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INFRASTRUCTURE FINANCING IN SUB-SAHARAN AFRICA

BEST PRACTICES FROM TEN YEARS IN THE FIELD

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This report is a joint effort of BCG and the Africa Finance Corporation, focusing on the climate for infrastructure investment in Sub-Saharan Africa. The key chapters of the report cover the logistical, financial, and sociopolitical challenges of infrastructure investment in the region; key considerations and strategies for governments to take into account in pursuing such investments; and corresponding considerations and strategies for private investors to weigh in doing the same. The remaining material in the report consists of ten case studies of major infrastructure projects in the region, and appendixes containing lists of resources and projects for reference.

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FOREWORD

(BY DONALD KABERUKA)

THE TENTH ANNIVERSARY of the Africa Finance Corporation provides an opportunity to reflect on its journey so far and to look ahead to its future and to the future of infrastructure development in Sub-Saharan Africa.

The World Bank's just-released report "Africa Pulse" points out that closing the infrastructure gap in Sub-Saharan Africa would increase per capita GDP by 2.6% a year. Analysts have estimated that the total financing requirements is about $92 billion per annum. Only about half of this amount can be raised from domestic revenues, DFIs, PPPs, natural-resource-backed contracts, bilaterals, and the like. PPPs have made a significant contribution to infrastructure development in the region, but they are not a panacea. They remain complex both in negotiation and execution.

Although further financing innovations are needed, financing is not the only obstacle or even—for some countries—the most important one. Two other impediments need to be overcome: policies and execution. On these two fronts, much remains to be done.

Nevertheless, remarkable progress has been made over the past ten years in developing and completing infrastructure projects that involve joint financing by public entities and private investors, especially in the domains of IT and transport. Several countries have completed or are on the verge of completing major railway projects of a transformational character, such as the Addis-Djibouti high-speed rail and the Mombasa–Nairobi standard-gauge railway.

I am convinced that, given the right policies, similar progress is possible in two areas that are have been slower to advance: supplying reliable, affordable, accessible power; and meeting the needs of rapid urbanization.

In the relatively few years of its existence so far, the AFC has carved out a niche for itself as a reliable partner in infrastructure development. Its contributions are widespread and continue to grow. In my previous assignments, I took great pleasure in seeing the AFC rise in stature and financial muscle as a results-oriented institution with a clear mission.

For this impressive journey and for the AFC's achievements over the past decade, I commend the organization's board, management, and staff.

CONTRIBUTORS

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And a special thank you for the contribution of Kinga Plawik - A BCG associate from our Warsaw office, as well as to the broader AFC team – for their relentless efforts on the ground work in order to make this report possible.

Finally, we also wish to acknowledge the work done by the AFC Steering Committee for this report – Andrew Alli (AFC CEO), Adesegun Akin-Olugbade (AFC COO & General Counsel) and Oliver Andrews (AFC Chief Investment Officer) - for all their support and valuable insights, as well as complete around the clock availability to the team.

EXECUTIVE SUMMARY

The World Bank estimates a global investment gap of $1 trillion annually in infrastructure development, and Africa faces especially sharp challenges in this area. For example, statistics reveal that two-thirds of Africans have no access to power, and the road access rate in Africa is only 34%, compared with 50% in other parts of the developing world. Overall, the nations of Sub-Saharan Africa lose as much as 2.1% of GDP annually to inadequate infrastructure—a circumstance that is at once daunting and correctable through appropriate investment and collaborative action.

Estimates of Sub-Saharan Africa's annual infrastructure gap put it at around $100 billion. Every dollar of that gap represents a drag on Africa's development and a diminution of its potential. Unless and until it acquires the modern transport systems, power generation capacity, and other basic infrastructure that it needs, it will lag behind not only the developed world but other emerging regions as well. Yet Africa presents a huge market opportunity. It has 52 cities with population of one million or more and has an extremely low current level of intraregional trade. Its urban population is expected to increase by 50% by 2030. The purchasing power of Africa's middle class is growing. In a decade, the continent will have the largest workforce in the world, along with 60% of the world's uncultivated arable land and abundant energy resources ranging from hydrocarbons to renewable. The continent is home to four of the world's ten fastest-growing economies.

Africa's governments recognize the infrastructure problem, but they have neither the financial resources nor the technical ability needed to close the gap by themselves. Private capital and expertise must be mobilized, too—and that is the focus of this report. Collaboratively developed by the Africa Finance Corporation (AFC) and The Boston Consulting Group (BCG), the report draws on the experience and best-practice advice of experts from both the private sector and the public sector.

International private capital—especially foreign direct investment—has much to gain by broadening its investment in African infrastructure.

Successful projects are likely to generate a higher return on investment than similar projects in other regions, but to succeed in Africa, investors must adapt to an environment that presents a number of challenges related to government and financial markets:

- **Government:** Complications include limited public-sector capabilities to develop strategic foresight and planning, insufficient political will, policy uncertainty, weak regulatory environments and law enforcement, and a shortage of people who have the needed technical skills.

- **Financial markets:** Narrow financial markets, higher actual and provisional risks, longer project durations, significant cost overruns, and currency mismatches make financing issues more complex.

In addition, Africa often fails to attract first-tier international private investors in infrastructure projects, and a number of the second- and third-tier investors that tend to be more active in the continent lack some capabilities themselves.

Financial systems, too, need upgrading. Only the banking sectors of South Africa and (to a lesser extent) Nigeria currently offer financial markets sound enough to be tapped for infrastructure projects—although, in a similar vein, Kenya has developed a framework for infrastructure bonds.

That money is not flowing freely into Africa in pursuit of higher expected returns reflects these challenges, which must be addressed if the infrastructure gap is to close. Indeed, these challenges have resulted in relatively few projects' reaching a bankable stage.

African governments are attempting to address these deficiencies. Of the 49 Sub-Saharan countries, 42 now have enacted legislation to provide a regulatory framework for private investment in infrastructure. South Africa, Rwanda, Botswana, and Mauritius offer good examples of advanced and robust regulatory contexts.

But this is merely a start. Most African countries' regulatory frameworks remain limited, piecemeal, and untested. Going forward, governments on the continent should take several steps to improve the situation:

- Understand and nurture the idea that increased private investor involvement in the infrastructure space is the best way to achieve intensive jobs creation and to incentivize funding and skill transfer.

- Establish a solid legal and regulatory framework, and guarantee its enforcement and stability both within the relevant sector and more generally:

  - **Within the sector:** Clarify specific standards and relative laws.

  - **More generally:** Clarify and develop fiscal incentives, and facilitate provisions that promote dispute settlement and licensing.

- Enhance individuals' capabilities with training, and build effective

institutional capabilities in specialized public-private partnership (PPP) units.

- Formulate an integrated infrastructure plan, and create a steady pipeline of new projects across the following segments:
  - Basic infrastructure that is difficult to make economically profitable should be the responsibility of governments and development partners.
  - Infrastructure that is financially viable with appropriate tariffs in place should be the responsibility of private investment via concessions or PPPs.
  - Infrastructure that is marginally profitable, but not enough to justify a purely private investment should be handled either through the use of PPPs or via O&M contracts.
- Develop domestic capital and debt markets that provide lower financing costs and longer tenures. Such markets also increase investors' access to local currency financing for infrastructure projects, pursuing ideas such as issuing infrastructure bonds for the retail market that are backed by some level of governmental guarantee. Strong financial markets also support refinancing to reach an optimal capital structure and to revolve the existing debt component.
- Insist on transparency, enforce anti-corruption standards, and strengthen anti-waste capabilities.
- Ensure that government follows up on projects through the end of construction and on into ongoing operation, recognizing that its work does not end—and in many respects only begins—with the concession agreements.

Private investors, too, have much to learn. They must understand the challenges that are distinct to infrastructural investment in Africa, and they must develop the patience, resilience, and risk appetite that the environment demands. They should also recognize that the most successful investors possess an entrepreneur and engineer mentality and engage fully with projects on the ground—from concept to bankable project and throughout execution. Engaging with and earning the confidence of host communities is another requirement.

Private investors who invest in infrastructure projects in Africa need four key attributes:

- A mindset and expectations that reflect the distinctive realities of the African investing environment—in particular, persistence and resilience, a long-term view of project success, and appropriate risk tolerance.
- Deep knowledge of each target market and each particular environment, as well as of local dynamics.

- An entrepreneur/engineer outlook rather than a more hands-off financier-type viewpoint, with an integrated end-to-end view of projects and a willingness to acquire in-house capabilities for its different stages and to get involved from initial concept to feasibility, bankability, and eventually construction and operations; alternatively, a willingness to recognize and reward work done by third parties.

- Awareness of community engagement as a core priority, not an add-on.

Many projects that include private investors run into severe challenges because of an initial lack of fairness and balance between the parties to the contract An infrastructure project that involves both public and private sectors should be crafted in a way that it is not skewed toward either party, and it should include built-in revision clauses in case the context changes in an unforeseen way.

In this respect, certain institutions such as AFC, with its shareholder profile of 58% private investors and 42% public investors, can be of great help in mediating fair contractual balances. Moreover, the dynamism and flexibility of this type of organization structure is more in line with private sector trends than with traditional (and typically more bureaucratic) development financial institutions.

Finally, governments and private investors must work together toward certain goals:

- Best practice sharing, templates, and standardization.

- More, smaller, quicker deals.

- More innovation, such as issuing infrastructure bonds in local currencies and using the platform approach to deals.

- Increased regional investment opportunities in key corridors.

- The creation of a pan-African industry association.

- A stronger focus by governments and development-oriented investors on basic infrastructures and new frontiers, while more-traditional private investors pursue relatively well-trodden profitable areas.

There is also a pan-African aspect to this endeavor. An all-African association could assist in the exchange of experience and strategies in infrastructure investment, favoring know-how building, best practices, and templates. Meanwhile, regional and cross-border projects could be of particular value to nations handicapped by small size or geographical disadvantages, such as Africa's 15 landlocked countries' lack of coastal territory.

The challenge is huge, but so are the opportunities—a winning proposition for those who get it right. For private investors, there is money to be made; for governments, the possibility of transformative social and economic development. And the biggest winners will be the almost one billion citizens of Sub-Saharan Africa, whose life prospects stand to change for the better.

THE INFRASTRUCTURE INVESTMENT LANDSCAPE IN AFRICA

EMERGING ECONOMIES like those in Sub-Saharan Africa are particularly exposed to the global megatrends of growing populations, economic growth, and rapid urbanization, which create an ever-increasing need for infrastructure planning and development. And with governments increasingly strained for resources, there is a growing role for the private sector as an investor in profitable initiatives. Private infrastructure investment is on the rise globally, but in this region it visibly lags behind such investment elsewhere.

This report, developed collaboratively by the AFC and BCG, focuses on private investment in power and transport infrastructure in Sub-Saharan Africa. It is intended as a resource for governments and investors that are interested in investing in African infrastructure, and to that end it attempts to accomplish three things:

- Identify what makes investing in infrastructure in Africa both challenging and highly rewarding.
- Recommend best practices for governments and for private investors, drawn from years of industry experience by the AFC and other key players in the field.
- Highlight past projects, analyze empirical evidence, and identify lessons learned.

The growing private sector role in infrastructure investment globally

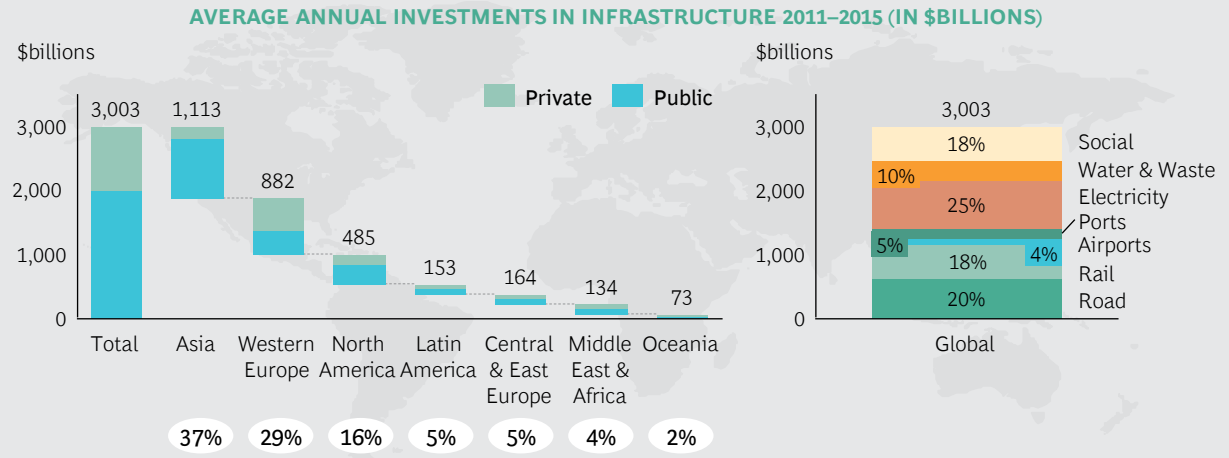
The global infrastructure investment gap is large and growing. Excluding information and communications technology (ICT) infrastructure, which is traditionally profitable and privately funded, current estimates based on OECD data and BCG analysis indicate that the world needs around $4 trillion in infrastructure investment per year. But currently annual total spending amounts to only around $3 trillion, with $1 trillion of that amount invested in Asia. (See Exhibit 1.)

