the theme of "Innovations in infrastructure development and promoting sustainable industrialization", held in Dakar on 26 March 2017, and the recommendations from it. The meeting brought together high-level representatives of Member States and representatives of the United Nations system and other international organizations, civil society, non-governmental organizations, academia and the private sector.

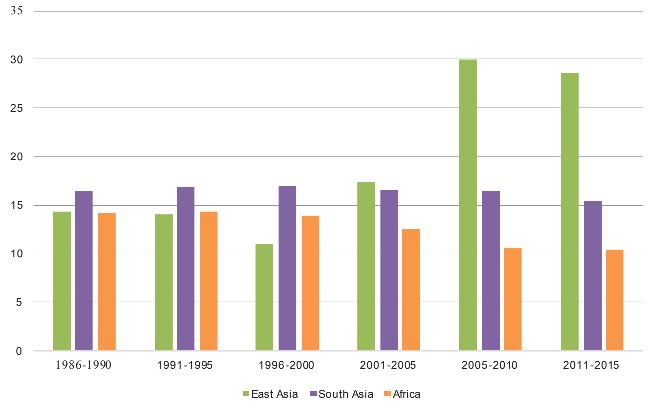
Industrial development remains critical to Africa's prosperity

The commodities boom during the period 2003–2013 was associated with improved economic growth in Africa. Most countries on the continent, however, have failed to use the commodities windfall revenue to foster broad-based and inclusive economic development. This results in part from the overreliance of most African economies on the export of raw materials, with limited structural transformation towards value-added activities that could generate decent jobs and revenue to Africans. The literature on commodities dependence in the developing world posits that a high reliance on raw materials is detrimental to socioeconomic development.[1] Only structural transformation of their economies, in which resources are shifted from low to high productivity and value-added activities, in or across sectors, could help African countries to ensure prosperity for all their citizens consistent with the objectives of the African Union's Agenda 2063 and the 2030 Agenda for Sustainable Development.

African leaders have, at various times, stressed the need to transform the structure of their economies so as to create decent jobs, promote productivity growth, enhance incomes and achieve sustainable and inclusive development. Industrialization is an integral part of these objectives, while innovation and infrastructure development are viewed as its necessary enablers. Unfortunately, Africa, albeit with country disparities, has failed to scale up industrial activities. In recent years, the share of manufacturing in aggregate output for African regions declined, compared with their levels in the 1990s – a situation often referred to as de-industrialization – while increases were recorded in other developing regions, in particular East Asia (see figure I). Africa therefore remains one of the regions with the lowest industrial output per capita worldwide. In 2015, only three African countries outperformed the average value of manufacturing value added per capita in the developing world (see figure II).

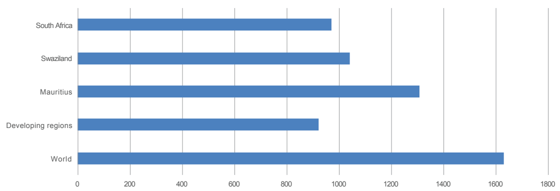
1 See for example, Janvier D. Nkurunziza, Komi Tsowou, and Sofia Cazzaniga, "Commodity dependence and human development", African Development Review, vol. 29, Issue S1 (2017), pp. 27-41; and Fabrizio Carmignani, and Desire Avom, "The social development effects of primary commodity export dependence", Ecological Economics, vol. 70, No. 2 (2010), pp. 317-330.

Figure I: Manufacturing value added as percentage of gross domestic product in selected developing regions (average values) (Per cent)



Source: Based on data from UNCTADstat.

Figure II: Manufacturing value added per capita in African countries outperforming the average of developing regions – 2015 (Constant 2010 United States dollars)



Source: Based on UNdata.

Infrastructure and innovation: necessary enablers for sustainable industrialization in Africa

The industrial output contribution of infrastructure assets cannot be overstated. Well-functioning infrastructure assets contribute to industrialization directly through infrastructure services purchased by industries. They are subsequently used to add value to the production of intermediate and final products and, indirectly, to ensure efficiency gains from economies of scale and scope and increased competition and better access to, or efficient use of resources, including labour and technology. In turn, innovation increases the technological capabilities of businesses and contributes to productivity growth and the development of new skills. New technologies and innovations are a key driver of "green industrialization and infrastructure", which, in turn, remain sine qua non for economically viable and environmentally friendly development. In the context of Africa, while industrialization has been identified as critical to the creation of decent jobs and an increase in incomes, its development has been curtailed by the inadequacy of infrastructure, among other significant factors. Infrastructure gaps in Africa need to be overcome to support the continent's industrialization ambition, moving beyond the current structure that entrenches most economies at very low rungs of regional and global value chains.[2] At present, several infrastructure programmes exist at the national and regional levels that could scale up Africa's industrial development if they are adequately implemented. For example, the Programme for Infrastructure Development in Africa promotes regional corridors and conditions for higher economic density and enhanced regional markets. Other examples include the sub-Saharan Africa Transport Policy Programme, the Trans-African Highway road network, the African Renewable Energy Initiative and the Action Plan for the Accelerated Industrial Development of Africa. For these initiatives and others to bear fruit, Africa would need to: overcome inadequate financing, in particular the low involvement of the private sector in infrastructure projects; improve its capacity (organizational and technical skills); and strengthen institutional and political frameworks.

