Industry Agenda

# Strategic Infrastructure in Africa
## A business approach to project acceleration

Prepared in collaboration with The Boston Consulting Group

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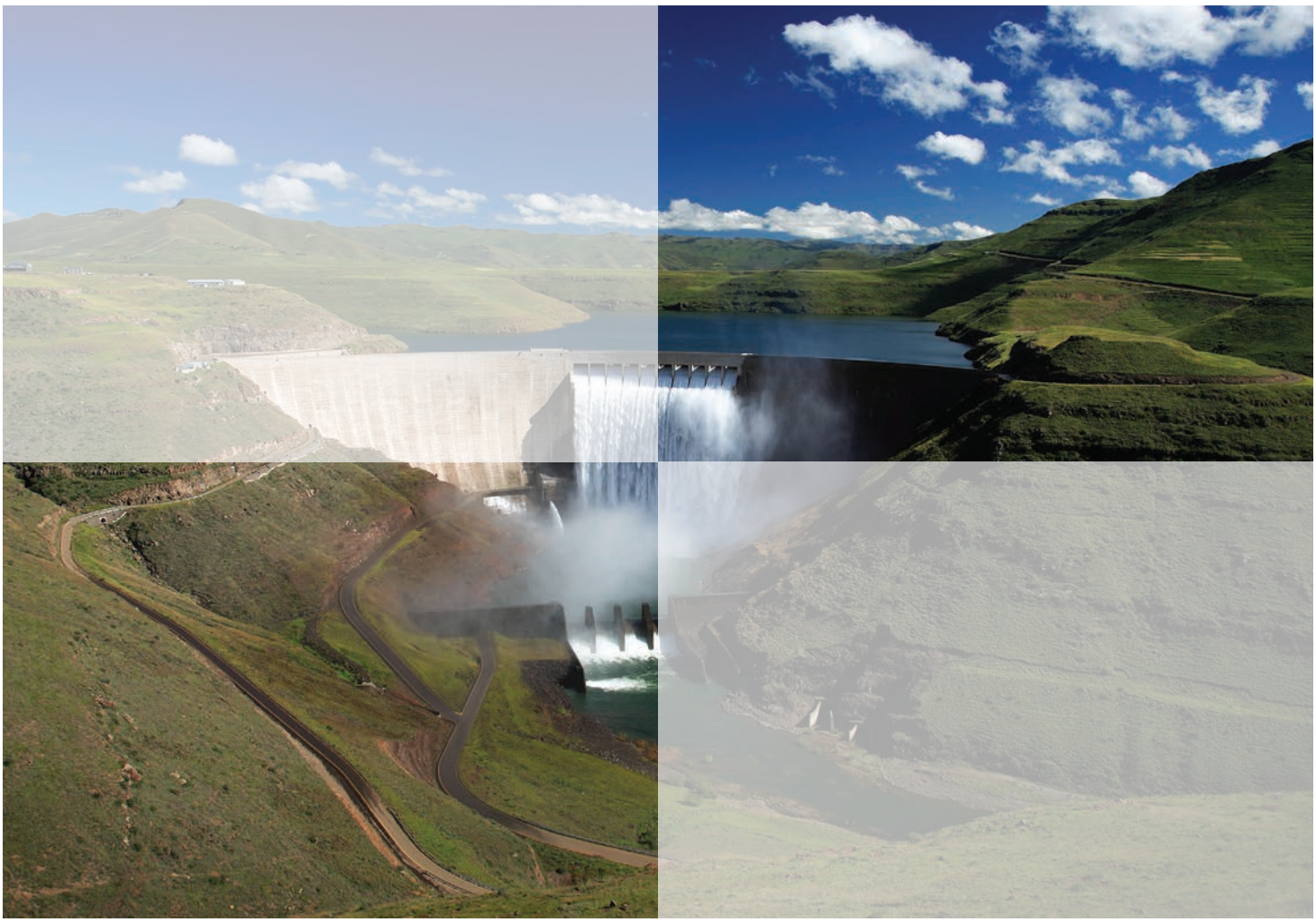

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# Contents



# Forewords

## World Economic Forum

Infrastructure has been identified as a key priority under the African Union's Strategic Plan for 2009-2012, which seeks to promote integration, socioeconomic development and cooperation on the continent. The resulting Programme for Infrastructure Development in Africa (PIDA) was approved by the African heads of state and government at their summit in Addis Ababa, Ethiopia, in January 2012, signifying high-level political buy-in and ownership of the programme.

Developed by the African Union Commission in partnership with the United Nations Economic Commission for Africa, African Development Bank and the NEPAD Planning and Coordinating Agency, PIDA specifically calls for new models of partnership between business, government and donors to implement the 51 Priority Action Plan (PAP) infrastructure projects already identified.

The projects and programmes in the Priority Action Plan span sectors from power generation and transportation to water and telecommunications, with an overall capital cost of US$ 68 billion through 2012 to 2020, or US$ 7.5 billion in expenditure per year up to 2020. Power generation alone consists of 15 projects worth US$ 40 billion focusing mainly on creating hydroelectricity generation capacity, building interconnectors between power pools and constructing regional oil pipelines. Transportation consists of 24 projects worth US$ 25 billion to link the major production and consumption centres, provide connectivity among the major cities and open the landlocked countries to enhance regional and continental trade. Although it represents an impressive figure, the PAP would take only 0.2% of African gross domestic product and 1% of national budgets, meaning it is a realistic, convincing proposal.

As a result of discussions with business and government leaders at the World Economic Forum on Africa Summit in Addis Ababa in May 2012, the World Economic Forum in partnership with the African Development Bank have formed a "Business Working Group" on infrastructure in Africa. Recognized and endorsed at the 20th Assembly of the African Union Heads of States in January 2013, the BWG will create a coordinated business voice to review PIDA projects, prioritize a subset of those projects that can be implemented based on bankability and do-ability, and catalyse their implementation.

This first Report of the Business Working Group presents a selection methodology that proposes a common language with clear economic, technical, social and regional criteria to identify infrastructure projects with the potential for acceleration. We expect that the methodology developed in the context of Africa will be applicable to other regions, albeit with certain adaptations. The Report also includes ideas around the potential innovations and new products required to provide the financing required to implement Africa's infrastructure priorities.


We would like to thank the many World Economic Forum partner companies who have generously contributed their expertise and time as members of the Business Working Group: A.P. Møller-Maersk, ABB, Absa Capital, Actis, African Rainbow Minerals, AngloGold Ashanti, ArcelorMittal, Arup, Development Bank of Southern Africa, Etisalat Group, First Bank of Nigeria, General Electric, Industrial Development Cooperation of South Africa, Oando, Old Mutual, Philips, Prudential, Rio Tinto, Sasol, SNC-Lavalin, Standard Chartered, Sun Group, Transnet, United Phosphorus and Vale.

We would further like to thank the many organizations which have served as experts on the Business Working Group: the African Capacity Building Foundation, Infrastructure Consortium for Africa, the International Finance Corporation, the Mo Ibrahim Foundation, the NEPAD Business Foundation, the Office of Gordon and Sarah Brown and the World Bank.

We would like to make a special acknowledgement of the leadership provided by Elham M.A. Ibrahim (African Union Commissioner for Infrastructure and Energy), Donald Kaberuka (President, African Development Bank, and core partner of this Initiative) and Ibrahim Assane Mayaki (Chief Executive Officer, NEPAD Planning and Coordinating Agency). We thank them for their genuine, relentless interest and commitment to the African Strategic Infrastructure Initiative.

We would further like to highlight the contributions by additional members of these Initiative partner organizations, namely Aboubakari Baba Moussa and David Kajange from the African Union Commission, Adama Deen, Elsabeth T. Tedros, John Tambi, Abdoul Salam Bello, Mosad Elmissiry and Edmund Katiti from the NEPAD Planning and Coordinating Agency, and Alex Rugamba, Shem Abraham Chalo Simuyemba, Ralph Olayé, Densil Magume and Cedric Achille Mbeng Mezui from the African Development Bank.

The experience, perspective and guidance of all the above people and organizations substantially contributed to a number of remarkable discussions at the Business Working Group meetings in Johannesburg, the Regional Economic Communities meeting and the World Economic Forum Annual Meeting 2013 in Davos-Klosters.

Alex Wong
Senior Director
Head of Business Engagement (Geneva)

Pedro Rodrigues de Almeida
Director
Head of Infrastructure & Urban Development Industries

Elsie Kanza
Director
Head of Africa

## African Development Bank

Transforming Africa through Infrastructure Partnerships

Home to some of the world's fastest growing economies, Africa is at a critical threshold as it positions herself as the world's leading "resource frontier" and the number of resource-rich economies increases. This will drive demand for infrastructure, which is already one of the continent's greatest challenges to sustainable development. However, Africa's need is not just for an adequate, efficient and viable infrastructure stock, but for transformational infrastructure that will spur Africa to the next level of development and reposition the continent as a recognized player in the global economy.

The African Development Bank (AfDB) has worked with other partners, both public and private, to support the formulation of the Programme for Infrastructure Development in Africa (PIDA), an infrastructure agenda that will radically makeover Africa's infrastructure. PIDA was approved by African heads of state and government at their 18th Summit held in Addis Ababa, Ethiopia, in January 2012. In approving PIDA, they emphasized the need for domestic resource mobilization and innovative financing approaches to support Africa's infrastructure modernization and strong public-private partnerships.

PIDA assumes that the average economic growth rate for African countries will be 6% a year between 2010 and 2040, driven by a surging population, increasing levels of education and technology absorption, greater demand for goods and services as well as industrialization. This growth implies that over the three decades to 2040, the GDP of African countries will multiply sixfold, the average per capita income will rise above US$ 10,000 for all countries and demand for infrastructure will swell.

PIDA envisages investments of US$ 360 billion up to 2040 and priority investments of US$ 67.9 billion up to the year 2020 in the critical infrastructure sectors of energy, transboundary water supply, transport and information and communications technology (ICT). It is worthwhile to note that Africa has shown the resolve and political will to make this happen through the continent's own resources and in partnership with the international community. Realization of infrastructure projects requires strong project preparation capabilities and resource mobilization. The AfDB hosts the Infrastructure Project Preparation Facility of the New Partnership for Africa's Development (NEPAD-IPPF) and the Infrastructure Consortium for Africa (ICA), both multiple donor-funded initiatives. These will continue to add value to Africa's infrastructure development through project preparation and resource mobilization.


The essential benefits of a regionally integrated approach to infrastructure development are to make possible the formation of large competitive markets in place of small, fragmented and inefficient ones, and to lower costs across production sectors so as to stimulate industrialization and growth. Apart from markets for goods and services, the realization of PIDA will also give rise to regionally integrated markets for infrastructure services such as power trade, ICT and transportation services. The growing trend in trade in services across Africa – particularly financial services as financial markets deepen – requires state-of-the-art communications infrastructure.

In all this, the private sector will be key, not just as financiers and implementers, but also as conduits of technology, innovation and skills. The AfDB therefore welcomes the positive partnership and collaboration with the World Economic Forum in establishing a Business Working Group (BWG) through the Africa Strategic Infrastructure Partnership. The BWG is helping build the necessary capacities in terms of institutions, equipment manufacture, maintenance and related dimensions which will be critical to ensuring sustainable infrastructure interventions in Africa.

The BWG also enables the public sector to benefit from objective, transparent and informed inputs from the private sector on the key issues impacting Africa's infrastructure delivery, which, if properly addressed through results-driven dialogue, could create immense opportunities for private sector participation in infrastructure in Africa and result in win-win public-private partnerships (PPPs).

The AfDB will continue to work with partners outside and within Africa – notably continental bodies such as the African Union Commission (AUC), NEPAD Planning and Coordination Agency (NEPAD Agency), the UN Economic Commission for Africa (UNECA), as well as regional economic communities (RECs), development partners and specialized agencies including civil society organizations. A transformed and prosperous continent anchored on sound infrastructure is only possible through collaborative and results-driven partnerships.

Gilbert Mbesherubusa
Vice-President for Infrastructure
Private Sector and Regional Integration
AfDB

## New Partnership for Africa's Development Planning and Coordinating Agency

On the occasion of the launch of "Strategic Infrastructure in Africa: A business approach to project acceleration", the New Partnership for Africa's Development Planning and Coordinating Agency (the NEPAD Agency) expresses its sincere gratitude to the World Economic Forum, government agencies, stakeholders and partners for their critical role in ensuring the continued relevance and success of Africa's flagship programme, the Programme for Infrastructure Development in Africa (PIDA).

For the NEPAD Agency, 2012 heralded the beginning of the second decade of NEPAD. Moreover, our 10th anniversary presented an opportunity to celebrate our many successes as well as reflect on both challenges and opportunities that lie ahead. After a decade of charting our own development strategy under a bold leadership, Africa is experiencing a renaissance propelled by optimism and inspiration as a result of a steady growth over the past years.

Africa is experiencing a dynamism that is globally acknowledged and is making steady and considerable progress in its transformation agenda by embracing far-reaching political and socio-economic reforms in spite of several daunting challenges. This transformative development agenda is taking place within a challenging, complex and ever-changing global context. However, the results are undeniable; Africa's economic growth has accelerated since 2000, making it the world's third-fastest growing region over a decade, even in the midst of a global economic slowdown.

However, to render this growth more equitable and consistent across our region, intra-regional trade must be accelerated. Therefore, regional integration is high on the political agenda, which can only be achieved on the back of a solid infrastructure base. Sound infrastructure will enable both public and private sector companies to achieve economies of scale and become increasingly relevant and competitive within the global economy.

During the World Economic Forum on Africa in Addis Ababa, Ethiopia, in May 2012, global and African business leaders agreed that the time had come for immediate action with respect to comprehensive infrastructure development in Africa. They identified the lack of linkages with the private sector as a major impediment. Since the launch of the Business Working Group, we are proud to announce that commendable progress has been made in strengthening the aforementioned linkages as recommended during the Forum meetings of 2012. Through its close partnership with the Forum, the private sector, the African Union Commission, the NEPAD Agency and the African Development Bank has created an effective and strategic platform from which to contribute to its commitment in accelerating the implementation of the PIDA Priority Action Plan (PIDA PAP).

The BWG provides a unique platform to help inform and shape policies, which we believe will close the funding gap by attracting greater private sector capital towards Africa's infrastructure projects through PIDA. We are confident that this high-level business group will continue on its positive path to achieve its mandate of voicing the concerns of the private sector and identifying solutions with respect to successful African infrastructure development. Along with its partners, the NEPAD Agency as the technical arm of the African Union in implementing PIDA is certain that this platform will facilitate the requisite conducive environment and the required domestic and global visibility necessary to attract investments to Africa's regional infrastructure projects.

Ibrahim Assane Mayaki
Chief Executive Officer
NEPAD Planning and Coordinating Agency (NEPAD Agency)

# Executive Summary

## The Infrastructure Financing Gap

Public infrastructure development drives economic growth: for every dollar spent on public infrastructure development, the gross domestic product of a country rises between US$ 0.05 and US$ 0.25.[1] Despite this, however, global infrastructure suffers from significant and growing underinvestment. According to the G24, by 2020, global demand for infrastructure investment will be US$ 1.8-2.3 trillion, more than double its 2008 level of US$ 800-900 billion. Development of environmentally "clean" infrastructure would raise this amount by an estimated US$ 200-300 million per annum.

While infrastructure demand is growing, public infrastructure financing has become more difficult to obtain as public budgets are strained. Since the crisis of 2008, it has become more difficult for banks to lend (e.g. as a result of the Third Basel Accord), even as the use of risk-mitigation tools (such as collateralized debt obligations) has been curtailed. Particularly in the developing world, private capital will need to play a larger role in infrastructure financing if development is to keep pace with demand. Private-sector investors will need tools to help them analyse and accelerate worthwhile projects.

## The Programme for Infrastructure Development in Africa (PIDA)

In response to this need, a Programme for Infrastructure Development in Africa has been formulated by the African Union Commission in partnership with the United Nations Economic Commission for Africa, the African Development Bank and the NEPAD Planning and Coordinating Agency. PIDA's purpose is to provide coherent, strategic, long-term planning for infrastructure development for all African stakeholders.