The public sector finances two-thirds of the $3 trillion investment, but that percentage is likely to fall as strains on public budgets increase and private infrastructure investment becomes more widely accepted. In some places, such as Western Europe, where the public contribution to funding is down to 40%, the private sector is now the largest investor in infrastructure.

Of the $50 trillion needed globally for infrastructure through 2030, around 80% is needed for core infrastructure: 47% (around $23.5 trillion) for transport infrastructure, including roads, rail, ports, and airports; 25% (around $12.5 trillion) in power projects; and 10% (around $5.0 trillion) in water projects.

We expect the rest of the world to follow Western Europe's lead in relying increasingly

EXHIBIT 1 | Infrastructure Presents a Major Investment Opportunity Worldwide

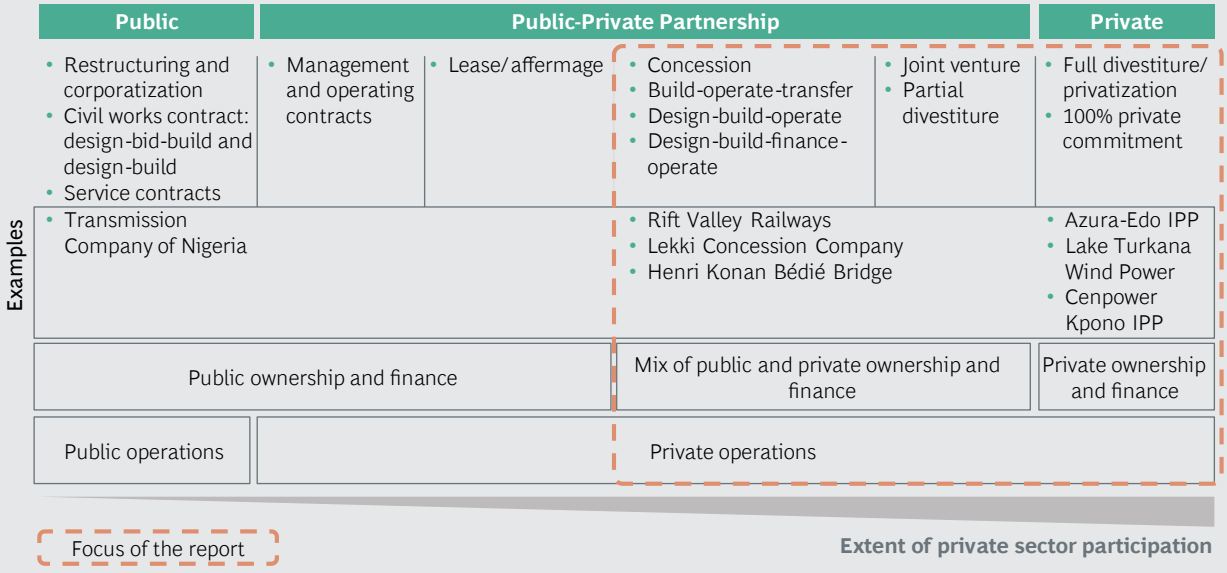


Notes: Monetary figures are in US dollars. Coverage extends to 69 countries, equal to approximately 96% of World GDP. There is some possibility of overestimation of private participation, particularly in Western Europe, due to the classification methodologies used by different sources. The largest economies without data on public investments are Japan, Korea, Netherlands, and Turkey.
Source: IHS Global Insight; World Economic Forum; World Bank, International Monetary Fund; European Investment Bank; Vnesheconombank; Morgan Stanley; Deutsche Bank; ICBC; Canadian Imperial Bank of Commerce; Rosstat; US Census; Programa Nacional de Infraestructura Mexicano; press research; BCG analysis.

on private sector investment to bridge the infrastructure gap. Governments are likely to encourage this result through various regulations permitting private participation, as well as through greater political will and more stability going forward. The models for private participation vary from country to country, but five are most widespread (see Exhibit 2):

- Concession of existing infrastructure—primarily in the form of operation and maintenance agreements under which private operators maintain infrastructure and earn revenue.
- Projects developed and built by the government, and then sold or concessioned.

EXHIBIT 2 | The Range of Ways the Private Sector Can Invest in Infrastructure



Source: BCG analysis.

- The build-operate-transfer model, in which the private sector builds and operates an asset that becomes public sector property after an agreed period.
- A mix of public and private ownership and finance, usually with private operations co-owned.
- Assets that are 100% private-sector-owned and -operated in perpetuity (as is the case with most ICT investments).

Private investment in emerging countries

In most emerging economies, public budgets and skills are insufficient by themselves to deliver the infrastructure projects needed to sustain economic and demographic growth. Among low- and middle-income countries, three of the four BRIC nations—Brazil, India, and China, but not Russia—have the greatest cumulative experience of public-private partnership projects and most the capital invested. (See Exhibit 3.) Most countries in Asia and South America already have substantial private investment in infrastructure, as well as substantial project development and execution experience.

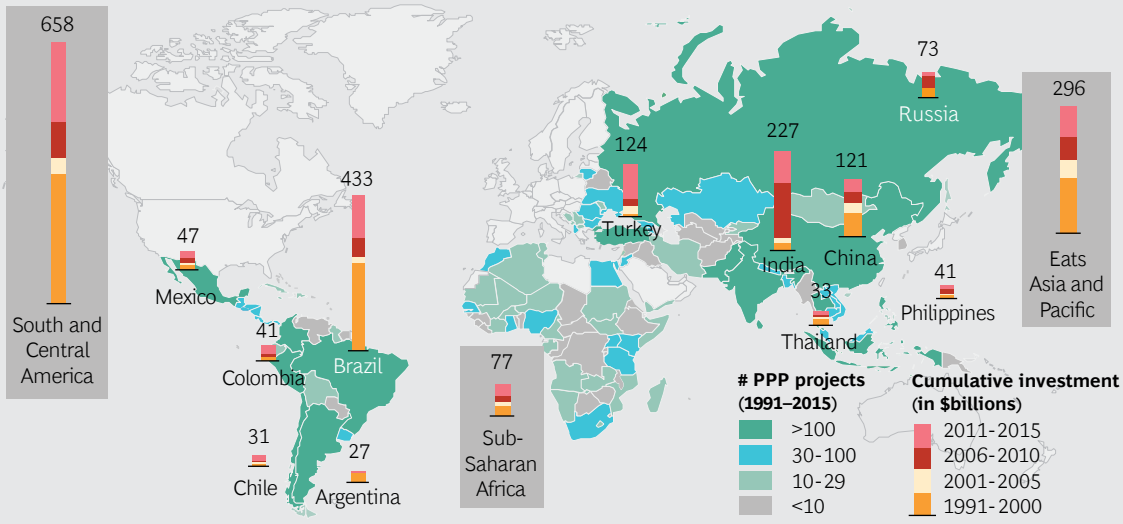
Overall, Sub-Saharan Africa has a very modest presence and level of experience in this area, with only $77 billion in PPP projects, compared to $124 billion in Turkey alone, or $658 billion in South America (with Brazil alone representing $433 billion). These numbers highlight Africa's enormous potential for growth going forward.

The cases of Brazil and Turkey are particularly enlightening with regard to what can be achieved when governments cater to the needs of private investors in order to boost their share in infrastructure investments. (See the sidebar "Emerging markets to learn from: The story of Brazil and Turkey" for a description of these two case studies).

Private infrastructure investing in Africa

Although there has undoubtedly been progress in recent years, private investment in infrastructure in Africa remains weak and underdeveloped compared to such investment in other emerging regions. Estimates of the annual infrastructure investment gap put it at around $100 billion. Power accounts for 40% of total spending needs, followed by water supply, sanitation, and transport.

EXHIBIT 3 | Private Investment Experience in Emerging Economies



Note: Infrastructure efforts counted include electricity, transport, and ICT projects. Subcategories of projects include management and lease contracts, brownfield projects, greenfield projects (excluding merchant contracts) and divestiture.
Source: The World Bank and Public-Private Infrastructure Advisory Facility (PPIAF), Private Participation in Infrastructure Database, 2016, http://ppi.worldbank.org/index.aspx.

EMERGING MARKETS TO LEARN FROM: THE STORY OF BRAZIL AND TURKEY

Brazil and Turkey are among the top five emerging market economies for private sector infrastructure investment over the past 20 years. Both offer models for any nation looking to unlock such investment. In Brazil, private sector investment in transport and electricity infrastructure has topped $300 billion since 1995. The country has received more investment than any other emerging nation; Turkey has received $115 billion.

In the 1990s, Brazil's government began reducing public investment in infrastructure and making privatization an economic priority. Initially focused on state-owned companies, the process soon incorporated public enterprises that were responsible for infrastructure. Legislation in 1995 created comprehensive rules governing public service concessions, opening key sectors of infrastructure (including telecommunications, electrical power, and transportation) to private investment.

These policy changes, coupled with an aggressive public corporate financing program, caused investment to flow into Brazil, although investors initially focused on the known quantities of privatized enterprises and existing infrastructure. From 1995 to 1999, greenfield projects accounted for less than 4% of private sector infrastructure investment in electricity and transportation infrastructure.

Private investment flowed more slowly after 2000, but it also changed direction. Since 2002, more than two-thirds of the private sector projects each year in transportation and electricity infrastructure have been greenfield. Concessions have not completely filled the investment gap left by public spending cuts, but they have significantly reduced infrastructure gaps in the power and transport sectors.

In contrast, Turkey's experience included a mix of new investment and privatization of existing infrastructure. Private investment in infrastructure, which rarely exceeded $1 billion per annum before 2007, skyrocketed in 2008, for several reasons.

First, Turkey undertook several large-scale privatization projects, including power plants valued at more than $5 billion, deregulating the generation sector and enabling a cost recovering tariff system. Second, the Ministry of Development drafted an umbrella law in 2007 to govern public-private partnerships. Although not yet enacted, this law led to the creation of a dedicated PPP department within the Ministry of Development, enhancing the government's capacity to execute PPP contracts across sectors and across ministries, concentrating knowledge and facilitating coordination. These changes and other reforms resulted in the signing of more than 124 PPP contracts, with a projected investment value of over $43 billion for the 2008 to 2013 period—around $9 billion per year, about nine times greater than the historical values before reform.

Both countries have recently suffered political turbulence, but they still offer valuable lessons. In Brazil, investors were drawn initially by the privatization of existing industries, with more risky greenfield projects arriving later. Although privatization led to some investment in Turkey, the driving forces there were improved coordination, incentives, and significant reform. In both countries, improvements in the investment environment reduced uncertainty and strengthened investor confidence.

Current levels of private investment suggest that the addressable annual investment gap for privately financeable infrastructure in Africa is $12.6 billion annually, but the World Bank estimates that cost escalations could result in a need for twice that amount.

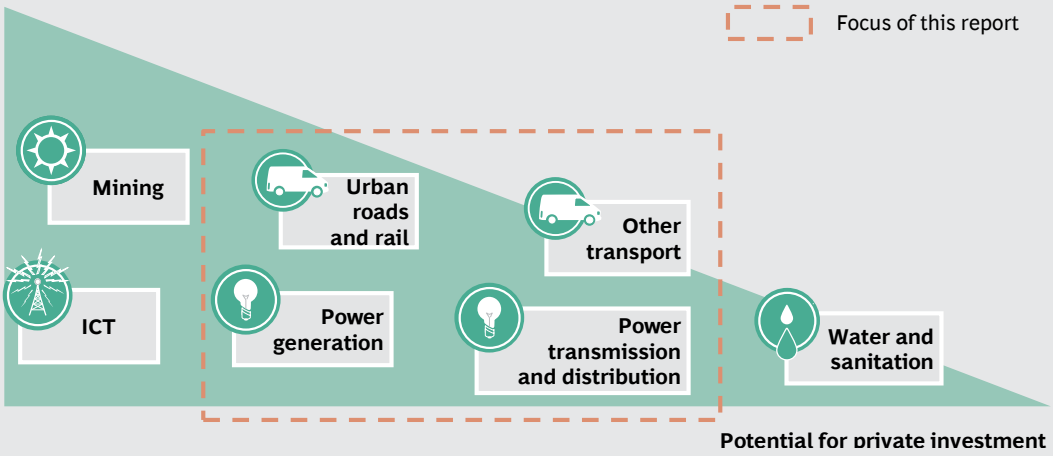
Although there is a funding gap for all types of infrastructure in Africa, including social infrastructure, this report concentrates on types of core infrastructure for which—given an appropriately enabling regulatory environment and, in many cases, additional public incentives—private investors can indeed play a meaningful role in partnership with government. (See Exhibit 4.) This excludes ICT infrastructure and infrastructure associated with mining, which are almost completely driven by the private sector.