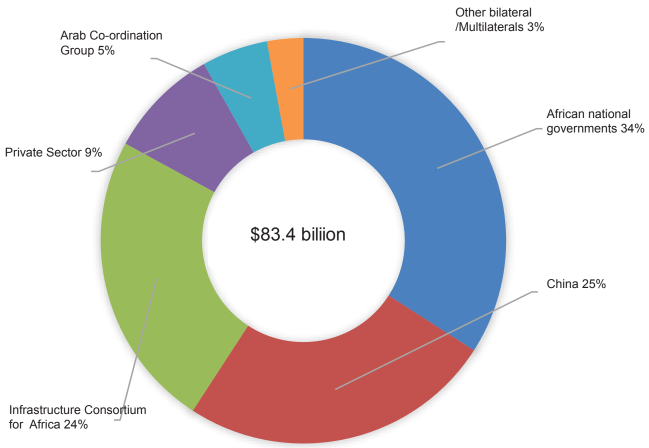
Financing infrastructure and innovation projects in Africa

Funding remains one of the main challenges in developing infrastructure and promoting sustainable industrialization in Africa. The infrastructure needs of the continent are more than $90 billion annually, and current levels of funding (annual average of $86.7 billion during the period 2012–2015[3]) leave significant gaps. The issue is particularly acute in a situation in which the low involvement of the private sector has left Governments (with limited capacity) and their development partners to fund the bulk of infrastructure projects (see figure III). In order to tackle this issue, Governments have to, first, set clear strategies or master plans that identify the type of infrastructure needs. This would help in the planning and funding phases of infrastructure development projects. Second, the strategies should identify areas in which the private sector is most likely to be interested and mobilized, preferably under public-private partnerships. Governments should also establish an order of priority and contribute to developing and selecting bankable and investible projects. For example, priority could be given to transboundary infrastructure projects that have great potential in terms of being bankable, while targeting infrastructure needs that are common to neighbouring countries, and fostering regional integration.

2 See for example, Economic Commission for Africa, Economic Report on Africa 2015: Industrializing through trade, (Addis Ababa, Ethiopia, 2015). Available from www.uneca.org/publications/economic-report-africa-2015.
3 According to the Infrastructure Consortium for Africa, Infrastructure Financing Trends in Africa – 2015 (Abidjan, 2015). Available from www.icafrica.org/filead-min/documents/Annual_Reports/ICA_2015_annual_report.pdf.

To fully contribute to sustainable development, infrastructure and industrial projects should also be selected on the basis of the economic, social and environmental opportunities that they represent.

Figure III : Infrastructure financing in Africa, by source in 2015



Source: Infrastructure Consortium for Africa (2015).

Africa can also finance its innovative infrastructure projects by channelling remittances that are more than $62 billion annually, combating illicit financial flows of as much as $50 billion annually and capturing financing from financial markets (Kenya, South Africa and Uganda have issued infrastructure bonds for transport infrastructure projects). Non-traditional investment, such as that of pension funds, can also be oriented towards infrastructure projects. Achieving these objectives would require clear, simple and stable regulatory and legal frameworks to encourage investment and support an overall sustainable approach to infrastructure development and industrial policies. African countries should also consider devising projects that help them to tap into regional and global resilient infrastructure funds managed by financial institutions such as the African Development Bank (AfDB) and the Work Bank. These funds have been created to support countries in achieving the Sustainable Development Goals and the objectives of the twenty-first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, held in Paris in 2015, through resilient and green infrastructure. For example, the Climate Investment Funds help developing countries with low-carbon and climate-resilient development through grants, concessional loans, risk mitigation instruments and equity. In Africa, under the scope of the Climate Investments Funds, AfDB is supporting several countries, including Ethiopia, Malawi, Mozambique, Niger and Uganda. Countries could also tap into the possibilities offered by the United Nations Industrial Development Organization's programme for country partnership. The programme supports Governments in mobilizing public resources targeting large-scale infrastructure projects for industrial development, mobilizing additional investment from the private sector in industrial activities and creating a multi-stakeholder partnership that allows for coordinated action and synergies between interventions relevant to industrial development.