PIDA aims at:

- Increasing energy access and reducing power generation costs
- Reducing transport costs and boosting intra-African trade
- Ensuring water access and food security
- Increasing global connectivity

The heart of PIDA is the Priority Action Plan (PAP), a list of 51 immediately actionable programmes across four key infrastructure sectors. Aimed at promoting regional integration, these programmes are all to be initiated by 2020.

As part of the World Economic Forum on Africa in Addis Ababa in May 2012, 35 companies, multilateral development banks, NGOs and regional experts and organizations formed a Business Working Group (BWG). This group is meant to add private-sector perspective to the process of accelerating implementation of the PAP programmes.

The BWG has developed a methodology to identify and prioritize projects that may benefit from accelerated development up to the tendering process. This methodology is intended to accelerate private-sector involvement in infrastructure in Africa and provide a model that can be replicated and scaled up across continents. The aim of this report is to introduce this methodology and give an overview of potential new ways to finance acceleration of infrastructure projects.

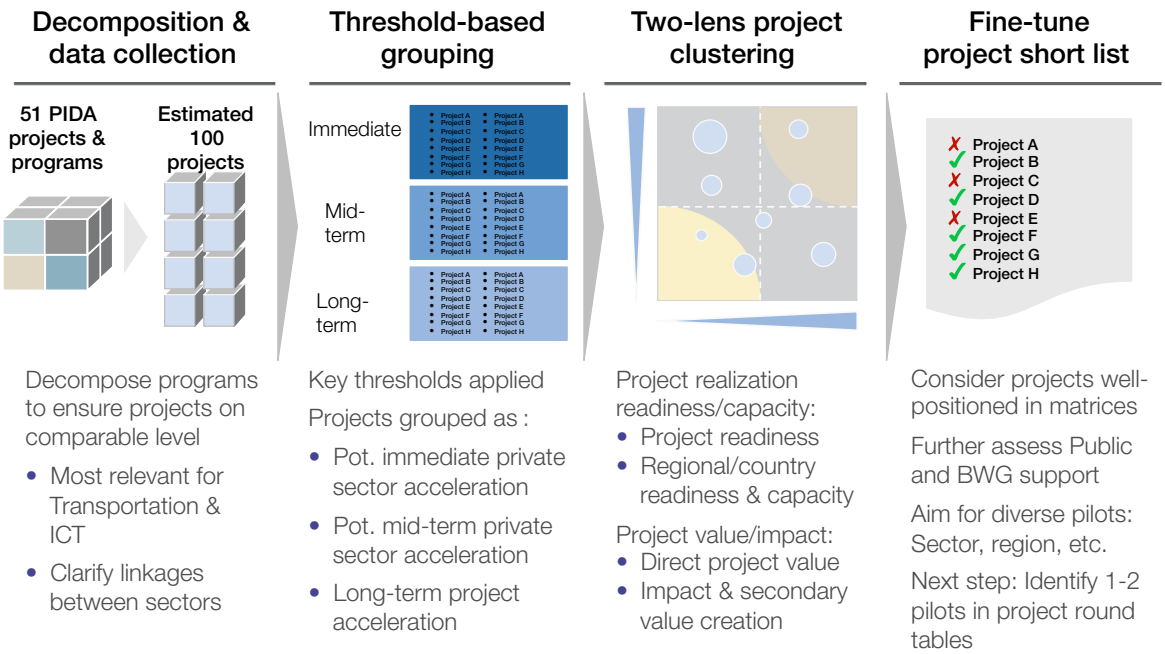
## A Methodology for Selecting Infrastructure Projects for Acceleration

The methodology proposed here contains a portfolio of analytic tools to be used in four basic steps. The criteria these tools employ can be calibrated to meet the specific requirements of any stakeholder.

The four Stage Gate steps are (see Figure 1):

1. Unbundling complex programmes into discrete individual projects to facilitate direct comparison, as comparisons between broadly labelled programmes are often misleading.
2. Grouping projects by their potential along three key thresholds (data quality/availability, project environment, project complexity) to grade them for immediate, mid-term or long-term acceleration.

**Figure 1:** Four Steps of Project Selection Methodology



3. Using the "two-lens clustering" method to identify candidates for immediate acceleration according to their readiness and likely value creation and impact.
4. Fine-tuning the shortlist thus produced by rating projects on other key considerations (for example, regional and sector diversity and public support).

## Infrastructure Financing

Of the US$ 93 billion per year the World Bank estimates that Africa needs to invest to close its infrastructure gap, just under half is currently financed, with major sources being African governments, multilateral and bilateral sources of finance, Official Development Assistance (ODA) and the private sector. According to the Africa Infrastructure Country Diagnostics (AICD), these sources together contribute approximately US$ 45 billion per annum, leaving a gap of about US$ 48 billion per annum to be financed.

While infrastructure demand is growing, public infrastructure financing has become more difficult to obtain. Public budgets are strained; as a result of the global financial crisis and, more recently, the Eurozone sovereign debt crisis, the budgets of major donors that have traditionally supported aid flows to Africa are under pressure, making ODA increasingly uncertain and likely to decline. Since the crisis of 2008, it has become more difficult for banks to lend (e.g. as a result of the Third Basel Accord) and the use of risk-mitigation tools (e.g. collateralized debt obligations) has been curtailed.

Institutions such as Multilateral Development Banks (MDBs) now have a bigger and growing role to play and need to find new ways to redefine their roles in this changing environment by making new and relevant interventions.

The report shows some of the innovations and new products in African project finance as well as other efforts currently under way to scale up infrastructure delivery in Africa:

I. Infrastructure bonds: These can be raised from the domestic currency markets or international capital markets, provided sufficient credit enhancements and structuring of the project allow an investment-grade rating.
II. Project preparation facilities: These are important especially for projects at feasibility stage and for increasing the flow of funds available at the critical early stages of project development.
III. Equity: This stream plays a catalytic role in raising debt finance, which would typically cover only 60-80% of the cost of constructing an infrastructure asset.
IV. Guarantee Products: Partial credit and risk guarantees help leverage African Development Fund (ADF) resources in order to mobilize private-sector financing and facilitate the flow of investments to non-sovereign projects in low-income countries.
V. Other innovations: ADF, the concessional arm of the African Development Bank, has been looking at new innovative products as part of its 13th replenishment that would allow leverage to the extent possible so as to maximize every US$ 1 of concessional finance in the face of still significant unmet financing needs.

The application of the above-mentioned innovations in African infrastructure finance has the potential to help significantly move more African projects across the value chain. The African Development Bank has also been looking to create a broad infrastructure financing facility with an array of activities covering advisory services, development equity, lending and guarantee to help scale up and complement existing facilities within African infrastructure financing.

# I. Introduction

## The Challenge of Infrastructure Project Prioritization

When properly aligned with a country's long-term priorities, public infrastructure development drives economic growth. It is generally assumed that for every dollar spent on public infrastructure development, the gross domestic product of a country will rise approximately US$ 0.05 to US$ 0.25.[2]

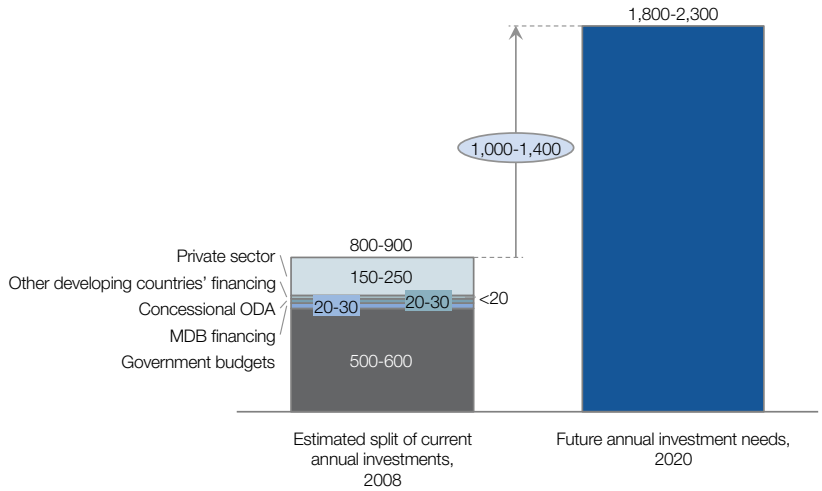
Not every proposed project, of course, is equally valuable. Given that resources of time, labour and capital are always limited, decision-makers must give priority to infrastructure projects that yield economic and social benefits most efficiently. This, however, is far more easily said than done. First, decision-makers must weigh competing projects against the requirements of multiple constituencies including the public, private industry, multilateral development banks, donors and governments. Second, significant infrastructure projects are complex, multipart undertakings. Carefully analysing any individual project – let alone making useful comparisons between different kinds of projects (water, transport, energy, etc.) – can be very difficult.

The challenge is most urgent in emerging economies where a lack of developed infrastructure is often a crucial factor inhibiting potentially large economic growth.

## The (African) Infrastructure Gap

Infrastructure, though proven to offer substantial economic, social and environmental benefits, suffers from significant underinvestment. To keep pace with current demand globally, it is estimated that investment in infrastructure must more than double, increasing by US$ 1 trillion per annum through 2020 (see Figure 2). Development of environmentally "clean" infrastructure would raise this amount by an estimated additional US$ 200-300 million per annum.

**Figure 2:** Annual Infrastructure Spending by Sources Compared to Needs 2020 (Real US$ billions, 2008)




Note: Sources of finance are split approximately and do not add up to the total annual investment figure.
Source: Split of current sources of finance is the G24's own assessment based on various estimates including Estache (2010), Multilateral Development Bank G20 Working Group on Infrastructure (2011), Macquarie (2009).

Infrastructure financing has been affected significantly by the recent turmoil in the financial sector as the availability of financing has become tighter (e.g. as a result of the Third Basel Accord) even as the ability to reduce risks (e.g. in the form of Collateral Debt Obligations) has been curtailed. In combination with strained public budgets and increasing infrastructure needs, this financial crisis has widened the infrastructure financing gap, even though the long-term economic, social and environmental benefits of infrastructure development are firmly established.

To reinvigorate the provision of infrastructure in the developing world, there will have to be greater reliance on private investments than in the past.

Africa is seen today as a continent of enormous opportunity, a destination for investors and development actors seeking high-growth markets. It has been estimated that average annual economic growth for African countries will be 6% a year between 2010 and 2040, as the continent's population, education levels and rates of technology absorption rise.[3]

However, Africa's economic growth is being hampered by a lack of infrastructure. Infrastructure services in the region are roughly twice as expensive on average as in other developing regions.[4] The lack of existing infrastructure and funding for future investments is constraining trade and job creation. The World Bank estimates that Africa's infrastructure deficit holds back its economic growth by 2% each year.

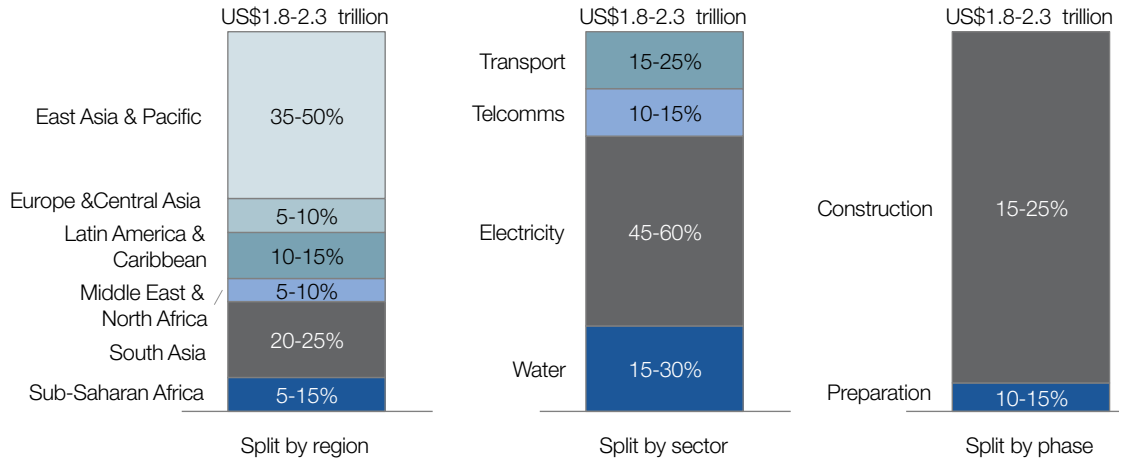
Forecasts show a significant increase in African infrastructure demand across sectors:

- Energy consumption will increase from 590 terawatt-hours (TWh) in 2010 to more than 3,100 TWh in 2040, a compound annual growth rate of 6%.[5]
- Overall transport volume is expected to increase up to eightfold. Port throughput, for example, is expected to rise from 265 million tons in 2009 to more than 2 billion tons in 2040.[6]
- Water demand will surge as Africa's population grows. The amount of water withdrawn from African water systems is expected to rise from 265 cubic kilometres ($km^3$) in 2005 to between 400 and 550 $km^3$ in 2040.[7]
- Information and communications technology (ICT) demand is projected to increase by a factor of 20 by 2018. To keep pace, the 2009 bandwidth of 300 gigabits per second will need to grow to about 6,000 gigabits per second.[8]

All of this new demand will put additional pressure on Africa's already stressed power, transport, water and information technology networks, and has the potential to further widen the infrastructure gap.

The World Bank estimates that Africa needs to invest about US$ 93 billion annually (see Figure 3) to close its infrastructure gap.[9] Official Development Assistance (ODA), traditionally a key source of infrastructure financing in Africa, is under considerable stress given the global financial turmoil of recent years; it has declined in real terms for the first time in a decade.

**Figure 3:** Annual Infrastructure Spending Requirements in the Developing World (US$ trillion, 2008)




Note: The figures represent US$ trillion per year in 2008 real prices, and refer to capital investments only (excluding operation and maintenance costs).
Source: Estimated annual infrastructure spending need for 2020 calculated by taking the Fay et al (2010) estimate of US$ 1.25-1.5 trillion annually in 2013 and assuming a 4% annual growth rate from 2013-20, and an additional US$ 200-300 billion annual requirement to make the infrastructure sustainable (by providing for climate change mitigation and adaptation). The split by region, sector and phase is the authors' own calculations taking ranges from Yepes (2008), Multilateral Development Bank G20 Working Group on Infrastructure (2011), and Foster and Briceño-Garmendia (2010). Note that the US$ 200-300 billion annual requirement for sustainability is assumed to be split in the same ratio as the other investments across regions, sectors and phases.

At the same time, Africa's economic growth has made the continent attractive to private investment. With historically low interest rates prevailing globally (even negative real interest rates in certain countries), investors around the world are actively looking for opportunities in high-growth frontier markets, including Africa, for better returns. Despite these strong economic fundamentals, Africa continues to be seen as having structural obstacles to private infrastructure investments. Concerns include a lack of clear legislation and enforcement of commercial law, a sometimes low degree of transparency – particularly with regard to procurement – and a mixed track record in the implementation of public-private partnerships (PPPs).

## The Programme for Infrastructure Development in Africa (PIDA)

To address this need for infrastructure, the African Union Commission (AUC), in partnership with the United Nations Economic Commission for Africa (UNECA), the African Development Bank (AfDB) and the NEPAD Planning and Coordinating Agency (NEPAD Agency) recently completed formulating the Programme for Infrastructure Development in Africa (PIDA). PIDA's purpose is to provide strategic long-term planning for infrastructure development in a coherent way for all African stakeholders.

PIDA aims at:

- Increasing energy access and reducing power generation costs. It aims to enhance access to power from 39% in 2009 to nearly 70% in 2040, reaching an additional 800 million people.[10]
- Reducing transport costs and boosting intra-African trade. It is envisaged that steady advances in regional integration and services will strengthen trade within and between countries and regions, helping to fulfil the promise of the 2028 African Common Market.[11]
- Ensuring food security and access to water. This is essential as nearly half the continent faces water stress or scarcity now and demand is expected to surge. Demand for cereal, for example, is expected to increase from 192 million metric tons in 2005 to 300-350 million metric tons in 2040.[12]
- Increasing global connectivity. Increasing broadband penetration by 10%, which is expected by 2018, is expected to increase African aggregated gross domestic product (GDP) by 1% by strengthening connections between goods and markets, and between people and jobs.[13]

The heart of PIDA is the Priority Action Plan (PAP), a list of 51 immediately actionable programmes across the four main infrastructure sectors, all to be initiated by 2020 and aimed at promoting regional integration (see sidebar).