In Sub-Saharan Africa, private investment in core power and transport infrastructure has been limited to only $51 billion over the last 25 years. That figure is very low considering the scale of the opportunity and the levels of private investment in core infrastructure in other parts of the world. Although investment in power generation has spread across a reasonable number of projects and countries, relatively few transport sector transactions have occurred. (See Exhibit 5.)

One explanation is the difficulty involved in creating adequate commercial returns from most long-distance, intercity, and rural road and rail networks. But urban roads and railways, bridges, and port and airport infrastructure offer more opportunities, particularly when supported by government incentives, than the number of deals made would suggest. The problem is not the absence of potentially profitable deal opportunities or, as the example of ICT demonstrates, capital.

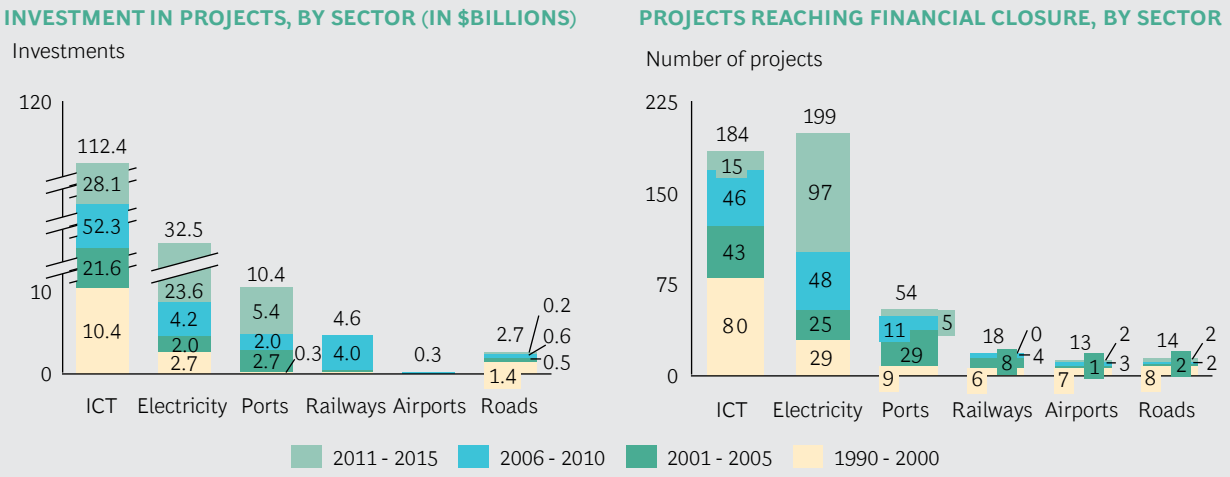
Infrastructure investment in Africa has the potential to be highly profitable. Returns there, on average, are likely to be significantly higher than in Europe, for example, where overvalued assets have squeezed the value of investments. Many transformational projects have enormous economic potential across the continent—projects valued at $50 million or above were worth $324 billion in 2016. With the right approach and mindset, private investment in African infrastructure can be highly remunerative and can play a significant role in transforming the continent for the better. Now is the time for the private sector to turn to Africa.

EXHIBIT 4 | Infrastructure Sectors That Are the Focus of This Report



Source: BCG analysis.

Exhibit 5 | Private Investment in Infrastructure in Sub-Saharan Africa, 1990–2015



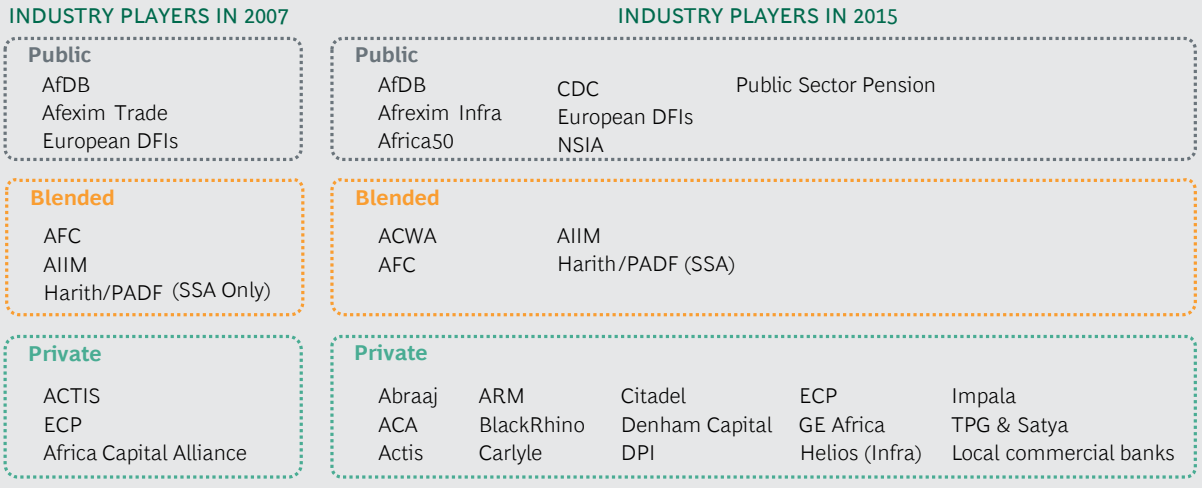
Source: The World Bank and Public-Private Infrastructure Advisory Facility (PPIAF) Private Participation in Infrastructure Database, 2016.

The evolution of private infrastructure investment in Africa

The environment for private investment in infrastructure is changing. Governments are becoming more receptive to private investment, a larger number of private investors have emerged, and the private sector has been responding more enthusiastically to opportunities. (See Exhibit 6.) Older players in the field have remarked on this change and on the international investor community's growing interest in African infrastructure.

Regulatory environments have improved across Africa, making it increasingly possible for private investors to participate in infrastructure projects. Whereas in the past only a few countries had enacted legislation to permit private investment in infrastructure, today a steadily expanding number have experience with PPP projects. As shown in the sidebar "The importance of understanding Africa's diversity", 42 of Sub-Saharan Africa's 49 countries have enabling legislation. And 37 of those 42 have had some deal flow.

Exhibit 6 | Major Players in Africa's Changing Infrastructure Landscape



Source: AFC/BCG analysis.

THE IMPORTANCE OF UNDERSTANDING AFRICA'S DIVERSITY

While some generalizations are possible, it is essential to remember how diverse Sub-Saharan Africa is. This can create real differences for infrastructure investors. Countries have many differences in legal traditions, regulatory environment, levels of political stability, human capacity, financial sector maturity, historical background, cultures, languages, natural resources, climate, geography, and so on. The resulting complex mix of variables can significantly affect a country's attractiveness to private investors. (See the following exhibit.)

We used a mix of enabling environment and economic opportunity metrics to assess each Sub-Saharan country for infrastructure investment attractiveness. (See Appendix 3.)

We reached a number of conclusions on the basis of that data:

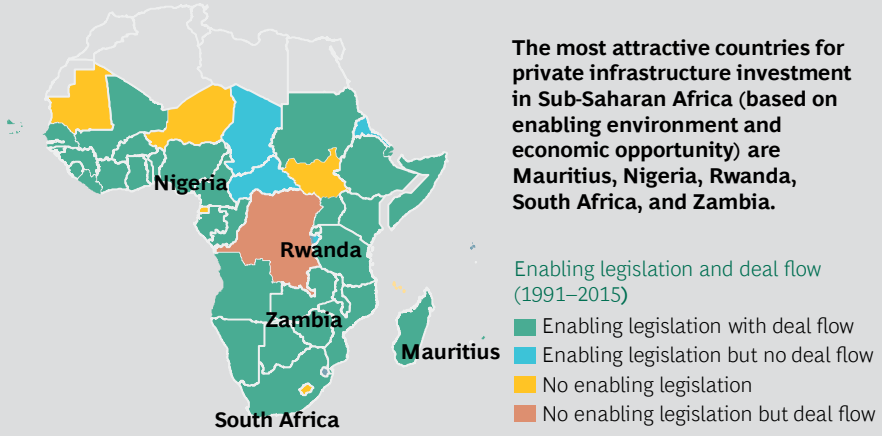
- **South Africa** is well ahead of the other countries in terms of regulatory environment, financing availability, precedents, and the capacity of the public and private sectors to get deals done.
- **Rwanda, Botswana, and Mauritius** have strong regulatory environments for infrastructure investment, but are relatively small markets.
- **Nigeria, Tanzania, and Ethiopia** have regulatory environments with sufficient economic opportunity to be attractive to investors. Nigeria, the biggest country economically and demographically, has a mixed record of private investment in infrastructure. Only South Africa has completed more PPP infrastructure deals over the past 25 years than Nigeria has, but Nigeria's regulatory environment still has room for improvement: government capacity, political will, and policies with associated demonstration effects, along with macro-economic stability, are issues, and the number of highly successful deals remains limited.
- **Zambia, Ghana, and Kenya** have a decent balance of enabling environments and economic opportunity and thus find themselves somewhere in the middle. They offer great opportunities, have improving regulatory environments, and are growing in public and private sector capacity, but successful investment in these countries can still require a lot of effort.
- **Côte d'Ivoire, Cape Verde, Gabon, and The Gambia** have enjoyed deal flow and their governments have been relatively attractive project partners on a deal-by-deal basis, but they lack strong enabling environments or significant economic opportunity.

Elsewhere in Africa little is happening:

- **Comoros, Equatorial Guinea, Lesotho, Mauritania, Niger**, **and South Sudan** currently lack the enabling regulatory framework for private power and transport infrastructure investment.
- **The Democratic Republic of the Congo** has no structured regulatory framework for private investment in infrastructure, but sector ministries negotiate one-off deals using their own guidelines, in particular in the mining, power, and cement sectors.

THE IMPORTANCE OF UNDERSTANDING AFRICA'S DIVERSITY (continued)

Enabling Legislation and Deal Flow for Private Infrastructure Investment in Sub-Saharan Africa



The most attractive countries for private infrastructure investment in Sub-Saharan Africa (based on enabling environment and economic opportunity) are Mauritius, Nigeria, Rwanda, South Africa, and Zambia.

Source: BCG analysis.

Furthermore, efforts like the US-government-led Power Africa initiative can contribute to facilitating more private investment in this space. (See Case Study 1.)

Established players also point to improving transparency, which makes it easier for investors to engage in the field. There is still a long way to go, but governments are slowly making regulatory changes while building their own capacity to negotiate deals.

Thanks to better planning and organization, projects increasingly come to the market in the form of multiple-project programs, as opposed to individual projects, enabling the scaling of investment. South Africa's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), which aims to accelerate private investment in renewable energy, illustrates how effective these efforts can be. The first wave of competitive bids in 2011 led to the selection of 28 bidders offering 1,416MW (megawatts) of power generation for a total investment of nearly $6 billion. The program continued to grow, and by 2014 it had yielded total commitments of $14 billion (approximately $4.2/MW) to construct 64 IPPs projected to generate 3,922MW of renewable power (approximately $3.6/MW). The first projects are already operational.

To achieve critical mass and balance sheet strength more quickly—in order to facilitate access to capital markets and to protect against cost overruns and skills shortages—investors have begun using a platform model to help design infrastructure project deals. The AFC is currently using this approach in the power and transport sectors. Under this model, investors have established independent companies that incorporate a number of power or transport assets owned by the partners; these companies then do deals in their respective sectors using their own balance sheets. A recent example is the merger of power assets between AFC and Harith into a single joint venture. Traditionally, investors have undertaken power projects in Africa one by one, each project requiring unique structures and financing. This new merging of resources will create an independent pan-African power company that can execute deals more efficiently. Instead of raising funds project by

project, the company will have its own balance sheet and will eventually build a credit rating against which to borrow, enabling it to undertake power projects much more quickly, using economies of scale. Project development in Africa has become a separate element in the project life cycle. Entrepreneurs can build a low-capital-intensive business around project development, filling a public sector skill gap that in the past has thwarted potentially profitable deals. Recognizing that this stage is critical to unlocking the bankability of projects on the continent, AFC has collaborated with key industry players to launch Africa Infrastructure Development Association (AfIDA), a network of developers, financiers, and lawyers that will advocate to remove infrastructure bottlenecks and bolster Africa's project pipeline.

