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Abidjan

Plenary Meeting

Building quality infrastructure for Africa's development

Executive summary

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Purpose of this paper

This paper has been prepared for the 2016 Plenary Meeting of the Infrastructure Consortium for Africa, which focuses on building quality infrastructure for Africa's development. Its intention is to provide background information and guide participants for a better understanding of the topics to be covered the plenary meeting.

Infrastructure's role in development

Infrastructure¹ makes up a major part of investment expenditure in all countries, equivalent to roughly 3 to 6 percent of GDP per year (one-third to one-half of total public investment). Recently, there has been increasing concern and debate about the performance of infrastructure—among economic policy-makers, politicians, and the public—in both developed and developing countries. On the African continent, this led, amongst other things, to the creation of the Infrastructure Consortium for Africa (ICA) in 2005 to accelerate progress towards meeting Africa's urgent infrastructure needs.

Infrastructure is essential for development. Adequacy of infrastructure helps determine one country's success and another's failure in diversifying production, expanding trade, coping with population growth, reducing poverty, or improving environmental conditions. Good infrastructure raises productivity and lowers production costs, but it has to expand fast enough to accommodate growth. The kind of infrastructure put in place also determines whether growth does all that it can to reduce poverty. Rural roads, for example, linking rural and urban markets, or rural water supply, will do more for inclusive growth than other infrastructure services targeting higher income populations.

Infrastructure financing and ownership have important implications for macroeconomic stability. As a countercyclical

tool, infrastructure investment can generate employment and consumer demand. Ownership arrangements (public, private, or in partnership) impact the quality of infrastructure services and availability of financing. Taken overall, persistent deficits of ports, roads, railways, airlines, and power utilities have contributed measurably to Africa's fiscal and financial instability and have held back growth.

State of Africa's infrastructure

Africa's infrastructure endowment

Africa lacks basic infrastructure. Overall, the African continent is by all measures the least endowed region of the developing world in infrastructure, even compared to low- and middle-income countries in other regions. This is partly due to low overall GDP (because infrastructure investment is closely correlated with GDP) and partly due to Africa's geographic and historical legacies.

In 2014, Africa's infrastructure investment reached \$74.5 billion, and annual spending needs are estimated to be \$100 billion (2015 dollars) simply to maintain current endowment levels. Close to half of the financing comes from governments, with the bulk of the rest made up by loans and grants from development partners. The share of private financing, at under 4% of the total, is significantly lower than in other low- and middle-income regions and is for the most part concentrated in mobile telecommunications, even though there is considerable scope for private funding of electricity (particularly generation), ports, rail and water supply. The low level of financing from the private sector reflects poor cost recovery and the perceived riskiness of investing in Africa, the latter in part due to ambivalence of governments and public opinion vis à vis private investors.

Africa's infrastructure deficit varies considerably by sub-sector. In mobile telecommunications, Africa is ahead of other comparable regions, and African countries have used these

1. Defined here to include the sectors of transport, water and sanitation, power, and telecommunications.

technologies to leapfrog natural handicaps, e.g. in mobile banking. In water supply, following a major investment push over the past two decades enabled by better cost recovery, Africa is on a par with other low income countries, but improved sanitation lags. It is in the transport and in the electric power subsectors that Africa falls behind. In these two subsectors, Africa's endowments are generally significantly below those of other comparable regions.

Quality of infrastructure services in Africa

Africa's infrastructure services are of mixed quality. Taken overall, Africa's infrastructure does not deliver high quality services. The ease of obtaining an electric power connection varies significantly from one country to the next, but in many African countries it takes a long time and the upfront cost for the consumer is high. Loading and unloading times at ports are long. Deteriorated road networks, foregone maintenance, and lack of competition among transporters increases the cost of transporting merchandise. Border crossings are often arduous and protracted. Access to clean water and especially improved sanitation is still not sufficient, although significantly improved. Mobile telephony, on the other hand, is widely available, with adequate coverage, although internet often remains erratic and costly.