**Sidebar:** Overview of 51 PIDA PAP Programmes/Projects[14]

| | | |
|---|---|---|
| Transportation | Northern Multimodal Corridor | To modernize the highest priority multimodal African Regional Transport Integration Network (ARTIN) corridor in East Africa. Will facilitate travel by people and goods across the borders between Kenya, Uganda, Rwanda, Burundi and the Democratic Republic of Congo (DRC), with a spur to South Sudan |
| | North-South Multimodal Corridor | To modernize the highest priority multimodal ARTIN corridor in southern Africa and facilitate transport of people and goods across the borders between South Africa, Botswana, Zimbabwe, Zambia, Malawi and the DRC |
| | Central Corridor | To modernize the third priority ARTIN corridor in East Africa and facilitate travel for people and goods across the borders between Tanzania, Uganda, Rwanda, Burundi and the DRC |
| | Southern Africa Hub Port and Rail Programme | To develop sufficient port capacity to handle future demand from both domestic sources and landlocked countries |
| | Djibouti-Addis Corridor | To revive the rail system in the high-priority multimodal ARTIN corridor in eastern Africa and increase the flow of goods across the border between Djibouti and Ethiopia |
| | Lamu Gateway Development | To develop sufficient port capacity to handle future demand from both domestic sources and landlocked countries, with priority given to the Lamu Gateway in Kenya |
| | Beira/Nacala Multimodal Corridor | To modernize and upgrade the rail and port systems serving a major coal export area at Moatize, Mozambique. This is part of the Beira and Nacala corridors |
| | Trans-African Highway (TAH) programme | To focus on completion of the TAH missing links in Phase I of this continental connectivity programme |
| | Single African Sky Phase 1 | To create a high-level, satellite-based air navigation system for the African continent |
| | Yamoussoukro Decision (YD) Implementation | To identify countries ready to fully execute YD, and discuss launch of a voluntary open-skies club on full-membership basis |
| | Smart Corridor Programme, Phase I | To develop model smart corridor technology and design/implement a continental and regional corridor efficiency monitoring system |
| | Abidjan-Lagos Coastal Corridor | To modernize the heavily travelled ARTIN corridor in West Africa to promote trade facilitation, one-stop border posts (OSBPs), capacity enhancement and implementation of public-private partnership (PPP) in five countries |
| | Dakar-Niamey Multimodal Corridor | To modernize the heavily travelled ARTIN corridor in West Africa to promote trade facilitation, one-stop border posts (OSBPs), capacity enhancement and implementation of public-private partnership (PPP) in four countries |
| | Praia-Dakar-Abidjan Multimodal Corridor | To improve marine transport and connectivity between island and mainland countries by creating a new maritime service between regional ports, as well as a modern information system to link the maritime service with ports and roads in the Dakar-Abidjan Corridor |
| | Abidjan-Ouagadougou/ Bamako Corridor | To modernize and rehabilitate the multimodal corridor damaged by civil war in Côte d'Ivoire |
| | West Africa Hub Port and Rail Programme | To address future capacity problems in West African ports with two components: a regional hub port and rail linkage master plan, and port expansion |
| | West Africa Air Transport | To improve air transport service in West Africa, which is currently limited by the lack of a regional air hub |
| | Pointe Noire, Brazzaville/Kinshasa, Bangui, N'djamena Multimodal Corridor | To revive river transport in the Congo-Ubangi River Basin, and modernize road transport along the corridor |
| | Kinshasa-Brazzaville Bridge Road and Rail Project, and Rail link to Ilebo | To improve regional transportation and trade systems by building a crossing linking Kinshasa and Brazzaville, thereby ensuring continuity in railway traffic from Matadi and Pointe Noire to the eastern border of the DRC and Eastern and Southern Africa |
| | Douala-Bangui Douala- Ndjamena Corridor | To modernize the highest priority multimodal ARTIN corridor in Central Africa and facilitate travel for people and goods across the borders between Cameroon, Chad and the Central African Republic |
| | Central African Inter-Capitals Connectivity | To provide several missing inter-capital connectors |
| | Central Africa Air Transport | To improve air transport service and upgrade airports in Central Africa, which currently lacks a regional air hub |
| | Central Africa Hub Port and Rail Programme | To address Central African port capacity constraints through a regional hub, a rail linkage master plan and port expansion |
| | Trans-Maghreb Highway | To improve travel for people and goods across the Maghreb, where trade and travel are limited by artificial barriers. Will design and implement a smart corridor system along the highway and install OSBPs |

| | | |
|---|---|---|
| Energy | Nphamda-Nkuwa | To build a hydroelectric power plant with a capacity of 1,500 megawatts (MW) for export to the Southern African Power Pool market |
| | Lesotho HWP Phase II - hydropower component | To supply power to Lesotho and export power to South Africa |
| | Batoka | To build a hydroelectric plant with a capacity of 1,600 MW to enable export of electricity, involving Zambia and Zimbabwe |
| | Ruzizi III | To build a hydroelectric plant with a capacity of 145 MW to share power between Rwanda, Burundi and the DRC |
| | Uganda-Kenya Pipeline | To establish a 300 km pipeline for a lower-cost mode of transport of petroleum products between Uganda and Kenya |
| | Great Millennium Renaissance Dam | To build a 5,250 MW plant to supply the domestic market in Ethiopia and export electricity to the Eastern African Power Pool market |
| | North-South Power Transmission Corridor | To establish a 8,000 km line from Egypt through Sudan, South Sudan, Ethiopia, Kenya, Malawi, Mozambique, Zambia and Zimbabwe to South Africa |
| | Inga Hydro Phase 1 | To build a 4,200 MW capacity run-of-the-river hydropower station on the Congo river with eight turbines in the DRC |
| | Central African Interconnection | To establish a 3,800 km line from the DRC to South Africa through Angola, Gabon and Namibia to Equatorial Guinea, Cameroon and Chad |
| | Sambagalou | To provide 128 MW of hydropower capacity, 930 km from the mouth of the Gambia river to supply Senegal, Guinea, Guinea Bissau and The Gambia |
| | West African Power Transmission Corridor | To establish a 2,000 km line along the coast connecting with an existing line involving Guinea, Guinea Bissau, The Gambia, Sierra Leone, Liberia, Côte d'Ivoire and Ghana |
| | North Africa Transmission | To establish a 2,700 km line from Morocco to Egypt through Algeria, Tunisia and Libya |
| | Kaleta | To generate hydropower of 117 MW in Guinea |
| | Rusumo Falls | To produce hydropower of 61 MW for Burundi, Rwanda and Tanzania |
| | Nigeria-Algeria Pipeline | To establish a 4,100 km gas pipeline from Warri to Hassi R'Mel in Algeria for export to Europe involving Nigeria, Niger and Algeria |
| Water | Lesotho HWP Phase II - water transfer component | To supply water to Gauteng Province in South Africa via a water transfer programme |
| | Palambo | To improve the navigability of Obangui river with added hydropower component |
| | Fomi | To build a hydropower station in Guinea with irrigation water supply for Mali and regulation of the Niger river involving 9 countries |
| | Multisectoral Investment Opportunity Studies | To identify and prepare investment programmes in the basin |
| | Gourbassy | To regulate the Senegal river in 4 countries via a multipurpose dam located in Guinea |
| | Noumbiel | To build a multipurpose dam with hydropower generation component for Burkina Faso and Ghana |
| | Nubian Sandstone Aquifer System | To implement a regional strategy for utilization of the aquifer system |
| | North-West Sahara Aquifer System | To conduct pre-feasibility studies for the improved use of the aquifer system |
| | Iullemeden Aquifer System | To conduct pre-feasibility studies for the improved use of the aquifer system |
| ICT | ICT Enabling Environment | To improve the environment for the private sector to invest in high-speed broadband infrastructure |
| | ICT Terrestrial for Connectivity | To secure each country connection by at least two broadband cables |
| | Internet Exchange Point (IXP) programme | To provide adequate Internet node exchange to maximize internal traffic |

## The Business Working Group on African Infrastructure

As part of the World Economic Forum on Africa in Addis Ababa on 10-11 May 2012, a meeting of African and international business leaders was held under the co-chairmanship of Prudential Chief Executive Officer Tidjane Thiam, AfDB president Donald Kaberuka, and former UK Prime Minister Gordon Brown. The participants agreed to form a Business Working Group (BWG) composed of 35 companies, multilateral development banks, NGOs and regional experts and organizations (see Figure 4), with the aim of adding private sector perspective to the process of accelerating the implementation of PAP programmes.

Methods of acceleration would be tailored to individual project needs, it was agreed. Acceleration could range from a company offering private sector expertise on capacity building to private funding of a project study to private financing of the project itself.

The BWG's first step in enabling this has been the development of a methodology to identify and prioritize projects that may benefit from accelerated development up to the tendering process. This methodology is intended to accelerate private sector involvement in infrastructure in Africa and provide a model that can be replicated and scaled up across continents.

The aim of this report is to introduce this detailed, quantitative-based methodology and give an overview of potential new ways to finance infrastructure project acceleration.

**Figure 4:** Overview of Business Working Group Members

| | | | |
|---|---|---|---|
| Businesses | Infrastructure & Urban Development/Mobility | Energy | Chemicals |
| | • Arup<br>• SNC-Lavalin<br>• Transnet<br>• A.P. Møller-Maersk | • Oando<br>• ABB<br>• GE | • Sasol<br>• United Phosphorus |
| | Mining & Metals | Investors & Fin. services | Other |
| | • African Rainbow Minerals<br>• AngloGold Ashanti<br>• Rio Tinto<br>• ArcelorMittal<br>• Sun Group<br>• Vale | • Dev. Bank of S. Africa<br>• Prudential<br>• First Bank Nigeria<br>• Standard Chartered<br>• Actis<br>• Absa Capital<br>• IDC of S. Africa<br>• Old Mutual | • Philips<br>• Grow Africa Secretariat<br>• Etisalat Group |
| Multilateral Organizations, Development Banks and Experts | ML/Development Bank | Experts | |
| | • African Development Bank (Incl. ICA)<br>• African Union Commission<br>• IFC<br>• NEPAD Planning & Coordinating Agency (NEPAD Agency)<br>• World Bank | • Africa Capacity Building Foundation<br>• Mo Ibrahim Foundation<br>• NEPAD Business Foundation<br>• The Office of Gordon & Sarah Brown | |

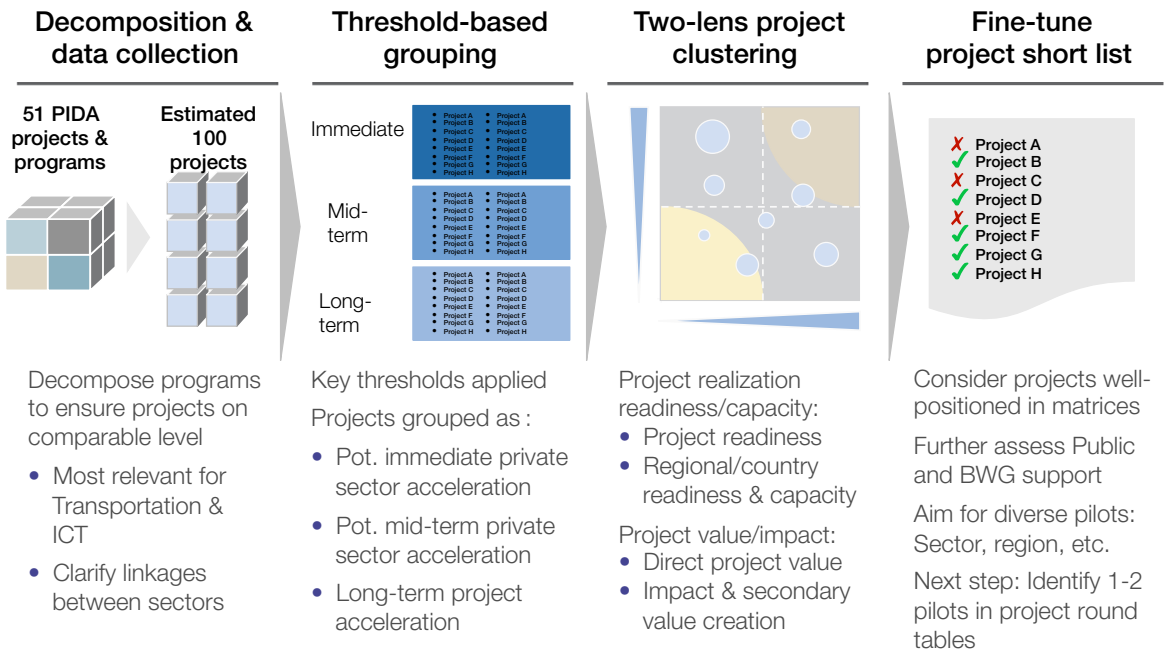
# II. A Methodology for Selecting Projects for Acceleration

Identifying infrastructure projects for acceleration means analysing a large number of diverse projects, an extremely difficult and time-consuming task if attempted without a rigorous methodology. The methodology proposed here is a set of analytic tools to be used sequentially in four basic steps. These may be thought of as a series of increasingly fine screens to first sort and then analyse projects for possible acceleration. They have been designed to reduce the amount of complexity in the selection process by making key project factors easily visible. While these tools provide a disciplined structure for analysis, the criteria they employ can be calibrated to meet the specific requirements of any individual project stakeholder.

The four sequential Stage Gate steps (see Figure 5) are:

1. Unbundling complex infrastructure programmes into discrete individual projects to facilitate direct comparisons.
2. Grouping projects by their potential for immediate, mid-term or long-term acceleration.
3. Using two-lens clustering to identify candidates for immediate acceleration as per their readiness and likely value creation and impact.
4. Fine-tuning the shortlist produced in the previous step for other key considerations (for example, regional and sector diversity and public support).

**Figure 5:** Four Steps of Project Selection Methodology



## Step One: Unbundling Project Data

The first step in identifying which programmes are possible candidates for acceleration is to unbundle their components into separate, potentially stand-alone projects and then group these by sectors so as to be able to compare like to like. The key purpose of this step is to arrange programme data so that it may be analysed and ranked using the methods in Steps 2, 3 and 4 described below.

Comparisons between broadly labelled programmes are likely to be misleading. Breaking programmes into their component parts allows specific apples-to-apples comparisons. For instance, one current "gateway" programme has a rail component, a port component, and a road component, each of which could stand on its own as an individual project. Even a "single-modal" programme could possibly be unbundled into smaller parts: a 1000 km road, for example, could be broken into a number of smaller road projects, each potentially worthwhile on its own.

Choosing the correct level of granularity for this analysis is crucial and must be determined on a case-by-case basis. It is important not to break programmes down into components that have no stand-alone value and could not plausibly be undertaken on their own.

## Step Two: Threshold-Based Grouping

This step acts as a gate, permitting projects that may be candidates for acceleration through to subsequent gates for further analysis, while a project that falls below the threshold is turned back. It involves assessing and grading projects on three thresholds (see Figure 6):

- Data quality/availability: Without a minimum level of data quality and availability, a project becomes very difficult to assess correctly. The purpose of this threshold is to rank projects on the basis of how difficult it will be to analyse them credibly. Projects for which key data is unavailable or unreliable should not be considered for acceleration in the short term.
- Project environment: A project attempted in an excessively challenging environment – a hard-to-reach location, for instance, or one with an indifferent government – is unlikely to succeed. This threshold is intended to indicate which projects face long odds of completion due to their setting and which do not.
- Project complexity: A project with a high degree of technical or organizational complexity will be more difficult to complete than a project that is simple. This threshold ranks projects on the basis of their overall complexity. Highly complex projects are less likely to benefit from possible acceleration than less complex ones.