THE CHALLENGES OF INFRASTRUCTURE INVESTING IN AFRICA

Successful private investment in infrastructure in Sub-Saharan Africa depends on the ability of investors, governments, and other stakeholders to recognize the challenges that make this unique investment climate different and distinctive. It is critical to avoid treating Africa as a homogenous region, recognize the differences between individual countries, and at times even between individual regions of a single country. On the other hand, African countries with sufficient regulatory frameworks in place do share some challenges that distinguish them from other emerging markets and the rest of the world.

The most pressing challenges facing infrastructure investment in sub-Saharan Africa are:

- Limited public sector capabilities, insufficient political will, policy uncertainty, and weak regulatory environments.
- A shortage of available people who possess needed technical skills.
- Financing complexities attributable to narrow financial markets, higher actual and provisional risks, longer project durations, significant cost overruns, and currency mismatches.

In view of these challenges, investors must take a more integrated approach to project life cycles, assure political buy-in and ongoing local negotiation skills, and accept longer maturation periods and higher uncertainty.

Most key players believe that the levels of public sector capacity, political will, policy certainty, and regulatory environment in Sub-Saharan Africa are below the levels that are usual elsewhere, and that this translates into greater political and regulatory risks.

Limited public-sector capacity

Governments in Sub-Saharan Africa are short on human and financial capacity, and many public institutions cannot fund deals, develop projects, and enforce legislation. This leads to delays in approval for projects that, some experts say, can take twice as long as in other regions. It also hampers project development. In other parts of the emerging world—particularly in the Gulf region—governments act as project developers, and private investors come in when the project is ready to be executed. In Africa, private investors often must act as project developers, adding 10% to 15% to the project costs and lengthening the project life cycle. On the other hand, if governments organize the sector within a more market-oriented policy framework, entrepreneurs can more easily step in and build low-capital-intensive

businesses around project development opportunities.

There are exceptions, however—notably the Bureau National d'Etudes Techniques et de Développement (BNETD) in Côte d'Ivoire, the Presidential Infrastructure Coordinating Committee (PICC) in South Africa, and the Rwanda Development Board (RDB) in Rwanda. (See Case Study 2.)

Other countries can follow these models, but with one caution: governments creating BNETD-style one-stop shops must ensure that such bodies do not themselves become a bottleneck. The establishment of well-functioning government organizations dedicated expressly to coordinating and accelerating infrastructure projects sends a strong signal of public sector interest and may increase the chances of project success.

Insufficient political will

Corruption, lack of transparency, and deal-blocking entrenched interests still afflict Africa. Even when nations want to attract private investment, mindsets can take time to shift. Today governments widely recognize the need to enable private investment in the sectors of power, roads, railways, and bridges, but this awareness typically does not apply to other types of transport infrastructure such as seaports and airports. The inconsistency on this point reflects the scale of some of the projects in these sectors and the difficulty of making all of them profitable (especially in roads and railways), but it also signals resistance by local stakeholders to losing access to the opportunities the projects offer for rent seeking and other forms of income (especially in ports and airports).

Another issue involves political will and the need for adequate coordination between different ministries: governments often think that, once they sign the PPPs or similar agreements, their role is finished and they have no further responsibility for its success. Things never turn out as planned, but governments ultimately remain responsible for delivering infrastructure to their people, even when a PPP is present. Making things happen on the ground requires difficult, detailed work to be done throughout the whole life cycle of the infrastructure, and governments need to be active drivers of this essential work, relentlessly pushing forward, coordinating operations, and removing obstacles.

The Nigerian government's endeavor to privatize the power sector serves as an example of a well-intended effort that has thus far yielded very mixed results. (See Case Study 3.)

Policy uncertainty

The vital role of the public sector and the lengthy time frame of infrastructure projects can make policy discontinuity a serious challenge. It is always possible that the policies, regulations, and political will undergirding a project will change when a new administration comes into power or even when a new minister or other public official takes office within the same administration.

Fortunately, Africa has seen some project success stories, such as the Cenpower Kpone IPP deal in Ghana, which survived four changes of minister. (See Case Study 4.) More common, however, are situations where a change in the governing system creates major problems for an ongoing project. For example, a port expansion project in a West African country was abandoned following delays and disruption associated with multiple changes of the director of the port management authority. Prospective investors should approach this environment aware of the risks, while looking to success stories for lessons in how to improve their odds of success, despite an environment rife with uncertainty. One way of limiting the risks of changes in governance and people is to assure buy-in at several levels in the organizations, instead of focusing exclusively on the head figures.

Weak regulatory environments

African regulatory environments have improved in recent years, with the enactment of many basic laws designed to permit private investment in infrastructure, but

there is still a long way to go. Strengthening and enforcing the laws can take a long time. Niger and the Democratic Republic of Congo, for example, still lack the legal framework needed for private sector investment in some forms of infrastructure outside individually negotiated one-off government deals. Nigeria has such laws in place, but the country took four years to pass a regulation liberalizing the power sector, and another eight years passed before privatization took place—with decidedly mixed results.

Consequently, private investors may find themselves in the role of guinea pigs, needing to co-develop legal agreements with the government to implement projects. The Lekki Concession Company (LCC) deal is one example where this happened. (See Case Study 5.) Ghana's successful Cenpower deal served as a blueprint for similar projects not just within the country but throughout the entire region.

This process helps governments develop templates and build internal capabilities for future deals, enabling more rapid project completion. Investor confidence grows as governments complete more deals and develop regulatory stability. Governments can proactively build these capabilities to attract investment, and prospective investors can look to past success stories for insight into how best to proceed within a specific country.

Technical skill shortages

African projects are hampered by the limited pool of people who have the right technical skills, ranging from highly trained engineers, financiers, and lawyers to construction workers with basic technical and vocational skills. Exacerbating this problem is a long-term tendency to award public infrastructure contracts to non-African companies, limiting skill and technology transfer. The tendency leads to higher project costs, puts a premium on local talent, necessitates importing immigrant talent to fill gaps as needed, and imposes extra costs for training local employees.

This shortage of technical skills presents governments and the private sector (at least in the more engineering aspects of the projects) with a significant opportunity in vocational education. India, when faced with a similar skills gap, established an ambitious program to provide technical training to tens of millions of people in specific vocational fields, eventually spawning an entire technical training industry. Similar solutions may help African countries attract infrastructure investment and may create additional benefits along the way.

Financial complexity, long gestation periods, and added costs

Africa is particularly handicapped by narrow financial markets and (all too often) weak underlying currencies. Aside from those in Nigeria and South Africa, most commercial banks in the region lack the financial muscle and institutional experience to finance major infrastructure deals. Pension funds and insurance resources—huge pools of capital for infrastructure investment in other regions—are rarely used outside South Africa.

Many African financial markets have an excess of private savings that the banking sector cannot transform into productive credits. Tapping into these savings via infrastructure bond vehicles, with some kind of governmental guarantee to back them, could bring in large pools of domestic financing for these projects, helping at the same time to bridge the financing gap and currency mismatches in many of them.

In light of the huge differences in financial capacity of individual countries, such local currency pools are extremely important potential sources of investment. Africa has more than 40 different currencies. Most are volatile and not exchangeable, even with other African countries. Most investors provide capital in foreign currency, but take their revenue in local currencies, creating a substantial currency mismatch that often involves a very high risk. Hedging mechanisms or guarantees provided by governments seeking to attract foreign investment in infrastructure may eliminate this currency risk for private investors by transferring the risk to the government, but unfortunately such risk transfers impose a substantial burden on the finances of the

guaranteeing government. Developing an appropriate framework to tap into local financing, especially to cover some local costs, will enhance the projects' viability and sustainability.

Africa's low current level of infrastructure development also means that the secondary infrastructure market is quite limited. As a result, private investors are much likelier to be involved in greenfield projects, which are riskier and less profitable than brownfield or secondary investment. But when private investment increases, developmental financial institutions (DFIs) and development-focused investors can prioritize greenfield projects while fully private investors can buy out DFIs from operational assets.

A project gestation period of seven to ten years is typical in Africa, compared with three to five years elsewhere. All infrastructure investment requires a long-term view, but players in Africa especially need patient capital and must be prepared for time and cost overruns as well as constant ongoing renegotiation of contracts.

Developers usually assess project costs and timelines in Africa at 20% to 30% higher than in developed economies. Some experts reckon it at closer to 60%, which is another very important factor in African project costs and therefore in private investors' higher expected internal rates of return (IRRs).

A final disincentive to invest is the significant upfront capital cost of feasibility studies, impact assessments, and other activities not usually borne by private investors elsewhere. The need to take on such development costs, which can amount to 5% to 15% of total project cost, is an additional factor in the African cost premium.

By taking on these development costs and creating environments that lower other relevant overcosts, governments may unlock much more private investment in their countries. Also, over the past few years, funds from development partners have evolved to offer financial products such as grants or guarantees that can be used to cover these early costs—although as yet this resource remains underexploited.

EMERGING BEST PRACTICES FOR GOVERNMENT

GOVERNMENT'S ROLE in private infrastructure development inevitably differs from the private sector's. Typical private investors aim to make profits, whereas governments want to improve the well-being of their citizens through additional infrastructure. Government provides funding for much infrastructure on its own as a public good. But limited government resources make using private sector capital for infrastructure that may yield commercial returns a wise strategic move.

Emerging best practices for the public sector center on creating an environment that helps infrastructure investors operate successfully. Making this environment a reality may require a change in approach and mindset toward policy making and execution.

A changed approach and mindset

Private investors often complain of governments' lacking the political will to drive private investment in infrastructure. So it should be a priority to demonstrate such will from the very top, creating an enabling environment to ensure policy alignment and stability.

Governments also need to take a holistic approach to the task of identifying roles and responsibilities. This means recognizing the different roles of private investors and the public sector. One crucial difference is the special social responsibility of governments. They need to own the difficult parts of community engagement, such as relocation of people, and to ensure that communities understand and firmly own the investment.

Governments must also acknowledge that private investors need to see a return on their investment. The two sides may differ on the questions of how high this return should be and how far private investors should be protected from risk, but the crucial point remains the same: while government may focus on beneficial social impact, the private investor will expect monetary reward. Governments should also strategically negotiate private investor participation, not only as a source of financing, but also as a potential source of expertise and enhanced efficiency.

The precise role that the private sector should play in infrastructure development in any particular instance depends on the potential profitability of that project.

Governments should adopt a general subsidiarity approach to infrastructure investment, leaving—when appropriate—profitable investments to private initiative, and freeing up as many public resources as possible for needed but generally nonprofitable investments. Such an approach would involve the following policy priorities:

- Invest in projects, such as rural roads and long-distance passenger rail services, from which the private sector cannot hope to turn a profit, prioritizing those with the greatest social and economic benefits.

- Adopt state-of-the-art public tendering and data disclosure practices to ensure transparency along the entire project chain from project origination to preparation to implementation. This will increase the number and size of willing and available financial pools.

- Provide the right enabling environment and appropriate strategic subsidies (tax incentives, sovereign guarantees, or free land, for example) for projects that may be profitable with some government support, such as power generation, busy expressways, strategic bridges, and urban rail systems.

- Create an enabling and stable environment to encourage investors to invest in infrastructure projects that are profitable without government subsidies, as is usually the case with ICT-related infrastructure investments.

- Concentrate the negotiation and execution capabilities that private investors need from government in a one-stop shop.

Governments also need to strengthen regional collaborations. Regional free trade agreements, connecting markets across the continent, and multination projects would benefit many countries, especially the small and the landlocked.

Regional and continent-wide infrastructure strategies and programs offer one way of approaching the issue. Examples of such initiatives are the Mtwara Development Project (a collaboration by Tanzania, Mozambique, Malawi, and Zambia to provide road, rail, and waterway access from the surrounding region to the port of Mtwara in Tanzania) and the Maputo Corridor Logistics Initiative (a joint effort by Mozambique, Swaziland, and South Africa to develop the region's primary connecting transportation route).

So far, regional projects have yielded rather tepid results, but these should improve if governments focus on enabling cooperation and facilitating the private sector in its efforts to handle the execution.