Addressing capacity constraints for project design and implementation

The ability to deal with the gaps that are impeding infrastructure and industrial development in Africa depends on capacities. These include organizational capacity and technical skills at all levels. Africa would need millions of engineers to support its infrastructure development projects and industrial development. Technical capacities are needed to provide needs assessment, design and implement projects, and provide support to regulatory authorities for oversight. Moreover, the lack of capacity to plan, prepare, analyse, budget for and conduct financing negotiations on projects, especially in Governments, remains a main bottleneck.

Africa would also need to develop more innovative service delivery mechanisms that promote support for project design and institutional strengthening. For example, the Continental Business Network, led by the New Partnership for Africa's Development (NEPAD), acts as an exclusive infrastructure investment advisory platform for African leaders, providing leadership and engagement on a range of strategic issues, such as policy, investment risk rating and project structuring. NEPAD has also developed instruments to carry out the outcomes of the Dakar Financing Summit for Africa's Infrastructure, one of which is the Programme for Infrastructure Development in Africa service delivery mechanism, designed to endow project owners with the capacity required for early-stage project preparation.

Skills gaps and skills mismatches for infrastructure and industrial projects are common in many African countries. It remains critical to develop national education and training systems, while increasing participation rates at tertiary-level education, in particular for the subjects – science, technology, engineering and mathematics – just as improving the access of young people to high-quality technical and vocational education and training. The training programmes should be tailored to the need of industries, in particular those of small and medium-sized enterprises, which are an important contributor to employment and local value added.

Technology-focused incubation programmes are particularly needed to foster local tech entrepreneurship. In Egypt, for example, close linkages between industry and academia contribute to stimulating incubation centres for the country's startups to shape their businesses and grow.

Strengthening the institutional and policy environment

Establishing policies that foster an enabling and conducive environment for innovative infrastructure and industrial projects remain critical. These policies should be stable and driven primarily by long-term strategic development plans. Infrastructure development policies could correspond to the time frame of infrastructure projects that span, on average, between 20 and 30 years. This would also reinforce mutual trust, which is crucial for long-term partnerships between Governments and the private sector. In terms of policymaking and implementation, strong leadership is needed to bring together various ministries in and across countries in an integrated manner. The political framework should also limit the focus on the so-called "ambulance" policymaking, which tends to focus solely on immediate social issues. Policy development, namely, policy planning, design and implementation, which drives innovation and infrastructure for industrial development, should rely on integrated and participatory approach to be efficient. This implies not only alignment of the objectives of the various policies (e.g., industrial, trade and infrastructure), but also dynamic consultations between all relevant stakeholders, including government agencies, the private sector, the academia, local communities and regional and international partners. This would contribute to tapping into the comparative advantages of each entity. Coordination and collaboration are also needed between national and regional programmes at a time when several cross-border infrastructure projects, including transport and energy corridors, are under development throughout Africa, with a clear objective of fostering regional integration.

Key recommendations

The following actions would need immediate attention to scale up the industrial output contribution of infrastructure and innovation in Africa.

- **Promote strong institutional frameworks and integrated policymaking** in support of infrastructure and industrial development, which should be part of holistic programmes. The policymaking process must also strive to create a conducive environment for development, including establishing stable regulations and predictable policies.
- **Foster regional integration** with Governments, giving special attention to the implementation of corridor programmes and other current initiatives at regional and continental levels. In leveraging public-private partnerships, focus should be given to national supporting projects that are aligned with cross-border programmes. International development institutions should also prioritize support for regional initiatives with high socioeconomic potential.
- **Shift the focus from financing gaps to investment opportunities** through clear and efficient strategies that focus and champion sectors, while gradually broadening to other areas. Governments should partner with the private sector and international development partners to promote public-private partnerships that, in turn, could support attracting funding from financial markets, remittances, global resilient infrastructure funds and other innovative mechanisms, while ensuring that projects are bankable (e.g. ready for financing and investible). Combating illicit financial flows is also critical to make funds available locally for national and regional projects.
- **Develop national education and training systems** that are tailored to the needs and priorities identified in infrastructure and industrialization strategies. Capacity development programmes focusing on design and implementation of projects must be put in place, just as fostering technology-focused incubation programmes and targeted support to small and medium-sized enterprises.
- **Scaling up "green" infrastructure for sustainable industrial development** remains a strategic option not only to support Africa's environmentally friendly development path, but also to maximize the potential of its abundant renewable resources. Governments should tap into global resilient infrastructure funds by designing projects and programmes that fit the scope of these funds.
- **Promote partnerships between all stakeholders,** including government institutions, the private sector, academia, civil society organizations, local communities and regional and international organizations at all levels of policy development, that is, policy planning, design and implementation. It is important to tap into the comparative advantages of each entity

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