The thresholds are intended to identify projects that meet minimum requirements in three key categories, each of which bears on how difficult the project will be to execute successfully. Projects that fully meet all requirements as defined (see Sidebar, "Threshold-Based Grouping of Key Data") are likely to benefit most from immediate acceleration led by a partnership of private-sector and public entities, and should be analysed further via two lens-clustering (see Step 3 below). Projects exhibiting issues that have the potential for relatively easy amelioration may be candidates for public/private acceleration over the medium term. Government and NGO entities should monitor these projects and advise their sponsors on how to best promote private-sector acceleration efforts. Finally, difficult-to-assess projects with significant unresolved complexity or environmental hurdles, as well as those with significant potential reputational risks (e.g. due to their social or environmental impact), should not be considered for acceleration involving the private sector.

**Figure 6:** Initial Grouping Thresholds

| Three groups: Lowest threshold rating determines group | | Data quality/ availability | Project environment | Project complexity |
|---|---|---|---|---|
| Potential immediate private/ public sector led acceleration | Project short-list for project phase 1 Perform clustering applying two lenses | Sufficient key data available to perform clustering process at this point | Stable across dimensions allowing short-term project execution | Limited complexity, considered manageable as of today |
| Potential mid-term private/ public sector led acceleration | Monitor & offer advise on private sector acceleration preparation, potential later phase projects | Gaps in available data preventing clustering, likely to fill gaps mid-term | Current issues in some aspects, potential mid-term improvements | Potential roadblocks, likely to be overcome mid-term |
| Long-term, likely public sector led project acceleration | Out of scope for short/mid-term private sector acceleration, consider other acceleration vehicles | Significant data gaps, likely requiring longer-term efforts | Significant risks, likely requiring longer-term efforts | Critically high complexity, likely requiring longer-term work |

## Sidebar: Threshold-Based Grouping of Key Data

### Threshold 1. Data Quality and Availability

For a project to become a candidate for short-term acceleration, its data must be available and the quality of the data must be sufficient to allow review. Essential data requirements include:

- Project basics (including scope/ boundaries, key financial information, the project's stage of development and timeline)
- A breakdown of programme components to a stand-alone project level; additional information (including project impact, technical readiness, risks, etc.)
- Clear sources of data

For purposes of threshold-based grouping, data availability and quality should be ranked as:

- Sufficient, offering the needed level of detail and accuracy
- Containing gaps likely to be filled over the medium term
- Containing gaps likely to be filled only by longer-term efforts

### Threshold 2. Project Environment

Potential short-term acceleration projects require a stable environment. Key factors for this are:

- Political stability in the region
- Political support for the project
- A reliable monetary/fiscal situation for the project partners
- The absence of corruption in the region/ project

Projects should be ranked as:

- Being stable across dimensions
- Having difficulties in some dimensions likely to be addressed in the medium term
- Having significant risks requiring long-term solutions

### Threshold 3. Project Complexity

Given initial private-sector capacity constraints, the first round of projects considered for possible acceleration should show only limited complexity. Indications of low complexity include:

- Clear and manageable technical challenges, with technically comparable projects already in operation
- A clear and limited stakeholder group with an established track record
- The presence of – or a clear plan for – a lead implementation agency

Projects should be ranked as having:

- Limited complexity manageable as of date
- Potential roadblocks likely to be overcome in the medium term
- Critically high complexity requiring long-term efforts

This three-threshold analysis is designed to act as a stage gate to identify likely candidates for immediate acceleration, which will require further analysis as described in Step 3 below. For this reason, a project's lowest score on any of the three thresholds should be used to determine whether it is a candidate for short-, medium- or long-term acceleration.

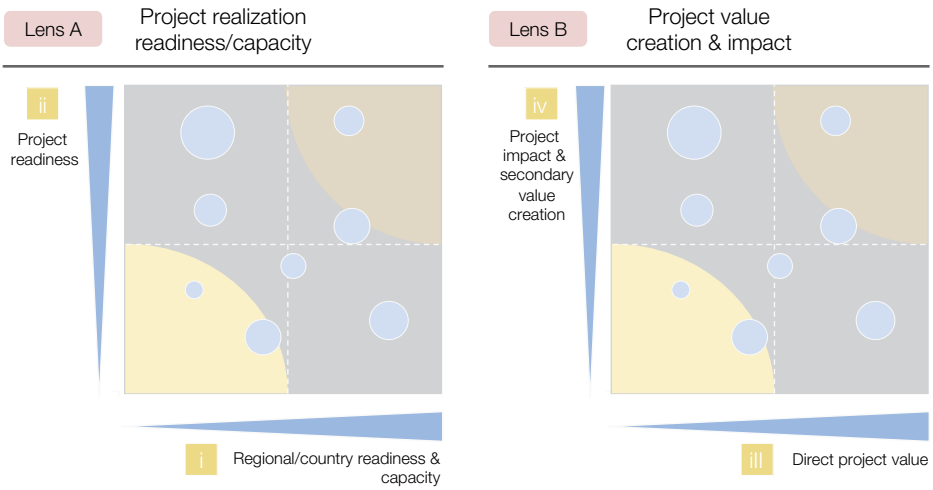
The aim is to permit only projects that score well on all three thresholds to pass on for further consideration for short-term acceleration. Other projects, whatever their merits, will require too much additional effort to be accelerated quickly

## Step Three: Two-Lens Clustering: Readiness vs Value

The next step in the methodology is to weigh the trade-offs between the costs of undertaking a project and the value the completed project is likely to produce. A project yielding modest benefits may be very attractive if it can be undertaken quickly and cheaply, while a high-impact project may come with difficulties far in excess of its ultimate value. Identifying the trade-offs between cost and value – and comparing them between competing projects – can be very difficult and time consuming, requiring the analysis of large amounts of disparate data.

Two-lens clustering is a tool that can make that analysis much easier. Using this tool, data from multiple proposed projects are collated and quantified, and are then used to construct two x/y coordinate grids or "lenses". A project's location on these lenses indicates its level of cost and likely value creation relative to other projects (see Figure 7 below).

**Figure 7:** Example of Two-Lens Project Clustering




The two lenses are a simple visual representation and comparison of a large amount of specific data. For a detailed discussion of the assembly and uses of the lenses, see sidebar "Deep Dive: Two-Lens Clustering".

## Step Four: Selecting and Fine-tuning the Shortlist

The purpose of Step 4 is to create a shortlist of projects that are possible candidates for acceleration from among those well-positioned in the two lenses of Step 3. At this step, the potential tradeoffs are identified and weighed.

For a project to be successfully accelerated, prospective public- and private-sector partners need to be ready to engage. While engagement has been already considered as part of two-lens clustering, in this step it is examined in more detail.

The project's location and its industry sector should match with the interests and abilities of a possible private-sector company partner, also taking into consideration that from a public-sector perspective a diverse distribution with regard to these attributes is preferable. Likewise, the project's size, timeline, and risk profile should match the private company's interests and preferences.

A good candidate for possible private sector participation will be at a stage where it has generated sufficient wins or achievements to inspire confidence (or soon can), but is not so advanced as to seem "low-hanging fruit." In general, projects that are easy to accomplish or very close to completion will be the least in need of acceleration. Candidates for acceleration, however, must show private partners a good balance between the difficulty of completing the project and its likely benefits. It is not unusual for there to be tension between the public- and private-sector views of this balance, with public sector actors most interested in accelerating projects that are difficult to complete and the private sector more focused on projects likely to generate quick results. Private companies will be most attracted to high-visibility, high-impact projects whose potential reputational benefits outweigh their risks.

The public and private sectors should be closely engaged in any project that is a candidate for acceleration. That means the project's requirements, especially what is needed to accelerate it, should be clearly understood by all stakeholders. Those needs should match closely with a potential private partner's abilities. The expectations of all stakeholders about a project's risks and rewards should be closely aligned.

## Sidebar: Simplifying the Methodology

Ideally, when applying the four-step methodology described above, all relevant data will be available and there will be abundant time in which to analyse them. In practice, of course, data may be lacking and time inevitably will be limited. The following shortcuts may be used to streamline the methodology and to compensate for the absence of some data. As a rule, however, better data means better analysis and the use of estimates or informed opinion in place of hard information should be made carefully.

Apply expert judgement when hard data is lacking.
Particularly for early-stage projects, it may be difficult to obtain reliable data on project deliverables, boundaries and schedule. The opinions of of experts can provide useful estimates. For two-lens clustering, for instance, in cases where criteria-level data are not available, expert opinion may be used at the dimension level to gauge, for example, a project's readiness or the readiness or capacity of the region where the project is set.

Extrapolate based on historical projects within the same region or sector type.
Projects of the same or similar type that have been completed can be used to create estimates of key financial metrics (e.g. likely net present value and margins.) Similarly, completed projects in the same region can provide valuable information about the challenges facing a proposed project.

Omit criteria with low decision relevance.
This will vary between projects. In a low-risk project, for instance, the availability of certain risk-mitigation tools will not be an important consideration.

Prioritize projects by secondary industry enablement.
Projects likely to generate large value for important secondary industries but where data is lacking may be analysed by the higher thresholds described in Step 2 (project environment, project complexity) without first being analysed for data quality and availability.

# III. Deep Dive: Two-Lens Clustering

Two-lens clustering is a tool for visually representing and comparing a large amount of data about the relative value and cost of multiple projects using two x/y grids. The data is organized at five levels from the broadest (the individual lenses themselves) to the most specific (metrics).

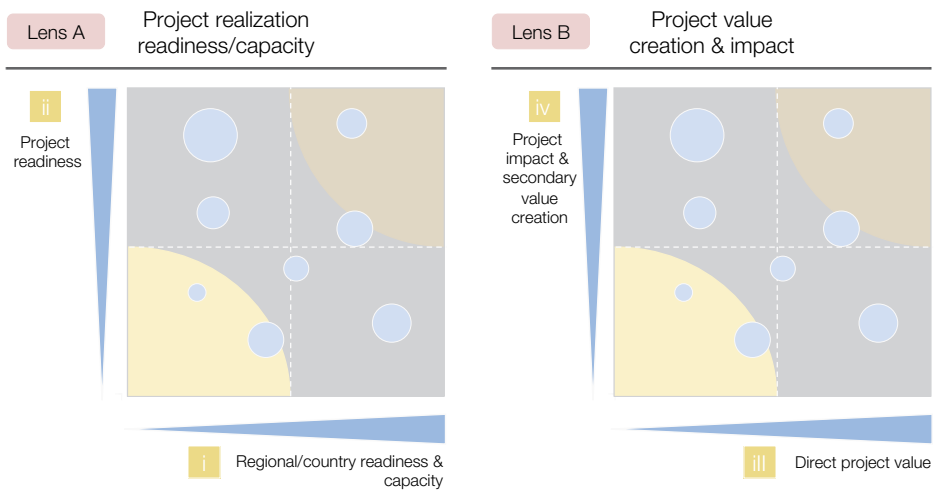
- Lens: The lens level represents the highest level of aggregation of data. It is not recommended to further aggregate the project scores beyond the lens level as these represent two key distinct features of a project for which one lens cannot compensate for the other; an aggregation would result in a loss of information. As the name suggests, the tool consists of two lenses, one representing "project realization readiness/capacity" (Lens A) and the other "project value creation and impact" (Lens B) (see Figure 8). Less formally, the lenses can be seen as describing the "do-ability" and the value/impact of a project. Each lens consists of two aspects which represent the x and y axes in the grid visualization.

- Aspect: Each lens is composed of two "aspects," each represented by one axis of the grid. For each lens, one aspect represents an intrinsic view of the project while the other represents an extrinsic view. The axes represent a scale of 0 to 10 through weighted aggregation of the three underlying dimension scores. The weight per dimension is adjustable to reflect the individual stakeholder's preferences and targets.

- Dimension: Each aspect is further composed of three "dimensions". Again, the weight per dimension is adjustable to reflect the individual stakeholder's preferences and targets.

- Criterion: Each dimension is itself composed of one to three "criteria," covering all key variables determining project performance. To provide a common basis, each criterion is scored on a 0-10 numeric scale based on the performance of one to four underlying metrics.

**Figure 8:** Two-Lens Clustering Example




- Metric: Each criterion further comprises one to four "metrics" which represent the most specific level of scoring. The data format for these metrics varies, meaning both quantitative and qualitative data can be considered. The overall goal should be to base the criteria on the most objective metrics possible by including hard data where available.

A project's location on the lenses reflects its underlying scores. A project that scores highly compared to others on realization readiness/capacity, for example, but poorly on project value creation and impact, will be represented as a bubble in the upper right quadrant of Lens A and a bubble in the lower left quadrant of Lens B.

Visualizing the data via two-lens clustering makes specific comparisons between projects clear, which is highly useful for structuring efficient presentations and discussions. Two-lens clustering can also serve to highlight project strengths or weaknesses that might be less apparent in other contexts. Data points indicating poor realization/readiness capacity, for instance, might be overlooked on a spreadsheet but will significantly affect a project's position on Lens A.

## Lens A – Project Realization Readiness and Capacity

Lens A classifies projects according to their do-ability, with the most easily completed projects shown in the upper right quadrant and those facing the most difficult challenges in the lower left quadrant. Do-ability has two fundamental aspects, which are represented by the two axes of the grid. The axes are both marked on a scale of 0 to 10. A project's score on both of these aspects determines its placement on the grid.

### Axis i: Regional/Country Readiness and Capacity

Regional/country readiness and capacity is the extrinsic aspect of a project's do-ability – the degree to which the leaders, people and businesses of the area where the project is set are able and willing to facilitate its construction. For this analysis, a project's score with regard to an aspect is considered as the sum of its weighted score on three main dimensions of readiness and capacity: economic and political stability, public sector readiness and capacity, and private sector readiness and capacity. A project's score in each dimension comes from the sum of its weighted scores on a number of criteria (see Figure 9). The individual criteria scores (see Sidebar, "Regional/Country Readiness and Capacity Criteria") are the sum of a project's weighted scores on several specific metrics (see the Appendix).

## Sidebar: Regional/Country Readiness and Capacity Criteria

The aspect of regional/country readiness and capacity is assessed along eight criteria covering all key external influences on a project's do-ability.

The criteria for the "economic/political stability" dimension are:

- *Political stability*: The stability and performance of political institutions as well as the risk of war in the project area. An ideal project would have a very stable political environment (including, for example, transitions of power that do not disrupt business), a track record of well-functioning political institutions and a low risk of war. A low score on this criterion can be increased by the use of risk mitigation instruments.
- *Economic stability:* The budget and debt management of the countries associated with the project, the reliability of financial institutions in the project area, as well as the volatility of the real currency exchange rate and related risks. An ideal project would be located in a region that is known for its ability to manage a budget successfully and to limit debt. The financial institutions involved would be experienced and well functioning, making capital transactions easy. Either the local currency exchange rate (to Euro or US dollar) would be stable or effective risk mitigation instruments would be available.
- *Rule of law*: The functioning of the legal system (particularly judicial independence and process) and the security of property, especially the risk of expropriation. For an ideal project there would be no precedent of expropriation in the countries involved and the legal system would be seen as fair, independent and well-functioning.