Priority actions for governments

Governments should take the following steps:

- Understand and nurture the idea that increased private investor involvement in the infrastructure space is necessary and useful, for financing and skill-set reasons.

- Establish a solid legal framework, and guarantee its enforcement and stability.

- Enhance individuals' capabilities with training, and build institutional capabilities in specialized PPP units.

- Formulate an integrated infrastructure plan, and create a steady pipeline of new projects across the following segments:

  - Basic infrastructure that is very difficult to make economically profitable should be the responsibility of governments and development partners.

  - Infrastructure that is economically profitable with suitable tariffs in place should be funded by direct private investment via concessions or PPPs.

  - Infrastructure that is marginally profitable, but not enough to justify a purely private investment should be handled via PPPs.

- Develop domestic capital and debt markets to increase investors' access to local currency financing for infrastructure projects.

- Insist on transparency, enforce anti-corruption standards, and strengthen anti-waste capabilities.

- Ensure that government follows up on projects through the end of construction and on into ongoing operation, recognizing that its work does not end—and in many respects only begins—with the concession agreements.

Nurture private investment participation, establish a solid legal framework, and guarantee its enforcement and stability. Governments should be clear and stable—from their top officials to their rank-and-file local administrators—in their attitude toward and speech regarding the need for private investment participation in their infrastructure programs.

Private infrastructure investors also need a solid legal framework to enable and support their activities, but the necessary structure may not be in place, and the framework that does exist may be inadequate or outdated. For example, in South Africa, Transnet has a monopoly on ports, precluding private operators from entering the market. Similarly, in Nigeria, private investment in railways remains difficult because of colonial-era legislation and an operating framework that established the Nigeria Railway Corporation as the only entity permitted to develop and operate rail systems. The AFC is currently working in an advisory role with Nigeria's Federal Ministry of Transport on a novel project to open up this sector to private investment. Some other countries lack any enabling legislation for private investment in power and transport infrastructure.

Countries that have begun improving conditions for private investment can learn from each other, adapting solutions to local conditions.

For large infrastructure projects, frequent policy reversals tend to be more damaging than non-existent legislation. Governments should set a course and stick with it, enshrining policies beyond election cycles so that they cannot be easily changed when officials move on to other posts or a new administration comes to power.

Once legislation is in place, a government should identify a pioneering project to illuminate the path toward private investment—showing how deals can be done, how laws should be interpreted, and how the new policy works in reality. The government should also accumulate know-how and templates of successful approaches to the various aspects of investment deals, with the aim of making the process simpler, faster, more transparent, and more standardized as real-world experience accumulates.

Finally, reliable and quick law enforcement is as important as a complete and adequate legislative and regulating context. Without adequate enforcement, even the best context becomes useless. Often, adequate enforcement goes hand in hand with stability and strong political willingness, and these are very powerful magnets for foreign investment.

Enhance individual capabilities with training, and build institutional capacity in specialized PPP units. The public sector needs to grow in-house capabilities and know-how. While attracting high-quality staff through attractive pay and career prospects, it should also provide on-the-job training to build capacity—particularly engineering, financial, legal, and transaction skills. One effective device is a 'twinning requirement' under which every foreign specialist participating in a given project is matched with an African counterpart who provides local knowledge while simultaneously accumulating skills and experience that the government or local service providers can use in-house.

Development partners can provide technical support and capacity, but governments must make sure that the support helps develop domestic talents so that they don't have to rely on foreign experts in perpetuity. The AFC has built a team of highly technically skilled Africans, many of whom have extensive experience outside Africa. The growing educated and ambitious African diaspora represents another pool of talents to tap into.

Institutional capabilities are another priority. Governments should establish one-stop shops for investors along the lines of those pioneered in Rwanda, South Africa, Côte d'Ivoire, and Gabon. These entities combine executive authority with financial and human capacity, enabling them to improve and accelerate decision making and help disseminate standardized tools and knowledge. The roles and responsibilities of other agencies involved in infrastructure—especially PPPs—should be clearly defined.

Governments also need to share best practices and legal and regulatory documents among themselves. A well-constructed deal in Ghana may ease the process for future deals in that country, but it will not make any immediate difference elsewhere. An Africa-wide infrastructure investment industry association could make a real difference here. One model is the AFC's Africa Infrastructure Development Association (AfIDA)—an initiative that fosters continuous dialogue among members, standardizes project development documentation, develops market benchmarks, enables knowledge transfer, shares best practices, creates templates, leads and facilitates independent research, and serves as a policy advocacy forum for the industry. The African Development Bank's Africa Legal Support Facility, which takes a regional approach to negotiating with investors, offers a Pan-African model for addressing gaps in public sector capacity.

Formulate an integrated infrastructure plan and a steady project pipeline. Most African countries would benefit from having a national master plan for involving private investors in developing their economies, offering coherent strategy rather than ad hoc attempts at privatization. Where possible, the scope of such a plan should be both regional and continent-wide. Solid planning with clear priorities in place would give investors a clear view of both short- and long-term opportunities. These plans and strategies should be homegrown and should enlist the best resources the continent has to offer, especially in terms of talented human capital.

To tackle this task, governments should build very strong, small, centralized technical teams that are fully empowered by the highest levels of the governmental hierarchy to take action. A good example of this may be the Centre de Promotion des Investissements (CEPICI) in Côte d'Ivoire.

Develop domestic capital and debt markets to increase access to local currency financing for infrastructure projects. To unlock infrastructure investment, African countries need to develop their financial markets. In particular the continent needs banks that have the financial muscle and internal capability to finance large, transformative infrastructure projects. Small banks have neither. But Africa has seen some improvement in this area. For example, the sourcing of over $2 billion in debt from Nigerian banks to fund power privatization would have been unthinkable just a decade earlier. This aspect is particularly important to help overcome weak currency mismatches in many projects.

More specifically, governments should support the creation of instruments that enable projects to tap debt markets (bonds and project bonds) and enable private operators to access capital (equity raising) and manage risk (hedging instruments and other derivatives). Building capital market instruments will also permit long-term investors (such as pension managers and insurance companies) to take positions in the infrastructure market without being locked in to a project's capital structure.

To create a vibrant secondary market, governments could allow passive equity investors to exit after a period of time and resell their position to a non-operating equity provider (to prevent a disruption in operations). Governments could accomplish this by creating a convertible share that DFIs, MDBs (multilateral development banks) or others could buy to free equity investors after a certain amount of time. DFIs/MDBs could finance specific tranches in the capital structure of PPPs without entering the project within the special-purpose vehicle (SPV). Hence, they could resell their position in the capital structure—an innovative proposition—but not carry the burden of the full investment to operations.

Governments also need to raise more domestic revenue and diversify their income sources. Taxes are not effective everywhere, and a means must be found to mobilize long-term savings to finance extended development projects in infrastructure. Regulatory change is needed to enable pension and insurance funds to invest more broadly in infrastructure. A broader mix of financial instruments would spread risks across a broader group of investors.

Governments and private investors should aim for fresh approaches to infrastructure investment. Governments need to be more creative in attracting investment and organizing project financing, and private investors should use their expertise and international experience to approach investment in innovative and localized ways.

India, for example, is piloting Infrastructure Investment Trusts, a listed vehicle that lets investors gain access to project portfolios. A similar vehicle might be South African/ Nigerian listed but comprise assets from across the continent, freeing up investor capital and enabling wholesale and retail investors to gain exposure to infrastructures.

Probably the innovation with the greatest impact on infrastructure investment has been India's Toll-Operate-Toll (TOT) model: government builds and operates toll roads to prove their viability before passing them through to the private sector. African countries could use DFI or MDB concessional debt to finance such a model before taking it PPP.

The public sector should also improve access to local-currency long-term financing. This could be done through issuance of risk-guaranteed infrastructure bonds and through currency hedging/convertibility schemes, facilitating access to investment opportunities while developing domestic capital and banking markets.

Insist on transparency, enforce anti-corruption standards, and strengthen anti-waste capabilities. More than anything, the public sector needs to counter corruption and vested interests that hinder the enactment of regulations and the implementation of infrastructure projects.

Procurement and public tendering remain areas with huge potential for misconduct, so promoting their integrity and transparency is a priority. Greater transparency is also needed in areas such as the choice of projects, technologies, contractors, and even policies. Transparency would bring an increase in the number and size of available financial pools through the involvement of a broader group of stronger investors.

BEST PRACTICES FOR PRIVATE INVESTORS

THIS CHAPTER PRESENTS the emerging best practices for private investors, based on the practical experience of important players in the field. We start with the mindset needed before working through practices related to specific stages of the project life cycle.

The winning approach

Private-sector investors in African infrastructure projects need four key attributes:

- A mindset and expectations that reflect the distinctive realities of the African investing environment—in particular, persistence and resilience, a long-term view of project success, and appropriate risk tolerance.
- Deep local knowledge of each target market and each local environment, as well as of local dynamics.
- An entrepreneur/engineer outlook rather than a more hands-off financier-type viewpoint with an integrated end-to-end view of the project and a willingness to acquire in-house capabilities for its different stages.
- Awareness of community engagement as a core priority, not an add-on.

Overarching every other consideration is the need to grasp African realities, and to have this understanding inform expectations. Armed with such understanding, a smart, patient investor can expect to be involved in profitable deals that have a transformational impact on the communities and countries in which they are located.

An integrated project life-cycle approach and deep local market know-how

Investors in African projects need an integrated approach, starting as sponsors, taking the project to bankability, closing the financing, and then supervising and controlling the execution. At every stage, they must have a deep understanding of the characteristics and dynamics of local environments and well-honed negotiation skills to address problems. The value of this approach is quite evident in the Cenpower deal example (Case Study 4).

Projects that lack an integrated end-to-end approach and in-house skills are much likelier to be derailed.

Persistence and resilience are crucial during the project's life cycle and across different sectors and countries. Investors must be willing to be field-builders and take on a pioneering and sponsoring role, even though

doing so may add cost and time to a deal and demand entrepreneurial characteristics. Some work will take a long time, there will be unforeseen difficulties, and not everything will go according to plan. Investors who fail to recognize this reality and who lack the resilience and political influence to overcome problems are unlikely to prosper. Maintaining a long-term view, buttressed by effective problem-solving skills on the ground, is essential.

Experience shows that investors who are willing to get close to an asset—travelling to the site, walking it, and getting to know what is happening on the ground—are likeliest to succeed. Combining this entrepreneur/engineer approach with an entrepreneurial mindset and a willingness (especially among project leaders) to take risks brings rewards, enabling investors and project developers to benefit as equity participants and not just as debt providers. But it demands different skills and attitudes toward risk.

Community engagement as a priority

A sure way to torpedo a project is to fail either to take communities into account or to engage them adequately. As the Turkana Wind Power deal in Kenya shows, engagement should be a priority from the outset. (See Case Study 6.) A locally influential promoter is a major advantage and should engage with community leaders before a project starts, always emphasizing that the local community is a partner in the project and not just an empty palm to be paid off. Whenever possible, investors should employ people from the community, training them as needed, and should seek ways to illustrate the community benefits of a successful project. Aligning incentives with the investors' success is critical.

Engagement goes beyond the immediate host community if the infrastructure is to benefit a larger population. New tolls or higher tariffs should not be introduced without attendant public relations and marketing campaigns. Communities must be persuaded of the benefit of paying, particularly where previous provision was cheaper or free.

This is illustrated by the contrasting outcomes of the Henri Konan Bédié Bridge project in Abidjan, Côte D'Ivoire, and the LCC Lekki-Epe Expressway toll road project in Lagos, Nigeria. In Abidjan, the bridge promoters—with the government taking the lead—successfully made the case for tolls by emphasizing the public benefits they would bring. (See Case Study 7.) The failure of the government in Lagos to engage in the same way resulted in anti-toll protests whose long-term outcome was that, five years after completion of the project, only one of three toll stations was operational and the government had bought out the concession's equity and debt holders (Case Study 5).

Best practices for project development

For this critical, lengthy, and risky stage, the following best practices have emerged:

- Accommodate shifts in timing.
- Find a champion in the government.
- Set up co-funding of feasibility studies and other development expenses.
- Work with the right combination of partners.
- Maintain precise documentation, and aim for balanced deals.
- Attempt to secure financial closure within one administration.
- Set clear rules of engagement for discussion of financial stability.

Accommodate shifts in timing. Flexibility is as important as planning. Many projects face cost and schedule overruns, so it is essential to allow for shifts in timing. Excessive penalties for schedule overruns may be counterproductive, making projects unviable.

Find a champion in the government. Strong government support is a common thread in successful projects. Such support may come from a senior, influential, committed person

who believes in the project and is willing to champion it publicly and privately.