Low infrastructure endowment and mixed quality of infrastructure services holds Africa back. African firms

and consumers suffer both from the infrastructure deficit and from spotty infrastructure services that are often high cost, erratic, and undependable. This means that the continent has additional development hurdles to overcome. These hurdles include:

- Africa's products and services tradeable on international markets have higher costs than those exported by other regions, which reduces the international competitiveness of African exporters and limits sectors that African firms can compete in.
- Africa's domestic markets, e.g. for agricultural produce, are less developed. Local suppliers are not always able to meet demand, because electric power is not readily available or road quality is poor. Products are thus more expensive for consumers.
- Infrastructure contributes to inclusive growth, so Africa's lack of infrastructure means that the fruits of growth are not widely shared throughout the country. For example, the absence of transport linkages between rural and urban markets reduces opportunities for agriculture.
- Regional integration requires both a coordinated set of rules across the region, and physical interconnections. Regional road, rail, electricity and communications networks are absent or weak in much of the African continent.

Table 1: Key infrastructure statistics

Indicator	Sub-Saharan Africa	Low-income countries	Middle-income countries
Roads (km/1000 km²)			
Paved road density	49	134	461
Total road density	152	211	757
Telecommunications (lines/100 population)			
Main line density	1	1	10
Mobile density	71	57	94
Internet density	19	6	34
Electricity			
Generation capacity (MW/million population)	37	326	
Electricity coverage (% of population with access)	35	41	87
Water and sanitation (% of population with access)			
Improved water	66	66	92
Improved sanitation	30	28	65

Source: Centennial Group International 2016

Definition of quality infrastructure²

Quality infrastructure incorporates elements of economic efficiency, social inclusion, safety and resilience, environmental sustainability as well as the convenience and comfort, seen as vital for sustainable development. The concept addresses the challenge of building infrastructure based on smarter decisions, better design and construction, innovative financing and positioning the private sector as part of the solution. With limited financial resources in parts of Africa, but mindful of the necessity for inclusive and sustainable development, it also addresses the challenge of developing infrastructure investments that offer the best value for money. Longevity, safety and operational costs over the full project lifecycle are all taken into account, as is an investment's contribution to local human resource development.

Climate change challenges are also addressed in the concept of quality infrastructure. It is important that the green and resilient aspects of infrastructure are taken into account by using environmentally friendly technologies that emit the least greenhouse gases and provide the greatest adaptability to climate change.

Factors of quality infrastructure

As Africa continues to invest in infrastructure to close the gap with the rest of the world, it must ensure that this investment is of high quality to achieve maximum economic impact and inclusiveness. A number of cross-cutting issues present themselves.

Cross-cutting issues

The most important cross-cutting issue for infrastructure in Africa is the **need for more overall investment**, to accelerate deployment across the continent. Without increased private financing, it is unlikely that Africa can close its infrastructure gap. More private ownership and operation of Africa's infrastructure will be needed. This will also contribute to quality by improving operations and maintenance, and thus enhancing the quality and sustainability of the associated infrastructure service. Additional key issues identified as important for Africa to build quality infrastructure:³

Economic efficiency

Economic efficiency relates to both how well the initial investment is carried out—getting the best return on infrastructure investment and ensuring that the technology chosen is the appropriate one given specific country and consumer circumstances—and how well the subsequent physical asset is operated and maintained. During the planning and construction phase, this will involve, inter alia: (a) ensuring appropriate technology choice and project design; (b) suitable ownership and management arrangements and financing; (c) efficient and competitive procurement; and (d) proficient construction management. Following commissioning it will involve: (a) operational efficiency and strong maintenance capacities; and (b) minimized environmental burdens and social costs. The plenary will allow participants to deepen their appreciation for the impact the right choice of financing, partners, and technology can have to maximize the benefits of initial investments. They will also get a better sense for the trade-offs between these choices.

Inclusiveness

Inclusiveness of the infrastructure investment relates to the degree to which the infrastructure service associated with the fixed asset leads to the benefits of economic growth reaching the broadest possible segment of the population. This will involve: (a) improvement of welfare and economy of residents, including the poor; (b) promotion of well-balanced development between rural and urban areas; (c) gender considerations; and (d) dismantling natural or artificial barriers within the country. Participants will have a deeper understanding of the complex issues pertaining to the improvement of the welfare and economy of the residents, promotion of well-balanced development between rural and urban, as well as gender considerations.