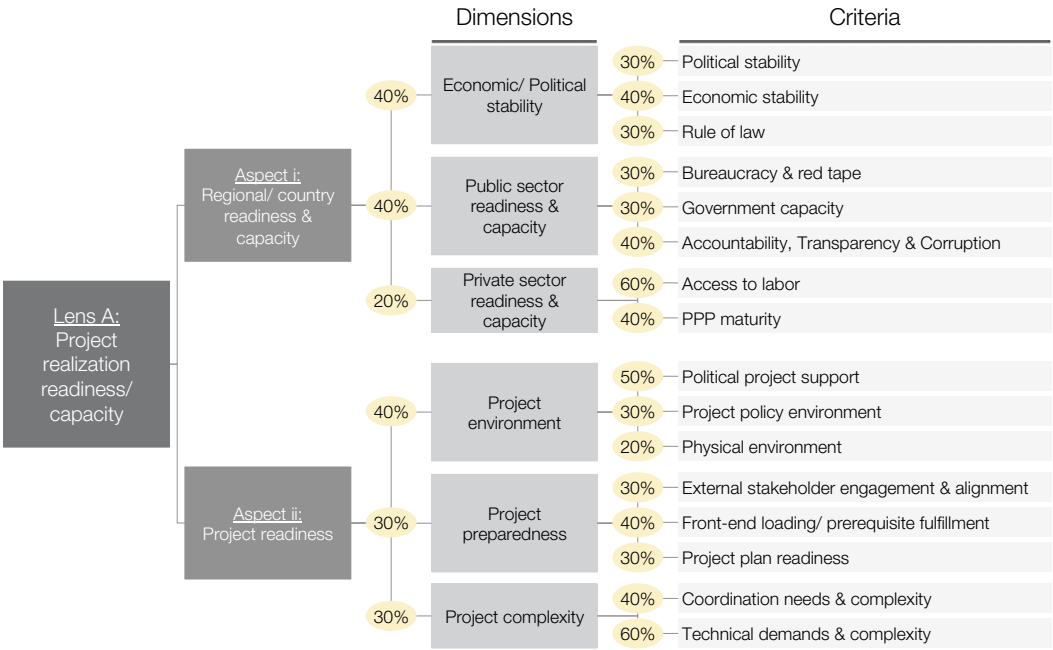
The criteria for the "public sector readiness and capacity" dimension are:

- *Bureaucracy and red tape*: The process for obtaining documentation and/or authorization for business activities in the involved countries. An ideal project would be situated in a country that has limited, internationally-accepted requirements and is swift in processing requests.
- *Government capacity:* The public administration capacity at the project's location. The ideal project would rely on a high-quality public administration that has the effective power to govern.
- *Accountability, transparency and corruption*: An ideal project would be in a country with high transparency and accountability standards which are properly enforced. No corruption should be present and the country should have a record of strongly prosecuting abuse of office.

The criteria for the "private sector readiness and capacity" dimension are:

- *Access to labour*: The availability of skilled labour and the rigidity of hiring and employment practices in the project countries. The ideal project would be in an area with a sufficient, capable workforce with the right skills. Hiring and employment practices would be in line with international standards.
- *PPP maturity*: Overview of past private investments in the relevant sector (ICT, energy, water or transportation) and evaluation of projects that have been cancelled or distressed. The ideal project would be in an area where the countries have significant experience with private infrastructure investments, and projects in the past have been successfully implemented, with few cancelled or distressed.

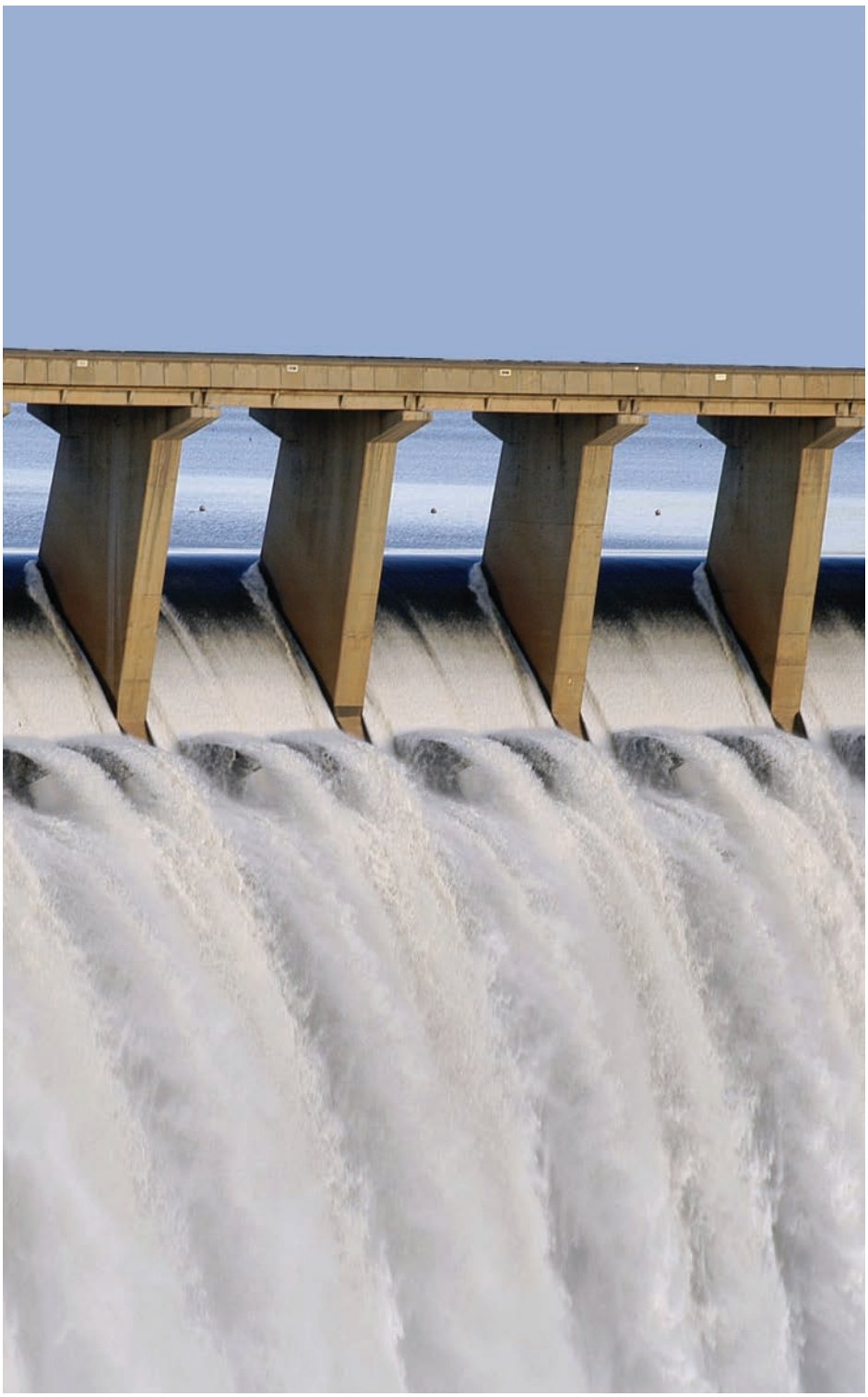
**Figure 9:** Breakdown of Lens A: Project Realization, Readiness and Capacity



### Axis ii: Project Readiness

Project readiness is the intrinsic aspect of a project's do-ability: the degree to which it is (or is not) ready for actual construction to begin (see Figure 9).

For purposes of two-lens clustering, a project's score on this aspect is considered as the weighted sum of its scores on three dimensions: project environment, project preparedness and project complexity. Its score on each of these dimensions, in turn, is the weighted sum of its scores on a number of criteria (see Sidebar, "Project Readiness Criteria"). The individual criteria scores are the weighted sum of a project's score on several metrics (see the Appendix).



## Sidebar: Project Readiness Criteria

This aspect is assessed along eight criteria covering all key internal influences on a project's do-ability.

The criteria for the "project environment" dimension are:

- *Political support for the project*: The level of support from the country's leadership and the level of agreement among the countries involved. Ideally, a project would have the public commitment of the head or heads of state.
- *Suitability of policy environment:* The effect of existing policies on the project, as well as the compatibility of the policies and regulations of the countries involved. In an ideal environment, policies and regulations are clear and processes for compliance run quickly and smoothly.
- *Aptness of physical environment:* An assessment of project location, its existing local infrastructure and the amount of supporting work necessary to enable project construction.

The criteria for the "project preparedness" dimension are:

- *External stakeholder engagement and alignment:* The level of stakeholder group engagement as well as stakeholder response to the project. Ideally, all stakeholders, including the public, should be well-informed and supportive of the project.
- *Front loading/prerequisite fulfilment:* An assessment of the clarity of the project's scope, the preparatory investments made, and the physical preparation completed. An ideally prepared project is clearly defined and has all the necessary preparatory work completed.
- *Project plan readiness:* The availability of project plan details and the project's track record for staying on schedule. An ideally prepared project is highly and transparently detailed and has remained on schedule since inception.

The criteria for the "project complexity" dimension are:

- *Criteria coordination needs and complexity:* The availability of project steering structures, the number of countries and organizations involved, and the clarity of responsibility assignment. An ideal project will have strong governing structures and a minimum number of organizations involved, each with a clearly defined area of responsibility.
- *Technical demands and complexity*: The physical size of the project, the level of technical complexity, and the level of experience of the involved countries and organizations with the project type.

## Lens B – Project Value and Impact

Lens B classifies projects according to the value they are expected to produce on completion, with the most valuable projects shown in the upper right quadrant and less valuable projects in the lower left quadrant.

Just as with "Project realization readiness and capacity" in Lens A, project value and impact has two aspects, which are represented by the two axes of Lens B, each of which uses a scale of 0 to 10 (see Figure 10).

### Axis iii: Direct Project Value

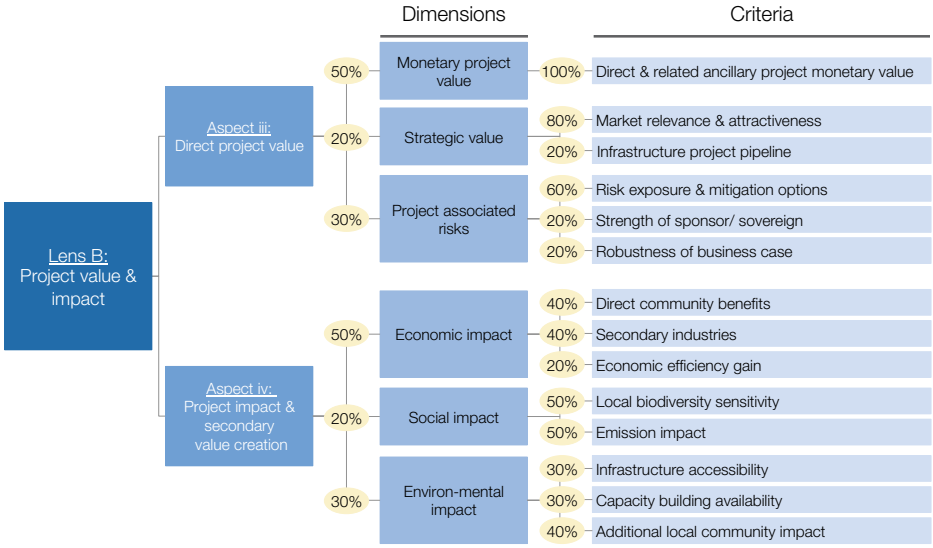
Direct project value is a measure of the intrinsic (financial) value of a project on completion, also taking into account the project's likely effect on its region's infrastructure project pipeline and its exposure to risk.

A project's score on this aspect is generated by the weighted sum of its score on three dimensions: monetary project value, strategic value and project-associated risks. Those scores are generated by the weighted sum of the project's scores on a number of criteria (see Sidebar, "Direct Project Value"). The individual criteria scores are the weighted sums of the project's scores on several specific metrics (see the Appendix).

### Axis iv: Project Impact and Secondary Value Creation

Project impact and secondary value creation is a measure of the benefits a project is likely to create for its region. A project's score on this aspect comes from the weighted sum of its scores on three dimensions: economic impact, social impact and environmental impact. These scores are generated by the weighted sum of a project's score on a number of criteria (see Sidebar, "Project Impact and Secondary Value Creation"). The criteria scores are the weighted sums of the project's scores on several metrics (see the Appendix).

**Figure 10:** Breakdown of Lens B: Project Value and Impact




## Sidebar: Direct Project Value

This aspect is assessed along six criteria covering all key influences on a project's intrinsic value.

The criterion for the "monetary project value" dimension is:

- *Direct and ancillary project monetary value*: The value, availability and consistency of key project financial data, including profitability metrics.

The criteria for the "strategic value" dimension are:

- *Market relevance and attractiveness*: The perception among potential investors of the market relevance of the project and its attractiveness. The ideal project would be in a region and sector investors regard as having strong growth potential.
- *Infrastructure project pipeline*: The potential for further interconnected projects and the involved countries' and organizations' track record for pipeline execution. The most strategically valuable projects will create opportunities for future related projects and will be in regions with a good track record of project completion.

The criteria for the "project associated risks" dimension are:

- *Risk exposure and mitigation options*: An assessment of key project risks as well as applicability and use of risk-mitigation instruments. The ideal project has a minimum number of clearly understood risks and a complete array of risk-mitigation tools
- *Strength of sponsor/sovereign*: The ability of the sponsor to fulfil commitments and the level of trust that project stakeholders have in the sponsor/ sovereign.
- *Robustness of business case*: The availability of business case materials, the plausibility of the business case's assumptions and the reliability of its sources and calculations.

## Sidebar: Project Impact and Secondary Value Creation

This aspect is assessed along eight criteria covering all key influences on a project's impact on its region.

The criteria for the "economic impact" dimension are:

- *Direct community benefits:* The project's impact on public benefits such as employment opportunities and public revenue.
- *Secondary industries promotion:* The project's capacity to spur secondary industry value creation.
- *Economic efficiency gain:* The project's impact on regional economic efficiency through its effects on costs, speed, supply security, etc.

The criteria for the "environmental impact" dimension are:

- *Local biodiversity sensitivity:* The project's impact on local plant and animal life as well as costs undertaken to mitigate negative effects.
- *Emissions impact:* Direct project emissions as well as indirect effects, e.g. through replacement of existing infrastructure or changes in traffic volume.

The criteria for the "social impact" dimension are:

- *Infrastructure accessibility*: The accessibility as well as affordability of new infrastructure benefits for local people. The ideal project provides widespread public benefits at low cost.
- *Capacity-building ability*: Capacity-building opportunities, including the beneficiaries of such opportunities. An ideal project contributes dramatically to the economic capacity of a region.
- *Additional local community impact*: Additional project impacts such as possible resettlement or other effects on cultivated areas, including mitigation measures taken.

### Applying the Lenses and Understanding the Scores

While the overall score of a project in a certain aspect gives a good idea of the project's performance, it may also be useful to look at a project's scores at the criteria level. This offers a good basis for discussion of the specific issues a project might be facing and can help identify what needs to be done to make the project more attractive to private sponsor-led acceleration (see Figure 11).

For instance, the project in this example has a score of 5.5 (out of 10) for regional/country readiness and capacity and 4.5 (out of 10) for project readiness. Those scores put the project in the centre of the project realization readiness/capacity lens (Lens A), meaning the project has fair do-ability.

On the project value and impact lens (Lens B), however, the project shows a more distinct profile. Direct project value is high with a score of 8 while the project impact and secondary value creation aspect is low at 3. The project's location in the upper left quadrant indicates a high-value project but one with a limited positive impact on the project environment.

Looking at the project's scores on a criteria level – and comparing those scores to the average scores of other projects – indicates both the project's strengths and the areas that need improvement to attract private-sector sponsors to accelerate it (see Figure 12).