Set up co-funding of feasibility and other needed studies. Reliable feasibility studies are crucial but costly. Collaborative financing mitigates the risk to each investor and ensures proper levels of engagement. Such funding can come from donors interested in the developmental aspect of infrastructure.

Project developers will also need an environmental and social impact assessment (ESIA), adequate lawyer support, and mediation assistance to enable a final agreement and a signable contract between parties for concessions and PPPs, and all of these efforts require the marshaling of appreciable amounts of money.

Work with the right combination of partners. Any project needs high-quality partners with the right mindset, motivation, and mix of capacity and experience. A deep review of sponsors is essential at this stage because is vital to know exactly who is behind the deal and what their participation means for the project.

The most successful projects enlist a strategic combination of investors who play different roles in the project: some with local clout, some with very patient capital, some who can fill gaps in different types of funding requirements (debt, mezzanine, or equity) and take higher risks, strategic investors with technical expertise, banks with strength to hold debt, and others. The Cenpower deal (Case Study 4) neatly illustrates the needed mix. Cenpower Limited was a well-connected and committed local promoter; InfraCo was a developmentally focused infrastructure project development entity; the AFC was flexible, had a developmental view, and could fill funding gaps; both the African Infrastructure Investment Fund and the Dutch bank FMO had a development orientation and long-term view; and Sumitomo, a Japanese company, provided equipment and technical support.

The Azura-Edo IPP in Nigeria provides another example of assembling a good set of partners. (See Case Study 8.) For this project, through careful planning to deal with some important areas of risk, planners attracted a diverse and highly suitable set of investors.

A dedicated project team composed of people with varied backgrounds and experience is as important as the right combination of investors. The team should include skilled professionals with technical expertise in specific fields as well as finance and investment experts. Diverse, technically competent teams bring the contacts and localized technical knowledge that are crucial in Africa, particularly in navigating the public sector.

Maintain precise documentation, and aim for balanced deals. Incomplete documentation is a common problem. Extensively drafted legal agreements must be fully discussed and understood. At the same time, investors should avoid overbaking these agreements. Demanding too many concessions from the government may lead to delays or to a feeling on the government's side that the investment team is asking for too much.

The concession agreement for the Lekki-Epe Expressway (Case Study 5), for example, stipulated compensation for every other commercial transport corridor within a 10-kilometer radius. In practice, this provision obliged the government to compensate investors for almost any other planned transport system development in the city.

Another counterproductive agreement was the 2006 concession deal between Sheltam, a South African engineering company, and the Joint Railway Commission of Kenya and Uganda to operate the Rift Valley Railways (RVR). (See Case Study 9.) The inclusion of unachievable performance targets set the concessionaire up for failure.

Attempt to secure financial closure within one political administration. Securing project financing and commercial terms under the same administration and with the same group of officials eliminates the risks associated with changes of government. The specific circumstances differ between countries, but many have a specific political window during which a project is more likely to close with

minimal impact occasioned by regulatory changes or transitions of key officials.

Set clear rules of engagement for discussion of financial stability. The uncertainty and unpredictability inherent in any long-term project, particularly in Africa, establishing rules of engagement for any renegotiation—and its trigger points—over the course of a project is essential. Such a mechanism might have prevented many of the problems afflicting the Lekki-Epe Expressway and RVR concession deals (Case Studies 5 and 9).

Best practices for project implementation

Although a project that is well structured during the development stage poses less risk during the implementation stage, the latter phase is still critical to project success.

The following best practices should help investors avoid some common mistakes:

- Ensure structured management by establishing clear milestones and deadlines, and a project management office (PMO) with direct access to decision makers.
- Plan the handover from construction to operation well in advance.
- Create adequate maintenance plans, and ensure their execution.
- Avoid charging users for partially completed projects.

Ensure structured management by establishing clear milestones and deadlines, and a PMO with direct access to decision makers. Reliable, structured project management is essential for asset construction, with clearly defined milestones and deadlines, and with a dedicated PMO to make smooth collaboration much likelier. Yet surprisingly many projects have lacked a structured plan divided into appropriate stages and marked by helpful checkpoints. Having quick, smooth access to top governmental decision makers is also crucial, especially for problem solving in unforeseen situations.

Plan the handover from construction to operation well in advance. A comprehensive handover plan reduces the risk of delays and confusion in the transition between phases and fosters a smooth transition to revenue-generating activity. All parties—those responsible for construction and operation and those overseeing the project—need to know what will happen once the work is finished. The handover should be a transparent process that permits work to continue uninterrupted during the transition and leads to a prompt startup of the next phase.

Create adequate maintenance plans, and ensure their execution. Project leaders need to ensure that a maintenance plan has been drawn up, agreed upon, and implemented. Without one, even a successfully constructed asset can deteriorate rapidly. Responsibility can have various owners, depending on the contractual arrangement, but in any case adequate follow-up and control mechanisms need to be established.

Avoid charging users for partially completed projects. Although it may make sense financially to deliver some projects in stages and to start collecting revenue before delivering the final product, this should be done with caution. The example of the Lekki-Epe Expressway (Case Study 2) illustrates the risks of charging for a partially delivered project. Tolls will draw intensified resistance if users must spend considerable time in traffic because parts of the project are incomplete.

Conclusion: The road ahead

Although Sub-Saharan Africa is rich in opportunities, it cannot fully unlock its potential unless it closes its significant infrastructure gap. Closing this gap and accelerating social and economic growth and development will certainly take time.

Owing to limited public sector finances and technical capacity, the private sector must enlarge its role in developing, funding, and operating profitable aspects of infrastructure. Both governments and investors can help unlock the continent's potential by adopting the best practices and learning from the experiences described in this document.

The region has nearly a billion people and by 2030 will have the world's largest and youngest labor force. With a stronger infrastructure base, this can be the generation that fulfills Africa's potential.

The public officials and private investors who can make deals happen and invigorate the sector will be the architects of Africa's future, and the projects they create will be the foundation on which that future will be built.

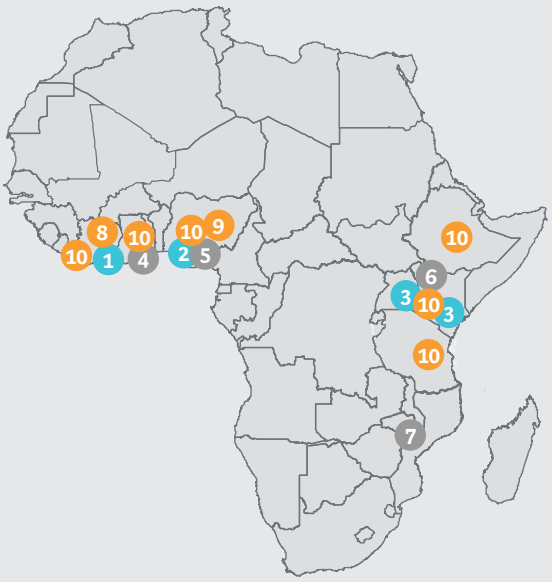
LEARNING BY DOING

CASE STUDIES IN AFRICAN INFRASTRUCTURE INVESTMENT

THE FOLLOWING TEN CASE STUDIES, drawn from high-profile deals completed over the past decade, offer real-life illustrations of the challenges of infrastructure investment in Africa. Some supply examples of best practices, others serve as cautionary tales regarding what can go wrong, and still others are a mix of the two.

These case histories represent a range of different sectors, geographies, and investors. (See the exhibit below.) Three are drawn from the transport sector, four from power generation, and the final three illustrate different models of government support for private investment. Each offers a unique set of insights into the challenges of infrastructure investing in Africa.

CASE STUDY MAP



TRANSPORT DEALS

1. Henri Konan Bédié Bridge, Côte d'Ivoire
2. Lekki-Epe Expressway, Nigeria
3. Rift Valley Railways (RVR), Kenya

POWER GENERATION DEALS

4. Cenpower Kpone IPP, Ghana
5. Azura-Edo IPP, Nigeria
6. Lake Turkana Wind Power, Kenya
7. Moatize IPP, Mozambique

GOVERNMENT PROGRAMS

8. BNETD, Côte d'Ivoire
9. Power sector transformation, Nigeria
10. Power Africa initiative[1]

Source: BCG analysis.
[1]The map shows six initial target countries.

Case Study 1 | Donor Power: Power Africa Initiative

Ultimately, the solution to Africa's infrastructure deficit must be African-owned and African-driven, but efforts like former President Obama's Power Africa Initiative—a partnership between the US government, African governments, African and US private sector companies, international organizations, and NGOs—still have a role to play.

Power Africa succeeded AGOA and PEPFAR, the Africa programs of presidents Clinton and George W. Bush and is the largest undertaking in recent years to address Africa's infrastructure gap. After setting an initial goal of doubling access to electricity in Sub-Saharan Africa, President Obama tripled the goal in 2014. Power Africa now aims to generate 30,000MW of power and to add 60 million new connections to people across Sub-Saharan Africa. Mr. Obama also pledged to increase support $300 million per year. This ambitious goal represents a huge increase from to Sub-Saharan Africa's current power generation of a mere 80,000MW, more than half of it in South Africa.

Power Africa takes different approaches to its power generation and access expansion targets. It focuses on deals to increase generation, owing some early victories to projects that already exist, and now emphasizes generating new deals and ensuring that existing projects are completed. As of July 2015 it had backed projects that reached financial close in Ghana, Kenya, Nigeria, Rwanda, and Tanzania and are expected to generate over 4,000MW, more than 60% of this from privatized companies in Nigeria as of July 2015. It is also tracking projects that should generate over 24,000MW. The initiative has a significant focus on renewable energy generation, with approximately 13,000MW of tracked projects generated by natural gas and 6,700MW by hydroelectric.

The initiative pursues access goals through a combination of grid-expansion projects and off-grid solutions. Its Off the Grid sub-initiative focusing on small-scale energy solutions has attracted more than 40 investors and partners that have committed $1 billion to it over the next five years.

The Power Africa Initiative's record so far is mixed. A recent Financial Times article said that "only 374MW from six sizable power projects is up and running so far." Power Africa and similar programs will not solve the infrastructure gap in Africa on their own, but they may help to place infrastructure issues at the center of the African development agenda. President Obama's focus on the issue contributed to the inclusion of access to energy in the United Nation's Sustainable Development Goals (SDGs) in 2015. Nor is Power Africa dependent on its creator. Passage of the bipartisan Electrify Africa Act in early 2016 guaranteed the initiative's continuation into the post-Obama era.

Case Study 2 | The One-Stop Shop: BNETD, Côte d'Ivoire

Côte d'Ivoire's Bureau National d'Etudes Techniques et de Développement (BNETD) is a pioneering African example of a one-stop shop devoted to infrastructure investment. An early post-colonial initiative founded in 1960 to foster national economic development, it has since evolved and expanded in both responsibilities and geographic coverage.

BNETD serves as the government's one-stop shop to support infrastructure investment and development, including those with private investment, while also providing broader technical, project management, audit, and consulting services to Ivorian government agencies. BNETD also provides technical and project management services in Equatorial Guinea, Liberia, Cameroon, Benin, and other African countries.

It has developed its own project portfolio and partnerships with important pan-African infrastructure players such as the AfDB and the AFC. BNETD has been involved in numerous infrastructure projects including Henri Konan Bédié Bridge (using its expertise to clear many potential obstacles to progress) Félix Houphouët Boigny Airport, Yamoussoukro Highway, and Maria Gleta Thermal Power Plant in Benin.

BNETD is among Africa's most experienced infrastructural players, drawing on its human

capital, technical expertise, and 50 years of operation. One element in its success has been the quality of its leaders, many of whom have risen to national and international prominence. Philippe Serey-Eiffel, the great great grandson of the Eiffel Tower architect, worked for BNETD from 1973 until 1994, the last four as its head, and is now President Ouattara's advisor on economic affairs and infrastructure. Tidjane Thiam, CEO of the BNETD from 1994 to 1998 and chairman of BNETD and Minister of Planning from 1998 to 1999, is now CEO of Credit Suisse. Other prominent former BNETD CEOs are Antoine Cesareo, Ahoua Don Mello, Adou Antoine, and Pascal Kra Koffi. The emphasis on highly skilled, capable leadership is a best practice in itself, and has contributed to the BNETD's success in driving major infrastructure projects in Côte d'Ivoire.

BNETD's expansion strategy for the near future focuses on diversifying its portfolio, reducing its dependency on Côte d'Ivoire government projects by strengthening activities across Africa, and raising industry standards. It aims to share its knowledge and experience with other African countries—a much-needed approach on the continent.