Safety, resilience and sustainability

Safety and resilience relates to how well the infrastructure asset is able to perform under a wide range of climatic and other outcomes. Safety and resilience have particular resonance in Africa given the very significant effects of climate change expected in these countries. In particular, it focuses on: (a) resilience against natural disasters, including those stemming from climate change; and (b) ensuring safety in use and operation as well as security in and around construction sites.

2. ICA annual Report 2015.

3. *Quality Infrastructure Investment Casebook*, the Government of Japan (Ministry of Foreign Affairs; Ministry of Finance; Ministry of Economy, Trade and Industry; Ministry of Land, Infrastructure, Transport and Tourism; Ministry of Internal Affairs and Communications; JICA)

Sustainability encompasses two core themes: the degree to which the infrastructure asset minimizes its environmental and social impact on the region and country in which it is located, and the degree to which its financing, operation, and maintenance ensures its own prolongation and replacement at the end of its economic life. Issues for consideration include: (a) harmony with the environment; (b) minimized negative impact on communities, particularly the poorest; (c) maintaining high performance and optimized operation; (d) continuity of management; and (e) effective maintenance and asset replacement at the end of its economic life.

Participants will strengthen their knowledge of options available for the deployment of climate resilient infrastructure. They will also get a deeper understanding of the many dimensions of sustainability: social and environmental impact, financing, continuity of management, and adequacy of maintenance of infrastructure assets.

Subsector issues

Transport

The transport sector ties together the national fabric and links producers and consumers to the broader world. Key sector-specific issues relate to (a) the need for transport infrastructure to work at a regional rather than national level, notably focusing on **transport corridors** that link international markets to centers of population; (b) using transport infrastructure to maximize the **inclusiveness of development** by opening up isolated areas; and (c) using infrastructure investment to its fullest to ensure rational urban development, through **mass transit** options.

Electricity

Electricity underpins development of productive activities in the economy and promotes inclusive growth through the services it provides to the poor. The most important issues in the sector are: (a) insufficient investment due to **poor cost recovery**, due both to inadequate tariffs and to low collection rates particularly from the public sector, which has made the sector unattractive to private investors, so that unlike other regions, it has remained mainly under public ownership and management; and (b) **technology choice** in the investment decision. New technological options have become economically attractive, notably small scale renewables such as PV-based solar home systems and mini-grids, wind, geothermal and run-of-the-river hydro. These should

take preference over more polluting energy sources like coal, heavy fuel and diesel.

ICT

Mobile telephony is an African success story. Voice and SMS communications have been seized upon by Africa's population to underpin broad areas of economic activity, from obtaining agricultural pricing information to mobile banking. But mobile data usage still remains low because of its high relative cost and because of current low penetration of smartphones (although this is evolving). The most important issue in the ICT area relates to **quality of internet connectivity**, where bandwidth is low, services are often erratic, and prices are high, due often to inadequate competition.

Water

While transport, electricity, and telecommunications infrastructure supports country competitiveness and trade, and also (perhaps to a lesser extent) inclusive growth, provision of safe water and sanitation is directly responsible for reducing poverty and supporting inclusive growth. Key issues in the sector are: (a) **access to improved water** remains inadequate, particularly in rural areas; and (b) **improved sanitation** (septic tanks and improved latrines) reaches less than 20 percent of Africa's population, and less than 10 percent in rural areas.

Initiatives underway

Africa is currently undergoing a large number of exciting initiatives that address the constraints outlined above, among which:

- **G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment.** This initiative, elaborated at the G7 meeting in Japan in May 2016, is made up of five principles: (a) ensuring effective governance, reliable operation and economic efficiency in view of life-cycle costs as well as safety and resilience against natural disasters, terrorism and cyber-attack risks; (b) ensuring job creation, capacity building and transfer of expertise and know-how for local communities; (c) addressing social and environmental impacts; (d) ensuring alignment with economic and development strategies including climate change and environment at national and regional levels; and (e) enhancing effective resource mobilization including through PPPs.