**Figure 11:** Scoring Example

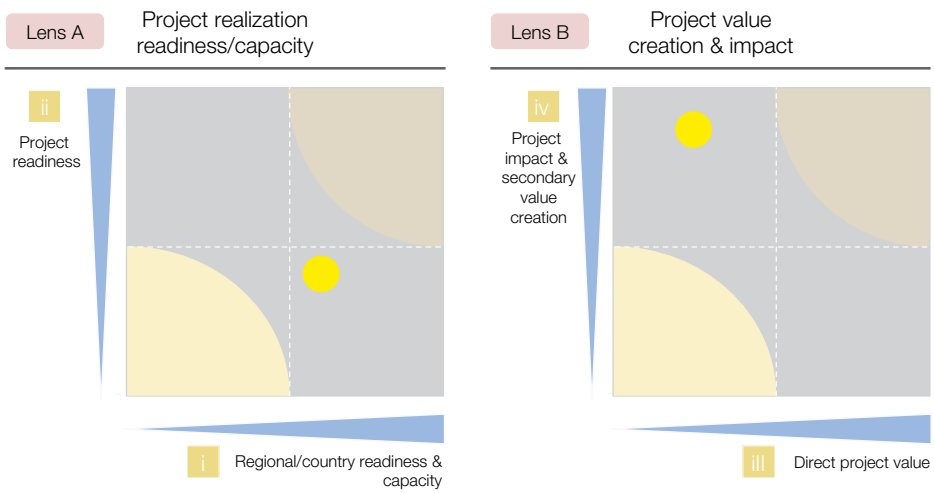
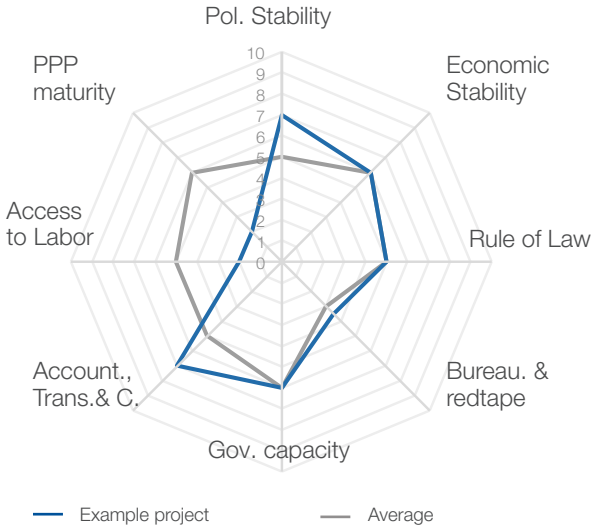


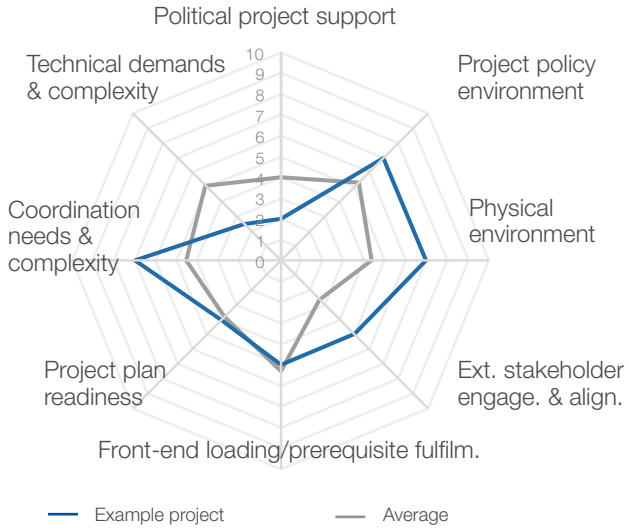
**Figure 12:** Breakdown of Example Scores by Aspect

## Regional/Country Readiness and Capacity



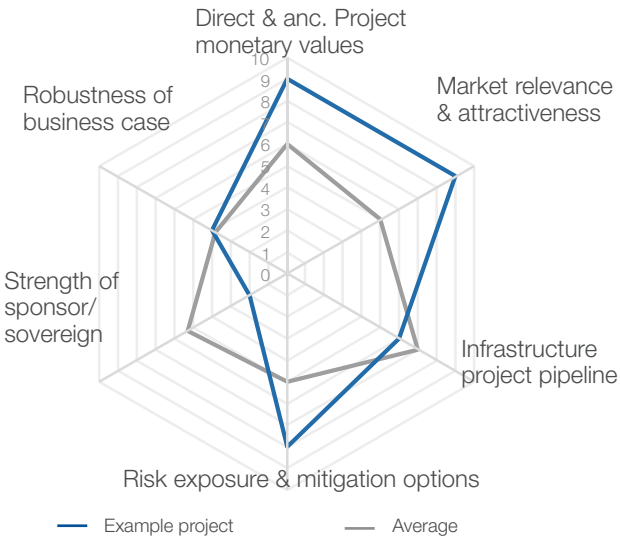

In this example, the project outperformed other projects with regard to political stability, accountability, transparency and corruption. However, it showed weaknesses in PPP maturity and access to labour. An effort to increase the do-ability of this project should focus on increasing access to labour and implementing best practices for PPP.

## Project Readiness



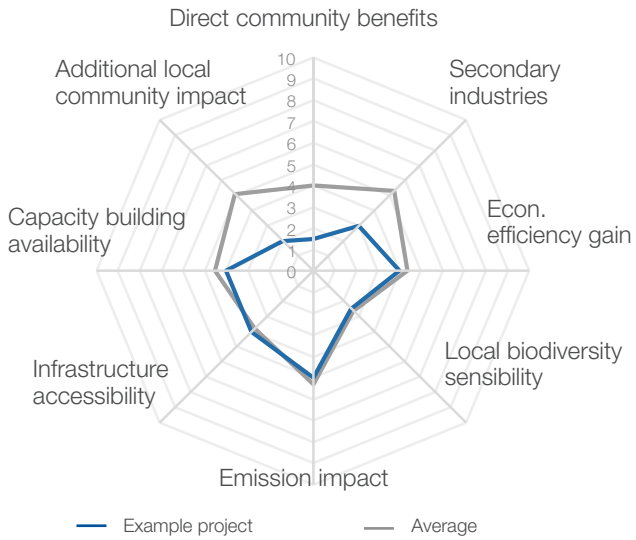

Regarding project readiness, the example project outperforms the average in multiple dimensions (low coordination needs and complexity, good external stakeholder engagement, favourable physical environment). However, its score in the most heavily weighted criteria, political project support and technical demands and complexity, is below average, giving the project only an average rating overall. Gaining additional political support is necessary to improve the project's overall score significantly.

## Direct Project Value




The direct project value of the example project is high, with an aggregate weighted score of 8. This score is based on strong direct and ancillary project monetary value, market relevance and attractiveness, and low risk exposure/good mitigation options. However, the project's strength of sponsor/sovereign and project pipeline scores are below average.

## Project Impact




The local community impact and secondary value creation scores of the example project are below average. Employing potential mitigation strategies to create community benefits will help improve its score.

# IV. Project Preparation and Financing

Infrastructure is one of the cornerstones of a stable and productive society. Strategic investments in transport, housing, energy and communication infrastructure are essential to create a strong and competitive economy with good jobs and a high standard of living. The African Development Bank and World Bank estimate the financing needs to be in excess of US$ 93 billion per year (Foster and Briceño-Garmendia 2010). A study by the Programme for Infrastructure Development in Africa (PIDA) on key regional projects, endorsed by the 2012 African Union (AU) Summit, estimates a need of US$ 68 billion up to 2020 just for that particular list of projects. The need is particularly stark in light of rising populations and rapid urbanization on the continent. By addressing fully its infrastructure deficit, it is estimated that growth in Africa can be boosted on average by about 2% per annum.

The questions that have always been raised in Africa's case have centred around what new sources of capital can be mobilized and how to attract them to finance Africa's infrastructure needs. Radically new financing methods have to replace or at least complement traditional financing that has proven its limits in mobilizing the funds necessary to close the huge infrastructure gap. Using innovative financing tools to meet funding needs will be critical.

Of the US$ 93 billion in infrastructure needs, just under half is currently financed, with major sources being African governments, multilateral and bilateral sources of finance, official development assistance (ODA) and private sector sources. These combined sources, according to Africa Infrastructure Country Diagnostics (AICD), contribute approximately US$ 45 billion per annum, leaving a yearly gap of US$ 48 billion.

Within the context of the changing global economic landscape, a number of fundamental shifts are currently underway that not only threaten these traditional sources of financing for African infrastructure but also contribute to a widening deficit. These shifts are impacting traditional sources through the following channels:

i. **Official Development Assistance** (ODA) – This assistance is increasingly tentative and likely to decline in real terms. With the combined effects of the global financial crisis, and, more recently, the Eurozone sovereign debt crisis, the budgets of major donors that have traditionally supported aid flows to Africa are under pressure. Given the widespread austerity measures being implemented in these source countries, a real decline in ODA is likely to exacerbate the financing gap.
ii. **Private Sector Shifts** – Traditionally, commercial bank lending has been a significant financier of African projects and has also been a major participant in loan syndications that have provided senior debt facilities for term loans. With the new structural shifts and changes in bank regulations, such as the Third Basel Accord, it has become expensive for commercial banks, to continue in this line of business given the increased regulatory capital consumption costs. This implies a scale-down in commercial banks' long-term lending activities.
iii. Furthermore, there has been a decline in monoline insurers such as MBIA Inc. that traditionally used to guarantee infrastructure bond issuance through what were previously strong 'AAA' balance sheets. While this form of financing was not particularly significant for Africa, the decline of monolines closes down what would have been a potentially significant avenue for innovation in African project financing. As a result, the appeal of any future infrastructure bonds for African projects would need credit enhancement from other sources such as donor funds and the balance sheets of multilateral development banks (MDBs).

Institutions such as MDBs now have a bigger and growing role to play and need to find new ways to redefine their roles in this changing environment. They must create new and relevant interventions not only to mitigate the impact of these declining financial flows, but also to find ways to catalyse and push in new players so as to scale up the overall level of financing, particular to lower income countries (LICs) on the continent.

## Financing Dialogue

The financing stream of the African Development Bank (AfDB)/World Economic Forum Working Group on African Infrastructure Financing ("Financing Dialogue") was asked to look into three fundamental areas within the African infrastructure financing space:

- What new/innovative models are relevant to finance African infrastructure projects and how will/should they be applied in the African context?
- Which other entities/regions are currently developing new/innovative financing models that could be applied/advanced in Africa?
- How can the BWG contribute to the development of the required new/innovative financing models for the pilot projects to be identified as part of this work stream?

This brief attempts to address some of these questions by providing an overview of some of the innovations and new products in African project finance and other efforts currently under way to scale up infrastructure delivery in Africa. The following innovative products are assessed in the context of African financing:

i. Infrastructure bonds: These come in handy provided an investment grade rating puts the project within the scope of international institutional investors who might otherwise be constrained by their investment guidelines.

ii. Project preparation facilities: These are important especially for projects at the feasibility stage, for increasing the flow of funds available in the critical early stages of project development.

iii. Equity: This stream supports the raising of debt finance, which would typically cover only 60 to 80% of the cost of constructing an infrastructure asset.

iv. Guarantee products: Guarantees such as partial credit guarantee and partial risk guarantee help leverage ADF resources to mobilize private sector financing of non-sovereign projects in low-income countries.

v. Other innovations: Several other innovations are being examined by the ADF, the concessional arm of the AfDB, as part of its 13th replenishment in the face of still significant unmet financing needs.

A natural place to begin analysing the application of these innovations is the project finance value chain, as the issues of financing relate not just to construction of the infrastructure assets but both upstream and downstream activities along the chain as well. At various phases of the project cycle, financing is required to significantly de-risk projects further up the value chain and, more critically, bring these projects to bankability by performing the necessary technical, financial, economic and environmental due diligence. Bankability is a key requisite for attracting the various pools of global capital that will bring infrastructure projects in Africa to fruition.

The project finance value chain describes a set of key activities that illustrate the life cycle of project development. It disaggregates the process into the key activities of development, construction, completion, operations and maintenance. Within each of these components, different forms of financing are required. Typically, when moving along the value chain, overall de-risking takes place and a broader set of financing opportunities becomes available.

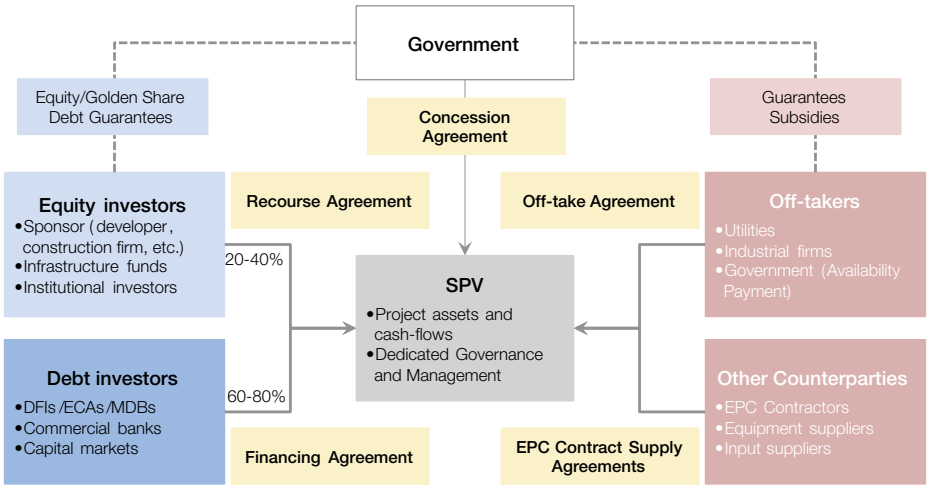
An analysis of some of the financing activities currently taking place in the financing of African infrastructure projects is presented in Table 1.

**Table 1:** Financing Activities over Project Cycle

| Project Cycle | Risk Features | Finance | Providers (include) |
|---|---|---|---|
| **Development** | The development phase takes the project from the idea stage to bankability. The main risk is that funds are used for feasibility, legal services, technical design and other activities, but that the project does not go ahead. | **Sponsor/ Developer Equity** | InfraCo Africa, Infra Ventures, AFC, Transcentury, IPS, Transcorp, Aldwych, Globeleq, Sithe Global, Agua Imara, Tata, Sino Hydro, Biotherm, Symbion, Aeolus, Amaya, Cluff Geothermal, Ormat, Kenergy and AER<br>Other operators such as utilities, telecom operators and port operators (Maersk, Hutchison, etc.) |
| | | **Bridge Financing** | Limited instances of banks/ DFIs providing bridge loans |
| **Construction** | The risk of completing a project on time and within budget is significant, even for well understood technologies. Cost overruns or start-up delays can quickly erode the economic performance of a project, including preventing it from meeting its debt-service obligations. Lenders require construction to be either carried out by a reputable EPC contractor at a fixed-price, time-certain basis, or be guaranteed. | **Construction Equity** | Developers/operators also provide construction equity<br>Funds: PAIDF, AIIF, SSIF<br>Development Finance Institutions (selected)<br>Construction firms such as Oderbrecht, Orascom |
| | | **Construction Debt** | DFIs, plus debt funds (EAIF and the ICF Debt Pool)<br>Export Credit Agencies and Export-Import Banks<br>African and international banks<br>Some pension funds such as Old Mutual |
| **Completion** | Once a project is complete, it is largely de-risked. However, aspects of project economics are still unknown, including uncontrollable operating costs and market demand. | **Secondary Market:**<br>**– Equity**<br>**– Debt** | In some markets, infrastructure private equity funds and sovereign wealth funds tend to invest in low-risk completed projects, e.g. GIC of Singapore |
| **Operation** | Revenues and costs become better known once a project is commercially operational. The operational performance of a company against contractual/commercial targets becomes the main risk. Lenders derive comfort from the experience of the operator in managing performance. | | Debt can be refinanced in international or local loan or bond markets, depending on market appetite and conditions. Bank portfolios can be aggregated, such as South African banks' book of renewable IPP projects. |

Source: Structured Finance – Conditions for Infrastructure Project Bonds in African Markets, AfDB (2013)

**Figure 13:** The Typical Project Finance Structure




Source: Structure Finance – Conditions for Infrastructure Project Bonds in African Markets, AfDB (2013)

Project finance has been a very commonly tried and tested structure in infrastructure financing. It is characterized by a system of support and risk-mitigation mechanisms as illustrated in Figure 13 that address certain key risks that otherwise could not be financed on a stand-alone basis. Project finance enables sponsors who do not have a large balance sheet to undertake large and ambitious investments

## Product Innovations that Can Be Applied in the African Context

### Infrastructure Bonds

One innovative instrument that has been used in other emerging markets is the project or infrastructure bond. This is particularly suited to infrastructure finance as many transactions are using project finance and hence the "bond" is merely an instrument that would work as a project loan. This form of financing is issued directly by a Special Purpose Vehicle (SPV) whose cash-flow obligations are repaid directly from the cash flows of the operational project. While the credit quality of the sponsors may in some ways affect the credit quality of the SPV, a project bond does not rely directly on the credit quality of the balance sheet of the sponsors.

In the AfDB report on "Structured Finance – Conditions for Infrastructure Project Bonds in African Markets", such infrastructure bonds are defined as having the following attributes:

- They are issued to raise capital for specific stand-alone projects.
- They are repaid from cash generated by the project.
- They assume, and their performance is subject to, certain project-specific risk.

This definition, therefore, can include projects with participation by government, parastatals and private entities to ensure optimal allocation for risk for potential bondholders and efficient financing of important infrastructure projects.

The typical applications of this product are mainly in the operations phase of a project's life cycle where it has been substantially de-risked and operations cash flows are more certain, and the project is able to meet the contractual debt service obligations of publicly-issued bonds. These will not be ideal in the construction phase, given that most cash flows are outbound.