Case Study 3 | Privatizing Power in Nigeria

Formerly a government-owned monopoly, Nigeria's power generation and transmission sector has undergone a transformation into a liberalized, almost completely privatized sector in less than 15 years. Recognizing that the state monopoly could not meet Nigeria's growing demand for electricity, its government initiated reform through the 2001 National Electric Power Policy, followed by the 2005 Electric Power Sector Reform Act.

The 2005 Act provided the legal framework for privatization. It created a holding company to assume the assets, liabilities, and employees of the existing state-owned company and introduced a mechanism for its division into 19 successor companies—one handling transmission, seven generation, and eleven distribution. Most crucially, it established a sector regulator, the Nigeria Electricity Regulatory Commission (NERC).

Plans for fresh capacity were already in place through the 2004 National Integrated Power Project (NIPP) proposal for construction of ten new power plants.

Two actions further bolstered the privatization effort: the creation of a transitional board to oversee the holding and successor companies, and a multiyear tariff order to help determine electricity prices and provide transparency for consumers. The transmission company set up a marketing operations department to manage the wholesale market, with a bulk trader established to purchase and resell electricity from generation companies to distribution companies.

By 2013 the sector was almost fully privatized, with only transmission remaining under government ownership. More than $2 billion, most funded by loans from Nigerian banks, had been spent on the privatized assets. Numerous new players, ranging from successful businessman from other sectors to retired military officers, had entered the market.

The transition has not been easy. The privatized generation and distribution companies have faced such problems as unreliable gas supply, limited capacity of the transmission grid, payment delays from the bulk trader, lack of payment to the distribution companies by end users, and difficulty in servicing dollar-denominated debts and costs. Recent moves by the federal legislature to roll back the end-user cost-reflective tariff increases that the regulator set in February 2016 have not been helpful either.

As of 2015, more than $8 billion had been spent on the NIPP, and the plants are in the process of being sold to private investors. The project's second phase emphasizes both generation and transmission. Power purchase agreements signed in 2016 with 12 solar producers will contribute a cumulative 975MW of power. While many of the 120 licenses issued by the regulator to private companies have yet to be fully used, they offer clear evidence of private interest in the electricity sector.

The wider population has not yet seen any improvement, but as more generated power

comes on stream, further investments occur in transmission and distribution, and overall human capacity grows in the space, there is hope for a brighter future.

Case Study 4 | Creating the Market: Cenpower Kpone IPP, Ghana

Cenpower IPP, the first licensed private IPP in Ghana, offers a best-practice example of how to play a pioneering role for the sector and how to engage with government through multiple political transitions. It also offers lessons for private investors and governments in the areas of regulation, community engagement, and international investing.

Cenpower Kpone IPP, a $900 million, 350MW combined-cycle gas turbine (CCGT) power plant, will have a significant and immediate impact in Ghana when it begins operation later this year.

Cenpower was formed in 2001 following the deregulation of power generation in Ghana and was converted in 2003 into a wholly Ghanaian vehicle to develop the Kpone IPP as project promoter. It acquired vital rights and did initial development—acquiring the site and right-of-way, securing the generation license, carrying out initial environmental studies, securing the environmental permit, securing and renegotiating the power purchase agreement (PPA), securing government consent and support, and providing the necessary local presence—before forming a partnership in 2005 with InfraCo. Its partner was responsible for handling the project's EPC, fuel supply, ESIA, and insurance, and it helped source a strategic investor and secure O&M and long-term services agreements.

In 2010, the AFC acquired a controlling interest in the project and took on the role of lead developer. It renegotiated the PPA to ensure bankability and led the negotiation of the government consent and support agreement, the finalization of the interconnection agreement, coordination of debt fundraising, and day-to-day management and operation of the project company from 2010 and of the financial close in 2014. In September 2014, it bought out InfraCo. Other investors included the African Infrastructure Investment Fund, FMO (the Dutch DFI), and Sumitomo, which came in as both an investor and a technical partner.

As a trailblazing infrastructure investment project, Kpone IPP faced and surmounted a number of hurdles. One example was its provision of a $93 million Fuel Finance Facility, supplied by a group of DFIs as insurance against the fuel-supply risks associated with the Ghanaian power sector.

The project also showed the importance of relying on strict legal agreements backed by legislation, as opposed to government contracts backed by trust and familiarity between government agencies. The agreements developed for the Cenpower deal have become templates for other power transactions in Ghana.

This project also demonstrated that changes in the government or its supervising officials need not derail a deal. Ghana went through four Ministers of Power during the course of the project, but continuity at other key cabinet posts and the fact that Cenpower proactively positioned the project as a priority minimized disruption.

Cenpower also made a priority of good community relations. It issued regular project updates, promised that local workers would not be laid off, and emphasized benefits to the community such as a promise that 60% of the 700 on-site workers would be local residents. It also avoided interfering with or playing on local political dynamics, which enabled it to remain a neutral player, maintain its focus, and create a cordial working environment.

Case Study 5 | Good Idea, Poor Alignment: The Lekki-Epe Expressway, Lagos, Nigeria

The Lekki-Epe Expressway Toll Road Concession project in Lagos, Nigeria, was a much-needed upgrade to a road that linked a fast-growing commercial and residential axis to the rest of the city. The concession deal for the road was ahead of its time, had a strong and influential local promoter, and was

structured under new legislation at the Lagos state level rather than under federal law. But the project fell victim to a lack of clear coordination between the government and the concessionaire on the mitigants put in place to address the risks of the pioneering deal. The government also underestimated the importance of community and public engagement, which resulted in challenges during the life of the project. The road was constructed, but ultimately the state government bought out the 30-year concession earlier than planned. In the end, the deal was still a win-win, as the primary equity investors exited within their preferred target deal timeline, and the community benefited from the infrastructure improvement.

The goal was to upgrade the Lekki-Epe Expressway, constructed in 1983 to connect Lekki and Epe to the rest of Lagos state, widening it from its original four-lane design to a six-lane highway. In 2006, under the authority of the 2004 Lagos state Roads Law, Lagos state introduced its first public-private partnership to undertake the project.

The Lekki Concession Company (LCC), a specially created subsidiary of Asset and Resource Management Company (ARM), was the project's lead sponsor and originator. The concession was conceived as a build-operate-transfer toll road concession. The plan was for LCC to upgrade the expressway, hold the concession for 30 years, earn back its investment through tolls, and then return the expressway to state control in good condition. The state government underwrote the project with debt funding worth about 10% of the total project cost, demonstrating the state's commitment and connecting it financially to the project, thereby mitigating risks. The state government also included a standard contractual provision promising compensation should other transport projects within a 10-kilometer radius of the Lekki-Epe Expressway affect LCC toll revenue.

The project struggled from the start. A delay of nearly two years resulted from challenges in securing a sovereign guarantee in case Lagos state failed to meet its obligations, a guarantee that proved difficult to obtain—in part because different political parties controlled the federal and state governments. Construction delays followed. When tolling began in 2010, some residents affected by the project were unhappy. Some argued that tolling should not commence before the entire 49.4-kilometer first phase of the project had been completed. Although the government had approved the plan to introduce tolls, but in the absence of an adequate community engagement program, the tolls led to street protests. To defuse the situation, the state government delayed tolling, promising to cover the investors' loss of income as stipulated in the concession agreement.

In 2012, LCC planned to introduce a second toll, 10 kilometers away from the first, but this plan never became operational. To insulate drivers from the additional tolling cost, the state government instead agreed to pay full compensation to the LCC. Rising construction costs and questions about where a third toll plaza would be located soon created a gap in the project's economics. The following year, the state government bought back the concession it had granted only seven years earlier. A further factor in the decision was the government's obligation to cover costs caused by diverted traffic related to other transport infrastructure projects undertaken within the 10-kilometer radius.

Lagos state's approach to infrastructure development was innovative: It attracted private investment and created a PPP office, as required by law, in 2011. But the outcome of the LCC project and of contracts for the Lagos Blue Line, in which the government again eventually took on costs directly to resolve persistent difficulties, may make prospective investors in future projects uneasy. On the other hand, government capacity has increased, and lessons learned from previous experiences will benefit future investors.

The Lekki-Epe Expressway project offers several lessons. LCC painstakingly built in cover for anticipated risks—a best practice anywhere in the world. But the government's negotiation capacity was limited at the time, and negotiators did not fully appreciate the long-term commitments that it would have to

deliver on even though private investors were taking the lead. As a result, Lagos state did not fully understand its ongoing responsibilities under the agreements it signed, making it difficult for government to meet them, especially in a complicated political climate.

The state government also failed to anticipate the degree of popular resistance to tolling, and consequently it did not launch a full-scale public engagement campaign prior to introducing them. The federal government's abolition of toll gates in 2003 had fueled a widely shared perception that road tolls were unlawful. Alternate routes created by the government were hardly viable, which, in effect, made the tolls compulsory.

The public showed far less resistance to tolling at the Lekki-Ikoyi Link Bridge, the first suspension bridge in Sub-Saharan Africa. This bridge, located a short distance from the Lekki-Epe Expressway, was wholly state-government-funded. Analysis indicated that it would not be profitable, particularly since the government wanted an iconic landmark structure, entailing extra costs. But resistance to tolling appears to have been less, despite long queues at the bridge's toll plaza, for several reasons. First, the bridge serves as an alternative route linking two relatively affluent areas that previously had no direct connection. Second, the state had learned from the challenges encountered in the Lekki-Epe Expressway project to devote greater attention to public and behind-the-scenes community engagement throughout the process. And third, the tolling experience from the Lekki-Epe Expressway may have taken some of the sting out of the anti-toll debate, making this project easier to sustain.

Investors must build provisions for anticipated risks—such as income losses—into their contracts. But on their side, governments must fully understand the implications of these provisions, shoring up any unexpected income losses to the investors that arise from the sociopolitical environment or from external events—including unexpected reactions of the community to terms of the contract—for which the investors are not responsible.

Case Study 6 | Infrastructure Projects Transforming a Region: Lake Turkana Wind Power, Kenya

Turkana Wind Power—the largest-ever private investment in Kenya and the largest wind farm project in Africa—is a best-practice example of large-scale investing in renewable energy, community engagement, and opening up an impoverished region through a single transaction.

Located in Loiyangalani District, Marsabit County, the $690 million plant is expected to go on line in June 2017 and have a significant economic impact on Kenya's impoverished northwest. It will provide 310MW of reliable, low-cost wind power that Kenya Power and Lighting Company (KPLC) will buy at a fixed price over a 20-year period, in accordance with the PPA. Thanks to Kenya's strong enabling environment and existing regulations for private investment in power generation, the deal went through without legislative delays.

The project involves numerous players. Its promoter is the Lake Turkana Wind Power (LTWP) consortium, comprising KP&P Africa B.V. and Aldwych International as co-developers, along with Investment Fund for Developing Countries, Vestas Eastern Africa Limited, Finnish Fund for Industrial Cooperation Ltd, KLP Norfund Investments AS, and Sandpiper Limited.

Through its Power Africa fund, African infrastructure fund manager Harith General Partners has committed $70 million to the project. As the mandated lead arranger and senior co-lender, African Development Bank is providing a long-term senior loan of $150 million and leads a syndicate of banks that includes Standard Bank, Nedbank, European Investment Bank, DEG, and Proparco. Project contractors include Vestas Wind Systems A/S, Siemens, SECO, Rongxin Power Electronic, and Civicon Limited.

To promote its aim of supplying the national grid with clean and affordable energy, the project has used an array of strategies to engage effectively with the local community. These have included public meetings and workshops with specific groups, such as

vulnerable people; surveys and questionnaires of affected parties; and brochures, leaflets, posters, nontechnical summary documents, and performance reports. Special visual representations (photographs, diagrams, and models) were prepared for public meetings and face-to-face sessions with local residents, especially in locales where project leaders anticipated low rates of literacy or a limited understanding of the predominant language.

The LTWP consortium also established a charity—Winds of Change Foundation (WoC)—to improve the lives of people in the surrounding community. Initiatives aimed at improving education and quality of life have included a solar-powered reverse osmosis system in Sarima village, improved equipment for the Burri-Aramia dispensary, and support for 23 schools in the form of teaching materials and refurbished classrooms.

Improved regional integration is another benefit, through connection of the landlocked Great Rift Valley region to the rest of the country over the improved infrastructure linked to the wind farm, including a road, fiber-optic cable, and electric power. One example is the upgrade of the $36 million, 207-kilometer C77 public road from Laisamis to Sarima, which has opened up the area, reduced travel times to Loiyangalani and Laisamis, and allowed easier access to Lake Turkana.