- **Expanded partnership for quality infrastructure by the Government of Japan (GOJ).** In May 2015, the GOJ announced the Partnership for Quality Infrastructure with the aim of promoting cooperation and collaboration with other development partners that align with the concept's approach.
- **Phase 3 of The Enhanced Private Sector Assistance (EPSA).** At TICAD VI, the African Development Bank (AfDB) and Japan announced a US \$3 billion private sector development initiative to boost growth and reduce poverty in Africa. The resources will focus on, among other things, infrastructure, notably transport and energy. The need for investment in quality infrastructure that connects Africa was highlighted by Japan's Prime Minister, Shinzo Abe.
- **Maintenance of road corridors; performance based contract experience and private sector involvement:** The recommendations of the African Union Commission on the Road Maintenance Strategy were adopted in 2014 (Malabo summit). The chart on Road Safety was adopted in 2016 (Addis Ababa Summit). The implementation is lagging due to the poor rate of ratification. The AUC is hence organizing regional workshops to help ratification at country-level.
- **Readiness for promoting climate resilient infrastructure development in Africa.** The project will enhance capacity to help the participating RMCs/RECs to develop a pipeline of adaptation projects and to help them mobilize resources from climate funds. The main objective of the project is to enhance partnership, readiness, and capacity for climate-resilient infrastructure development in the region.
- **World Bank Quality Infrastructure Facility** (tentative). The World Bank, working with other development partners on the possibility of setting up a facility embracing the quality infrastructure approach that would examine and address the roadblocks to infrastructure management such as design and management of projects, best practice in the building and maintenance of infrastructure and what, beyond environmental and social impact assessments, makes for a good DFI intervention in the project preparation process.

Building quality infrastructure in Africa—the way forward

African policy makers need to consider both how to increase overall funding for infrastructure investments to close the infrastructure gap and how to improve the quality of infrastructure investment, operations, and maintenance.

Increasing financing for African infrastructure

It is unlikely that future financing needs can be met by mobilizing fiscal revenue and attracting development assistance alone (together, currently three-quarters of total financing). Private sector financing, an important source in other regions of the world, will need to play a greater role, which will require a rethink of infrastructure ownership and operation. Private investors and lenders are wary of financing infrastructure in Africa. For utilities to become financially viable, users will have to pay the full cost for the service they receive, and policy makers have to be more aggressive in the pursuit of private provision of many infrastructure services.

Ensuring infrastructure investment is of high quality

To ensure high quality infrastructure, it will be important to focus on the three key principles outlined above: economic efficiency; inclusiveness; and safety, resilience, and sustainability. These three principles apply both during the design and construction phase and subsequent operations and maintenance. It is only with an accelerated roll-out of quality infrastructure under these three principles that African countries can meet their infrastructure challenge.

Action agenda

For its development, Africa needs more infrastructure, and of better quality. A number of key actions will be necessary for this:

- First and foremost, African governments and infrastructure practitioners must endeavor to obtain greater participation of the private sector in infrastructure projects, both to increase available financing and to improve infrastructure quality, notably in those sectors which are more attractive such as electric power, water and sanitation, and internet provision. This means encouraging private ownership, operation and financing of infrastructure assets.
- Next, infrastructure practitioners across the continent must ensure that concepts of quality are built into infrastructure projects from the very start and

continue throughout the project life-cycle, from initial design and technology choice, ownership and financing structure, procurement, construction, and finally, operations and maintenance of the infrastructure asset once it is in operation. Key design and operational principles must include: economic efficiency; inclusiveness; and Safety, resilience and sustainability.

- Finally, participants at the ICA plenary meeting should all agree to disseminate the crucial concept of quality infrastructure throughout the continent; and furthermore, that procurement guidelines at country level as well as those of multilateral development institutions need to be revised, notably to exclude investments in sub-optimal infrastructure which negatively affect the sustainable development of the African continent.