In the African context, two particular applications of these bonds exist:

#### i. Domestic Capital Markets

One of the key objectives of the AfDB study on structured finance is to consider whether domestic capital can play a role in meeting the infrastructure funding gap. The attraction of domestic capital is that it can help mitigate currency risk and often has a better understanding of operational and political risks. Domestic funding has become significant in other emerging markets too, most notably Latin America and Asia.

Project bonds have been widely used in other countries, most notably Chile, Malaysia and Korea.[15] In each case, the government implemented reforms in the pension and insurance sectors to unlock long-term capital. This created a deep pool of institutional investors with demand for low-risk, long-dated assets in the domestic currency. This investor base is ideally suited to buying project bonds or infrastructure investments. That they have a preference to invest in the local currency means the projects could avoid any currency mismatches between revenues and debt service obligations. In addition to policies to develop an institutional investor base, these governments also implemented crucial economic policies that prioritized macroeconomic stability, particularly by bringing down inflation and prevailing interest rates. Indeed, in Chile policy-makers undertook broad-based indexation of the economy, which gave fixed-income investors additional comfort in holding long-term assets. This was an innovative solution, and though it may or may not be adopted by others, it shows that it is important is to have a long-term strategy of seeking economic stability and creating institutions that will accumulate capital and focus on long-dated assets.

The pools of African capital are substantially growing with Africa's economy, and as such capital markets have a substantially wider investor base. Table 2 below lists some of the key pension funds players by country, resource base and potential.

#### ii. International Capital Markets

Recent experience shows there is a strong appetite for African sovereign risk in the global capital markets. Developed market bond yields are low – or subject to significant event risk (e.g. the Euro crisis). The credit profiles of African countries have improved significantly on the back of consistently high GDP growth rates. The global investor base is more open to African credits than ever before. This has been well underlined by the successful bond offering by Zambia recently, which was

**Table 2:** Summary of Selected Pension Sectors

| Country | Regulator | Concentration | Assets | Corporate Bonds |
|---|---|---|---|---|
| Kenya | Retirement Benefits Authority (RBA) | 17 fund managers<br><br>NSSF has 1/3rd assets | US$ 5 billion | Can hold up to 30% of portfolio, but currently 6% |
| Uganda | Retirement Benefits Regulatory Authority | NSSF accounts for 95% of pension assets | US$ 800 million | NSSF holds 2.5% of assets in corporate bonds |
| Tanzania | Social Security Regulatory Authority | Five largest funds account for 60% AUM | US$ 2.1 billion (i) | New guidelines put 30% limit on corporate bonds |
| Nigeria | National Pension Commission (PenCom) | Top 3 control 55% assets; top 5 control 69% | US$ 14.3 billion | 35% limit on non-sovereign bonds; currently holds 2.5% |
| Ghana | National Pensions Regulatory Authority | SSNIT dominant; 14 PFAs (Pension Fund Administrators) registered for new fund | US$ 2 billion | 30% limit; currently no corporates in market |
| South Africa | Financial Services Board | GEPF has c.37% assets; competitive private FMs | US$ 312 billion | Regulation 28 allows 100% investment in fixed income corporate bonds |
| Namibia | NAMFISA | GIPF has 82% assets; Largest PFA has 60% | US$ 8.5 billion | Permissive regulation allows corporate bonds |
| Botswana | Non-Banking Financial Institutions Regulatory Authority | BPOPF is largest fund; no data for others | US$ 5.6 billion | Permitted but limited availability in BWP |
| Zambia | Pension and Insurance Authority | NAPSA and AfLife are around 80% of market | US$ 2 billion (ii) | 20% in a single sector |

Note: (i) denotes 2010; RBA Kenya, Nigerian Pension Commission (Pencom), SSNIT, Ghana excludes GNAT; Financial Services Board (RSA), Botswana International Financial Services Centre, (ii) Conservative estimate: could be up to ZMK 20trn

Source: OECD, WDI, IOPS, Africa Report (Oct. 2012), Discussion with Market Actors

upsized from the initial target size of US$ 500 million to US$ 750 million and was hugely oversubscribed. The performance of outstanding issues from the likes of Ghana and Nigeria is also testament to this. International capital markets represent the largest pool of funds; however, international investors typically lend in US dollars or euros, which creates significant exchange rate risk for the issuing country.

At the international level, however, it is critical that the infrastructure bond issuance has an investment grade rating by at least one of the major rating agencies such as Fitch, Standard & Poor's and Moody's. This ensures that the issue is available to a wide investor base which will also open the bond up to an active secondary market. However, given the risks in African project finance, credit enhancements may still be needed to bring these bonds to investment grade. With the decline of the major monoline insurers, the remaining likely source of these enhancements will be MDBs such as African Development Bank (through products such as partial risk or credit guarantees).

### Project Preparation Facilities

Project preparation is critical to moving projects to bankability. This need has been recognized across Africa. A recent study on project preparatory facilities by the Infrastructure Consortium for Africa (ICA), an initiative funded by multiple donors with the mandate to help mobilize resources for financing infrastructure in Africa, found that there are as many as 67 project preparation facilities in Africa or targeted at Africa. However, of these, only a handful are considered viable due to limitations of finance, skills and institutional capacity.

The AfDB hosts the NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF), which supports preparation of mostly regional projects. During 2011, NEPAD-IPPF prepared a Strategic Business Plan (SBP) for the period 2011-2015, which articulates an ambitious four-year programme requiring around US$ 200 million to support regional project preparation, mainly for PIDA's Priority Action Plan. The leverage effect of project preparation cannot be over-emphasized. For example, by the end of 2011, 13 projects completed by NEPAD-IPPF had leveraged US$ 5.717 billion for implementation.

It is therefore not surprising that a number of regional economic communities (RECs) have set up or are setting up their own project preparatory facilities. The tripartite involving the Common Market for Eastern and Southern Africa (COMESA), the East African Community (EAC) and the Southern African Development Community (SADC) has established the Project Preparation Implementation Unit housed at the COMESA Secretariat in Lusaka. The Economic Community of West African States (ECOWAS) is in the process of setting up the Project Preparation and Development Unit as a vehicle to prepare projects. Ensuring synergies and complementarities across existing and emerging project preparation facilities will be important going forward. Additionally, these new institutions should be adequately resourced both in terms of financing and skills.

### Equity

Development equity and construction equity are crucial forms of finance applicable at the development and construction stages of project development, respectively. During project development, equity capital is required as projects remain far from

operation and thus highly risky, with a reasonable chance of not going forward. During construction, projects need equity as well as bridge and term loans from lenders comfortable with construction risks. Subsequently, once construction is completed and there is more certainty on operational and market conditions, projects are considered to be de-risked and can be refinanced using new debt and equity investors. At each stage of the project, there is the risk that financing may not be raised or the costs of finance may spiral out of control, giving rise to refinancing and liquidity risks.

Project development costs around 10-12% of total project costs, according to the ICA. The earlier stages of project development are particularly risky. The very early stage of the project cycle tends to be supported by technical assistance grants, or vehicles such as InfraCo and Infra Ventures backed by a development agency. It is extremely difficult to recover these costs on a commercial basis since returns would have to be 30% or more over a five-year period. For example, InfraCo makes a large loss on its capital even though it operates on a commercial basis.

Equity at financial close is also usually provided by developers, as well as other consortium partners such as development finance institutions – e.g. DEG (German Investment and Development Corporation), FMO (Netherlands Development Finance Company), AFD (French Development Agency) and IFC (the International Finance Corporation) are investors in Rift Valley Railways – and, sometimes, utilities and construction partners. Private equity investors tend to target returns of 20-25%, exiting once projects are fully commercially operational and de-risked (2-3 years post-completion). Development finance institutions target a similar strategy, albeit with a range of 15-25% returns. Developers and equity investors alike emphasize project execution and the value created by getting projects fully operational.

### Guarantee Products (e.g. Partial Credit Guarantee, Partial Risk Guarantee)

A guarantee is an undertaking by a third party (guarantor) to fulfil the obligations of a borrower to a lender under an agreement, in the event of non-performance or default by the borrower. The underlying causes of default are defined ex ante as either commercial or political risks. Guarantees can generally be classified into two categories: partial credit guarantees (PCGs) and partial risk guarantees (PRGs).

#### i. Partial Credit Guarantees

PCGs cover a portion of scheduled repayments of private loans or bonds against all risks. They could be utilized to support mobilization of private funds for project finance, financial intermediation and policy-based finance. PCGs can be used for both public and private sector investment projects, especially in infrastructure, to encourage the extension of maturity and to improve access to capital markets. The guarantee could cover the principal for bullet maturity of corporate bonds, or later maturity principal payments of amortizing syndicated loans.

#### ii. Partial Risk Guarantees

PRGs cover private lenders against the risk of the government, or a government-owned agency, failing to perform its obligations vis-à-vis a private project. PRGs can attract commercial financing in project finance transactions, particularly in public sector utilities such as power, water, oil and gas, and mining, where project success depends as much on government undertakings as on private commercial acumen. In public-private partnerships (PPPs), PRGs can give assurance to the private partners that government will meet its obligations toward the partnership.

These guarantees can cover a variety of government risks, including government contractual payment obligations, availability and convertibility of foreign exchange, changes in law, expropriation and nationalization. The commercial risks under PRGs are fully borne by the private investors.

### Other Innovations

The models described below are some of the new financing innovations being put forward in the context of the 13th replenishment of the African Development Fund (ADF). These products are prospective and will be subject to final approval, but for Africa, such innovations will be instrumental in leveraging concessional resources to have a greater catalytic effect and impact in financing.

#### i. ADF Loan Buy-Down

The ADF Loan buy-down facility would offer to donor countries and other interested parties the possibility of prepaying to the ADF the outstanding amount of a loan (or particular set of loans) owed by a given ADF country. This prepayment could target loans for projects in specific sectors or with specific objectives such as renewable energy, environment, education, water and poverty reduction. These initiatives could also be tied to conditions, obligating the beneficiary country or selected project to meet certain landmarks and objectives before the pre-payment could take place. The fund could then recycle the pre-paid amounts through the general ADF financing window. The main benefits would be additional resource mobilization and enhancing the fund's profile as one of the premier channels of aid and concessional finance into Africa.

#### ii. Partial Credit Guarantees

Partial credit guarantees are currently offered by the ADB to middle-income countries. The new innovation is to use concessional resources to create a product offering for low-income countries as well, and will be extended to African countries on a pilot basis. This product covers commercial lenders against all risks of debt service default on a specified portion of commercial/private debt (bonds and loans) and can be used to mobilize commercial financing for project finance, financial intermediation and policy-based finance. Similar to the ADF Partial Risk Guarantee, the ADF PCG would be structured as a leveraged instrument that would consume only a fraction of the country's Performance Based Allocation.

An ADF PCG would enable ADF countries or their public/state institutions to access commercial finance only for a limited number of priority sectors like infrastructure and agriculture or for domestic resource mobilization. The key issues to address while implementing PCG are associated with defining stringent eligibility criteria that take into account country indebtedness, debt management capacity and compliance with the Bank's Non-Concessional Debt Accumulation Policy.

#### iii. Private Sector Matching Fund

In the last replenishment of the fund i.e. ADF-12, the possibility was created for ADF countries to use part of their performance-based country allocation for equity investment in PPP projects. A Private Sector Matching Fund is a new financial envelope that builds upon this arrangement by providing additional loans or grants to eligible countries for the same purpose. The facility would encourage borrowing countries to develop more public-private partnerships. The Matching Fund would match the government's contribution in equity for a PPP in that country or region, provided that the government is able to confirm the participation of a minimum of twofold contribution from the private sector to the equity of the PPP. It would serve as an incentive to governments to collaborate and co-invest with private investors to develop PPPs in infrastructure and other key areas of the economy and lead to inclusive growth. The debt would come from a combination of public and private financiers.

**iv. Development Finance Institution (DFI) Facility**

This would include two key instruments:

- Partial risk guarantee to enhance the obligations of African regional and sub-regional DFI member-countries to promptly pay their respective pro-rata share of callable capital in case there is a first call. This would lead to an improvement in the credit rating of the DFIs, which in turn would improve the terms of their fundraising activities from commercial lenders. The DFI partial risk guarantee would be different from the ADF partial risk guarantee as it would be extended to government-owned DFIs, as opposed to regional member countries themselves.
- Equity financing to provide concessional financing (loans or grants) to regional and sub-regional DFIs' member countries to finance an increase in paid-in capital and clear arrears on capital instalments due, particularly for fragile states. This would improve DFI creditworthiness.

## Conclusions

The above innovations, if implemented and fully utilized in African infrastructure finance, would help move more and more African projects across the value chain. The African Development Bank has also been looking to create a broad infrastructure financing facility with an array of activities covering advisory services, development equity, lending and guarantee to help scale up and complement existing facilities within African infrastructure financing. This facility would not just be a financing mechanism but also a vehicle through which impediments and bottlenecks in the African project finance value chain would be addressed.

# Appendix

## Two-Lens Clustering Criteria Metrics

### Lens A: Project Realization Readiness and Capacity

**Aspect: Regional/Country Readiness and Capacity (Axis i)**

The criteria used to quantify this aspect are derived from the metrics described below. Regional/country readiness capacity is different from the other aspects used in the two lenses in that it is largely based on hard historical data. The metrics should be updated as necessary when new information becomes available.

For purposes of calculating numerical criteria scores, the metrics which are indices are normalized to a scale of 0 to 10.

| Criteria | Assessment<br>Metrics and Sources |
|---|---|
| **Access to labour** | – Tertiary enrolment (UNESCO data, 2006-2011)<br>– Availability of scientists and engineers (Forum perspective, 2011-2012)<br>– Quality of math and science education (Forum perspective, 2011-2012)<br>– Rigidity of employment index (Difficulty of redundancy index + difficulty of hiring index + rigidity of hours index) (World Bank expert assessment and surveys, 2010) |
| **PPP maturity** | – Total private investment in sectors considered in PIDA (data from Public-Private Partnership Advisory Facility, 2011)<br>– Investment in projects cancelled or in distress as a percentage of total investment (Public-Private Partnership Advisory Facility data, 2011) |
| **Bureaucracy and red tape** | – Bureaucracy and red tape (Economist Intelligence Unit expert assessment, 2011) |
| **Government capacity** | – Quality of public administration (World Bank and AfDB indicators, 2011)<br>– Effective power to govern (Bertelsmann Transformation Index, 2012) |
| **Accountability, transparency and corruption** | – Prosecution of abuse in office (Economic Intelligence Unit expert assessment, 2010)<br>– Accountability, transparency and corruption in the public sector (AfDB expert assessment, 2011)<br>– Accountability of public officials (EIU expert assessment, 2010)<br>– Corruption in government and public officials (EIU expert assessment, 2010) |
| **Access to labour** | – Tertiary enrolment (UNESCO data, 2006-2011)<br>– Availability of scientists and engineers (Forum perspective 2011-2012)<br>– Quality of math and science education (Forum perspective 2011-2012)<br>– Rigidity of employment index (Difficulty of redundancy index + difficulty of hiring index + rigidity of hours index) (World Bank expert assessment and surveys, 2010) |
| **PPP maturity** | – Total private investment in sectors considered in PIDA (Public-Private Partnership Advisory Facility data, 2011)<br>– Investment in projects cancelled or in distress as a percentage of total investment (Public-Private Partnership Advisory Facility data, 2011) |

### Aspect: Project Readiness (Axis ii)

The metrics for the criteria of this aspect are assessments by experts. Multiple experts should be used to help reduce the element of subjectivity. Experts should use as much hard data as possible for forming their assessments. The point-ranking scale may be adjusted as necessary to more accurately reflect the project's local environment.

| Criteria | Assessment | | | | |
|---|---|---|---|---|---|
| | Very low (0 points) | Low (3 points) | Average (5 points) | High (7 points) | Very high (10 points) |
| **Political project support** | – Discouragement from country leadership<br>– Strong tensions/ disagreement between countries involved | – No visible interest in project from country leadership<br>– Missing alignment within country<br>– Limited disagreement between countries involved | – Unspecific, inconsistent support from country leadership<br>– Alignment between involved countries lacking | – Support expected but no clear commitment/ unsteady commitment in the past<br>– Overall alignment of involved countries | – Steady support/ championship by head of state<br>– Written agreement of all involved countries<br>– Public support across hierarchies |
| **Project policy environment** | – Detrimental policy environment<br>– Significant hurdles (e.g. restrictions on operation, uncommon taxation) | – Generally unfavourable environment<br>– Some limited hurdles | – Neutral policy effect on project | – Generally favourable, stable environment | – Very favourable policy environment<br>– Tangible support (e.g. subsidies)<br>– Policies stable/ direction positive |
| **Physical environment** | – Project location with strong negative cost impact<br>– Significant hurdles for implementation (e.g. lack of local infrastructure/ access to project location)<br>– Location with strong environmental/ social concerns | – Limited unusual hurdles resulting in additional supporting work<br>– Costs above average expectations<br>– Challenging environmental/ social concerns | – Supporting work need in line with general expectations<br>– Costs in line with average project costs<br>– Environmental/ social concerns manageable | – Limited need for supporting work due to project location<br>– Better than average negative cost impact<br>– Only minor environmental/ social concerns | – Ideal location for project, no need for supporting work<br>– Infrastructure in place at project location<br>– Location free of environmental/ social concerns |
| **External stakeholder engagement and alignment** | – Key stakeholders not involved/ engaged<br>– Significant resistance from stakeholder groups | – Limited and inconsistent stakeholder engagement<br>– Unfavourable project opinion, resistance likely | – All key stakeholders contacted at one point in project<br>– Neutral response, limited resistance expected | – Engaged, broad stakeholder group<br>– Generally favourable response, very limited resistance expected | – Broad, continuous stakeholder engagement<br>– Strong support for project from external stakeholder |

| Criteria | Assessment | | | | |
|---|---|---|---|---|---|
| | Very low (0 points) | Low (3 points) | Average (5 points) | High (7 points) | Very high (10 points) |
| **Front loading/ prerequisite fulfilment** | – Missing/ inconsistent project scope<br>– "Idea stage" project with key characteristics missing<br>– Physical preparation not given (e.g. site readiness)<br>– Unclear preparation investment needs | – Unclear scope definition, limited documentation<br>– Most key project characteristics given<br>– Physical preparation behind expectations<br>– Preparatory investment needs appear unrealistic | – Phase-appropriate project scope, documentation available<br>– All key project characteristics given<br>– Only limited physical hurdles for project progression<br>– Preparatory investment needs clear | – Consistent, phase-appropriate project scope, documentation in line with global standards<br>– Relevant project characteristics in place<br>– No physical hurdles for project progression | – Clear, well-defined, consistent scope of given project phase<br>– World-class, reliable documentation<br>– Project characteristics defined and expected for given project phase<br>– No physical hurdles |
| **Project plan readiness** | – No project plan available<br>– In the past significant delays in project plans – "stuck project" | – Outdated, high-level project plan/ timeline<br>– Time estimates with undocumented basis<br>– Project progression has been behind schedule in the past | – High-level, recent project plan/ timeline in place<br>– Time estimates considered realistic<br>– Limited delays in project progression in the past | – Detailed project plan and up-to-date timeline<br>– Reliable timelines with clear basis<br>– Only minor delays in project progression in the past | – Detailed, clear, up-to-date project plan/timeline<br>– Well-grounded estimate for implementation time<br>– Deadlines/plans met in the past |
| **Coordination needs and complexity** | – Missing project steering structure<br>– No (or rivalling) project implementation/ management entities<br>– Very high number of involved countries with diverse interests<br>– Numerous regional economic communities involved with unclear division of responsibility | – Management entity in place, missing implementation mandate, potential lack of resource/ experience<br>– High number of involved countries<br>– Multiple regional economic communities involved<br>– Untested steering structure | – Management/ implementation entity in place<br>– Multiple regional economic communities involved, clear lead and division of responsibility<br>– Project steering structure in place | – Established, sufficiently resourced/ experienced management/ implementation entity<br>– Clear project steering structure<br>– Limited number of involved countries | – Well resourced, experienced management/ implementation entity<br>– Relatively low number of involved countries<br>– Proven, effective project steering structure |
| **Technical demands and complexity** | – Significant, inherent technical complexity<br>– Limited experience, unparalleled project type<br>– Very large project size | – High technical complexity<br>– Limited experience for project type implementation<br>– Above average project size | – Technical project complexity in line with expectations<br>– Proven concept with several comparable successful projects<br>– Medium project size | – Inherent technical demands considered rather low<br>– Established track record in comparable projects<br>– Below average project size | – "Standard" technical project with proven concept and low complexity<br>– Significant local experience in project type implementation<br>– Limited project size |

## Lens B: Project Value Creation and Impact

**Aspect: Direct Project Value (Axis iii)**
The metrics for these criteria are concerned with a project's monetary value. Note that the metrics that positively co-relate with value are scored on an ascending 0 to 10 scale while the criteria that measure risk are scored on a descending 0 to 10 scale. There is a strong focus on monetary value.

| Criteria | Assessment | | | | |
|---|---|---|---|---|---|
| | Very low (0 points) | Low (3 points) | Average (5 points) | High (7 points) | Very high (10 points) |
| **Direct & related ancillary project monetary value** | – Key project data not available/high variations<br>– Project unprofitable, believed to generate very limited income streams | – No hard financial data/ proxies available, but possible to estimate using benchmarks<br>– Project possibly below profitability expectations, limited income streams<br>– Low potential for ancillary monetary value creation | – Basic financial data/ proxies available<br>– Project profitability in line with expectations, project supported through sufficient income streams<br>– Potential for ancillary monetary value creation, but limited data | – Limited set of reliable financial data available, proxies used<br>– Project likely to be profitable, showing comparably high inherent value/ income streams<br>– Available data suggests good ancillary monetary value creation potential | – Transparent, reliable financial data available<br>– Data shows comparable project with very strong inherent value/income streams<br>– Well-documented, reliable information on comparable project, very high ancillary monetary value creation/ income streams |
| **Market relevance and attracti-veness** | – Market seen as offering very limited value, not seen as a focus market<br>– Market showing very below average attractive-ness indicators (e.g. GDP, per capita income) | – Market seen as offering limited value<br>– Market showing below average attractiveness indicators (e.g. GDP, per capita income) | – Market value seen as average, focus market for a limited set of parties<br>– Market showing average attractiveness indicators (e.g. GDP, per capita income) | – Market seen as offering value, seen as a focus market by numerous parties<br>– Market showing above average attractiveness indicators (e.g. GDP, per capita income) | – Highly valuable market, key priority market for a broad range of parties<br>– Market showing highly above average attractive-ness indicators (e.g. GDP, per capita income) |
| **Infra-structure project pipeline** | – No or unreliable project pipeline for the region<br>– Negative track record of realizing project pipeline development | – Unclear project pipeline for the region<br>– Mixed track record for past project realization<br>– Pipeline projects of limited interest/not comparable with current project | – Project pipeline in place<br>– Overall good track record for project realization in the past<br>– Pipeline projects of average interest/ generally comparable with current project | – Reliable project pipeline in place<br>– Above average track record for project realization<br>– Pipeline projects seen as valuable to broad range of parties, comparable to project at hand | – Region with clear, well-prepared infrastructure pipeline<br>– Excellent track record of realizing project pipeline development<br>– Key future projects in pipeline |

| Criteria | Assessment | | | | |
|---|---|---|---|---|---|
| | Very low (0 points) | Low (3 points) | Average (5 points) | High (7 points) | Very high (10 points) |
| **Robustness of business case** | – Key documentation not in place<br>– Estimates with unexplained high variances<br>– Key assumptions questionable<br>– Sources unknown | – Basic business case relying on proxies/ benchmarks<br>– Some assumptions questionable<br>– Sources with limited experience | – High-level documentation of business case<br>– All key data plausible and with reliable sources<br>– Calculations considered reliable | – Business case missing minor data<br>– Plausible, consistent calculations<br>– Sources for main assumptions documented | – Business case seen as very reliable<br>– Prepared by trusted party, potentially reviewed<br>– In general very plausible, reliable data used |
| | Very high (0 points) | High (3 points) | Average (5 points) | Low (7 points) | Very low (10 points) |
| **Risk exposure and mitigation options** | – Inadequate information available on key project risks<br>– Multiple key project risks not covered by mitigation instruments | – Incomplete knowledge of project risks<br>– At least one key project risk not covered by mitigation instruments | – Good understanding of project risks<br>– All key project risks covered by mitigation instruments<br>– Remaining risks seen as manageable | – Project risks well understood<br>– Limited key risks, all covered by mitigation instruments<br>– Limited overall risk exposure | – Project risks analysed and well documented<br>– All existing risks considered manageable, risks well-covered by mitigation instruments |

**Aspect: Project Impact and Secondary Value Creation (Axis iv)**

The metrics underlying these criteria measure a project's effect on the public and the environment. Note that metrics of environmental impact are ranked on a descending 0-10 scale, with the most negative environmental effects ranked 0 and the least ranked 10.

| Criteria | Assessment | | | | |
|---|---|---|---|---|---|
| | Very low (0 points) | Low (3 points) | Average (5 points) | High (7 points) | Very high (10 points) |
| **Direct community benefits (i.e. employment, public revenue)** | – Negative impact (i.e. loss of employment opportunities, deterioration of local livelihood)<br>– No or negligible effect | – Low effect in most areas<br>– No area with strong positive effect | – Medium effect across areas<br>– Strong positive effect in single area | – Strong effect in some but not all areas | – Strong positive impact across most areas<br>– No areas negatively or not affected |
| **Potential for secondary industries** | – Deterrence of secondary industries<br>– No effect or negligible effect | – Limited potential | – Medium potential<br>– Good potential in single sector | – Good potential<br>– Very strong potential in single sector | – Very strong potential for diverse sectors |
| **Economic efficiency gains (i.e. speedier processes, lower costs, increased supply security)** | – Decreased efficiency (i.e. increased costs, process slowdowns)<br>– No effect or negligible effect | – Limited effect on efficiency | – Medium effects in several areas<br>– Strong gains in one area | – High efficiency gains<br>– Potential attractiveness for businesses | – Very strong gains in several areas<br>– Significantly increased attractiveness for businesses |
| **Infra-structure accessibility** | – No usage benefit for local people | – Accessibility only for small minority<br>– Affordability only for small minority | – Widely spread accessibility, affordable only for some<br>– Affordable pricing, but access locally restricted | – Accessibility for a significant number of people<br>– Costs affordable by local majority standards | – Accessibility ensured for entire local population<br>– Negligible cost or free of charge |
| **Capacity-building ability** | – No capacity-building effect | – Only secondary effects (i.e. allowing easier access to education from other sources) | – Limited capacity building<br>– Only for project employees | – Medium capacity building at local level<br>– Including non-employees | – Large-scale capacity building<br>– Including non-employees<br>– Beyond local level (e.g. sponsorship of university programmes) |

| Criteria | Assessment | | | | |
|---|---|---|---|---|---|
| | Very low (0 points) | Low (3 points) | Average (5 points) | High (7 points) | Very high (10 points) |
| **Local community impact (i.e. resettle-ment, impact on cultivated or cultural areas)** | – Negative effect (i.e. resettlement for large number of people, destruction of farmland)<br>– No effect or negligible effect | – Low effect in most areas<br>– Some negative effects, met with creation of new positive impacts | – Medium effect across areas<br>– Strong positive effect in single area | – Strong positive effect in some but not all areas<br>– All potential negative aspects clearly counter-balanced (e.g. irrigation scheme for new agricultural sites) | – Strong positive impact across most areas<br>– No effect or no aspect negatively affected |
| | Very high (0 points) | High (3 points) | Average (5 points) | Low (7 points) | Very low (10 points) |
| **Local biodiversity sensitivity** | – Clearly negative impact<br>– Uncertain impact<br>– Very difficult mitigation, or no mitigation possible | – Serious, but clear-cut impact<br>– Manageable, but potentially costly impact | – Clear-cut impact<br>– Manageable effects | – Limited effects<br>– Easily manageable | – No effects or negligible effects |
| **Emissions impact** | – Significant increase in emissions | – Small increase in emissions<br>– Indirect increase in emissions (i.e. increased traffic)<br>– Similar to generally projected development | – No change on emissions balance | – Improvement in emissions balance | – Emissions-free project<br>– Significant improvement in emissions balance |

# List of Figures



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# List of Abbreviations

| | |
|---|---|
| ADF | African Development Fund |
| AFD | French Development Agency |
| AfDB | African Development Bank |
| AICD | Africa Infrastructure Country Diagnostics |
| ARTIN | African Regional Transport Infrastructure Network |
| AU | African Union |
| AUC | African Union Commission |
| AUM | Assets Under Management |
| BOOT | Build, Own, Operate and Transfer |
| BPOPF | Botswana Public Officers Pension Fund |
| BWG | Business Working Group |
| CAF | Central African Republic |
| CAPP | Central African Power Pool |
| CEEAC (ECCAS) | Economic Community of Central African States |
| CEN-SAD | Sahel-Saharan States |
| COMESA | Common Market for Eastern and Southern Africa |
| DBSA | Development Bank of South Africa |
| DEG | German Development and Investment Corporation |
| DFI | Development Finance Institution |
| DRC | Democratic Republic of Congo |
| EAC | East African Community |
| EAPP | Eastern African Power Pool |
| EBID | ECOWAS Bank for Investment and Development |
| ECCAS | Economic Community of Central African States |
| ECOWAS | Economic Community of West African States |
| EIB | European Investment Bank |
| FMO | Netherlands Development Finance Company |
| GDP | Gross Domestic Product |
| GEPF | Government Employees Pension Fund (South Africa) |
| GIPF | Government Institutions Pension Fund (Namibia) |
| GNAT | Ghana National Association of Teachers |
| GSM | Global System for Mobile Communications |
| IATA | International Air Transport Association |
| ICA | Infrastructure Consortium for Africa |
| ICAO | International Civil Aviation Organization |
| ICT | Information and Communications Technology |
| IFC | International Finance Corporation |
| IFI | International Financial Institution |
| IGAD | Intergovernmental Authority on Development |
| IPP | Independent Power Producer |
| IPPF | Infrastructure Project Preparation Facility (of the NEPAD) |
| IXP | Internet Exchange Point |
| LIC | Lower Income Country |
| MDB | Multilateral Development Bank |
| MoU | Memorandum of Understanding |
| NAMFISA | Namibia Financial Institutions Supervisory Authority |
| NAPSA | National Pension Scheme Authority (Zambia) |
| NEPAD | New Partnership for Africa's Development |
| NGO | Non-Governmental Organization |
| NSSF | National Social Security Fund |
| ODA | Official Development Assistance |
| OECD | Organisation for Economic Co-operation and Development |
| OSBP | One-Stop Border Post |
| PAP | Priority Action Plan |
| PCG | Partial Credit Guarantee |
| PFA | Pension Fund Administrator |
| PIDA | Programme for Infrastructure Development in Africa |
| PPP | Public-Private Partnership |
| PRG | Partial Risk Guarantee |
| RBA | Retirement Benefits Authority |
| REC | Regional Economic Communities |
| SADC | Southern African Development Community |
| SAPP | Southern African Power Pool |
| SARA | Southern African Railways Association |
| SBP | Strategic Business Plan |
| SEIA | Social and Environmental Impact Assessment |
| SPV | Special Purpose Vehicle |
| SSNIT | Social Security and National Insurance Trust (Ghana) |
| TAH | Trans-African Highway |
| TWh | Terawatt-hours |
| UMA | Union du Maghreb Arabe |
| UNECA | United Nations Economic Commission for Africa |
| WAPP | West African Power Pool |
| WB | World Bank |
| WDI | World Development Indicators |
| WESTCOR | Western Power Corridor |
| YD | Yamoussoukro Decision |

# Endnotes

[1] World Economic Forum, "Strategic Infrastructure: Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently", September 2012, p iii.

[2] World Economic Forum, "Strategic Infrastructure: Steps to Prioritize and Deliver Infrastructure Effectively and Efficiently", September 2012.

[3] Based on PIDA macro-economic expert team forecast, 2011.

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