Nevertheless, delays by the Kenyan government in guaranteeing adequate transmission connection to the grid have hindered the LTWP project. These delays have been costly for the investors, and they raise the issue of risk associated with noncompliance by governments with regard to their responsibilities in adjacent infrastructures that are key to enabling the investment to generate its expected returns.

Case Study 7 | Persistence and Community Engagement: Henri Konan Bédié Bridge, Abidjan, Côte d'Ivoire

The construction and tolling of the Henri Konan Bédié Bridge in Abidjan, Côte d'Ivoire, offers a best-practice example of assembling a diverse and strong investment group, and of pursuing a sound policy of community and public engagement. Conflict, including civil war, held up this project for more than a decade. But a partnership involving the original promoter, the finance community, and the government brought it to completion. Effective community engagement has ensured that the bridge, despite charging tolls, is used fairly intensively and has significantly improved traffic flows in Abidjan.

The bridge first appeared in development plans in 1952. But not until 1997 did the government of Côte d'Ivoire create the regulatory framework for private road concessions, signing an agreement with Socoprim, a subsidiary of the Bouygues Group, to construct and operate the bridge. The deal was closed and work was ready to commence in 1999 but the project halted when a military coup occurred, leading to nearly a decade of political unrest and civil war. The project remained suspended until the return of peace and stability in 2011. Construction began in 2011, with an agreement for a 30-year operation period, after which the bridge will become government property. Construction was completed in 2014 and the bridge began operating that same year.

Recognizing that the novelty of the project and the postconflict environment made the project risky, the government asked lenders how to provide them the needed comfort to participate in the project. This resulted in the government's making two additions to the original concession agreement: a sizable subsidy of 50 billion CFA francs (approximately $81million), and a minimum revenue guarantee during the loan repayment period.

Bouygues Group, as the anchor investor of Socoprim, led the project throughout as the main sponsor. It carried out the construction, organized the operation phase and staff training, and now provides assistance with infrastructure management (especially tolling) and maintenance. Among the other investors and lenders were the Africa Finance Corporation (AFC), African Development Bank, FMO, Pan African Infrastructure Development Fund, Banque Ouest Africaine

de Développement (BOAD), Banque d'Investissement et de Développement de la CEDEAO (BIDC), and Banque Marocaine du Commerce Extérieur (BMCE).

AFC committed $55 million, including loan facilities and equity investment, and played a role as lead arranger of the mezzanine tranche of the financing. The government of Côte d'Ivoire contributed 50 billion CFA francs and has a 18.65% holding with two board seats. The World Bank's Multilateral Investment Guarantee Agency (MIGA) provided $145 million in insurance coverage for equity investments and loans.

The negotiating process, which proved crucial to this deal's success, was balanced for all sides. Also, the need for a bridge never became a political issue. All parties recognized that it was a necessity, and the result was a consistent political consensus in its favor.

Even so, a few tense moments occurred along the way. When the bridge was completed in December 2014, the government requested a toll-free period. This raised the possibility of challenges similar to those experienced by the Lekki Construction Company (Case Study 2). Furthermore, though the government was supposed to publish the tolls in the official gazette immediately, they were not published until September 2015. When the government held a press conference to announce the toll amounts, it stated prices that were lower than the parties had contractually agreed to charge. Each of these actions caused concerns among the investors, but all parties were able to work through them.

To ensure that the project would be accepted by the community, serious effort went into explaining why the bridge was needed, and in particular why tolls would be charged. This countered arguments that, since it was partly funded by tax money, the bridge should be free. Today, recognizing that taking the tolled bridge saves considerable time, even public transport taxis and vans now use the bridge (which they did not do in the beginning), despite the availability of other routes.

Investors followed World Bank guidelines on community engagement and environmental issues. The project built capacity and provided jobs in the local community by investing heavily in training in civil engineering and other key skills, which were previously lacking, and the government took full responsibility for compensating and resettling nearly 2,500 people displaced by the bridge's construction.

Ultimately, the rewards justified the risks. The project is now viewed as one of the most successful infrastructure projects funded by private investment in Sub-Saharan Africa. The government of Côte d'Ivoire was rewarded with a significant socioeconomic and environmental benefit to the people of Abidjan. Traffic congestion has been reduced by the creation of an alternative to the Houphouët-Boigny and Charles de Gaulle bridges. Travel times for commuters between Riviera and Marcory have been reduced from two hours to 15 minutes. All of this is estimated to have saved 90,000 tons of CO_2 annually, and the evident success of the bridge has led to discussion of other congestion-reducing projects for Abidjan such as urban rail.

Case Study 8 | Mitigating Risks: Azura-Edo IPP, Nigeria

Azura IPP, the first fully privately funded power-generation company in Nigeria, offers a best-practice example of putting together a complex group of investors, some of which had not previously invested in power, and derisking the deal sufficiently to make those investors feel comfortable. The process was so effective that the $876 million deal was closed in December 2015, with construction beginning in earnest in 2016, despite uncertainty in the Nigerian economy as a whole, and in its power sector in particular.

Phase 1 of the plant, located in Edo state near Benin City, is an open-cycle gas turbine power station that will be able to generate 450MW. It was designed to enable conversion into a combined gas turbine power plant, with a potential total capacity of 1,500MW.

This is the first project of Azura Power Holdings Ltd, a company that aspires to develop, finance, acquire, and operate

independent power plants and power-related assets in West Africa. The company financed the project by raising $190 million equity plus $686 million in debt. Amaya Capital is the lead equity sponsor and developer, backed by additional investment from American Capital Energy and Infrastructure, Aldwych International, African Infrastructure Investment Fund 2, ARM-Harith Infrastructure Fund (ARMHIF), and the Edo state government. The bulk of debt financing came from 15 investors including DFIs and international banks such as IFC, OPIC, KFW Bankengruppe, Standard Chartered Bank, and Rand Merchant Bank. The Central Bank of Nigeria Power & Aviation Intervention Fund provided local financing for the project via the Bank of Industry and FCMB.

Azura anticipated several risks—related to gas supplies, infrastructure, local support, partnerships along the value chain, and investor trust—and addressed each in its project design.

To ensure access to gas, the project team built close to Nigeria's main gas trunkline. The location also had direct routes to Koko Port, with roads and bridges capable of delivering heavy equipment and access to the grid. A strong partnership with Edo state supplied not only the land needed, but also the means to work closely with local communities. A power purchase agreement with the Nigerian Bulk Electricity Trader (NBET) secured the plant's ability to operate in the market, and a combination of partial risk guarantees from the World Bank and political risk insurance from the Multilateral Investment Guarantee Agency (MIGA), totalling $492 million, enhanced investor trust.

Case Study 9 | Missing the Target: Rift Valley Railways, Kenya

The Rift Valley Railways (RVR) project shows what can happen if the company operating a concession lacks the experience and capital needed to meet aggressive performance targets, in the event of changes of ownership or conflicts between shareholders.

RVR, a consortium created in 2005 to manage the state-owned railways of Kenya and Uganda, was one of the first cross-border, private-sector infrastructure deals in Africa. A plan for upgrading aging rail networks built during the colonial period, RVR was enabled by the Kenyan Railway Act of 2004 and by parallel Ugandan legislation. The new laws created a Joint Railway Commission, which included as members the managing directors of both national railway systems as well as senior civil servants from the two nations, to oversee the concession and to measure performance against agreed metrics. The countries designated Kenya Railways as the concession regulator.

In 2006, Kenya and Uganda signed separate concession agreements, promising compensation to RVR if either government introduced new railway infrastructure projects. The concession was awarded to a consortium led by Sheltam Railway, a South African company with experience in managing railway systems for that country's mines. Sheltam's partners included TransCentury, one of Kenya's leading private equity firms, and the Government of Uganda, fulfilling the requirement that each country own at least 15% of the concession company.

The winning consortium signed a 25-year concession agreement, with an option to renew for another ten years, mandating it to rehabilitate and manage the entire railway infrastructure. This encompassed 2,350 kilometers of track from Mombasa, Kenya, on the East African coast to Kampala, Uganda, via the Kenyan cities of Nairobi and Kisumu; the branch lines; rolling stock; workshops; all equipment; and the railway staff. The concession fee for the government was an attractive 11.1% of revenues.

Sheltam made only limited investments, however, and the consortium struggled with demanding performance targets from the start. The consortium eventually returned the Mombasa–Nairobi–Kisumu passenger service concession to government, while retaining the more profitable cargo concession. In 2010 Sheltam was bought out by Citadel Capital (now Qalaa Holdings), an Egyptian private equity firm with a broad vision for investing in and linking water and rail transport networks across Africa. Relations between

Citadel and TransCentury, which had backed Helios Capital's losing bid to invest in the concession, were poor.

Over the ensuing years, RVR's debt was refinanced and TransCentury tried to buy out Citadel. But instead, in 2014, Citadel bought out TransCentury. Today, Citadel holds 85% of RVR, and Bomi Holdings—a Ugandan investment firm—owns the remaining 15%. There is no longer any Kenyan ownership. Meanwhile, numerous changes have occurred in management agreements, with South African, Australian, and Brazilian companies providing management services at different times during the concession period.

Citadel has invested more than $305 million in RVR, including money to repair damaged tracks between Mombasa and Nairobi and to rehabilitate tracks in northern Uganda. Its management thinks that RVR can reduce transport costs in the region by 50% and within five years grow RVR's cargo business from the current 1 million tons to 5 million tons in a total existing market of 16 million tons. The concession now has more stability, but fresh competition looms: the Kenyan government recently awarded a contract to a Chinese company to construct a new standard-gauge railway. RVR still has a long way to go.

Investors should be cautious in appraising their investment capabilities and the needs for investment from a concession granted, as well as in assessing different shareholders' alignments and dynamics. Lack of investment muscle in due time, coupled with a volatile and nonaligned shareholder group, can badly hinder any potentially attractive project.

Case Study 10 | Infrastructure as Byproduct: Moatize IPP, Mozambique

Moatize IPP is a coal-powered plant constructed to power the Moatize coal mine and to supply energy to the national grid. Operating on low-grade coal from the mine, the project illustrates how to increase national energy output by attracting investment from companies that require significant power to operate.

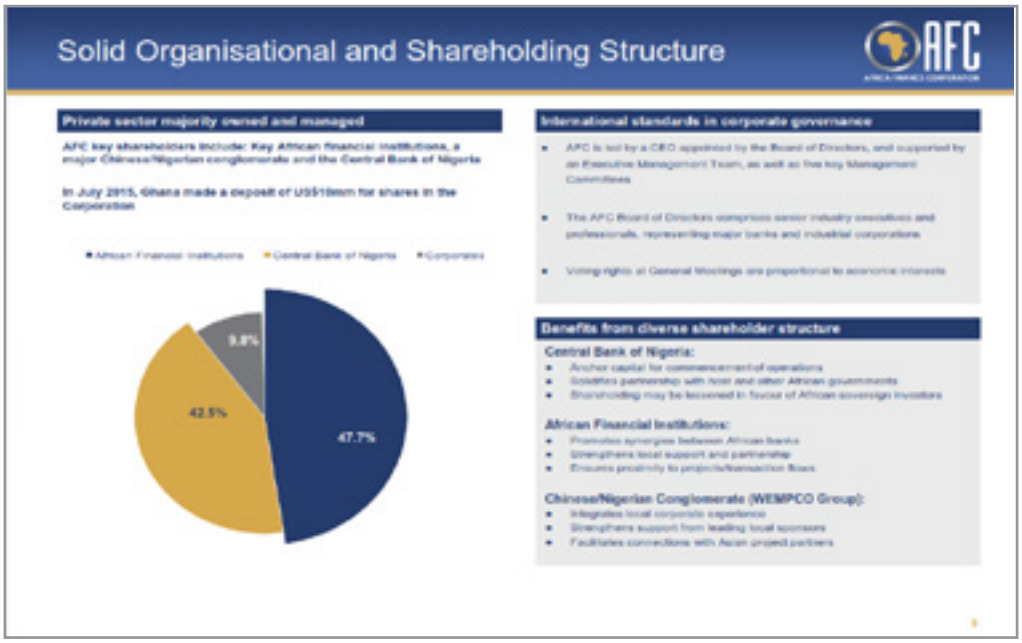
The Moatize coal mine in the Tete province of Mozambique is the fourth largest in the world. In 2011 its 95% owner Vale announced plans to increase production to 22 million megatons annually, including 5 megatons of thermal coal, by 2015. The company needed an extra power plant to make this expansion possible.

In 2014, the Mozambican government granted a 25-year concession for construction of a 270MW, coal-fired power plant to a consortium led and majority-owned by ACWA Power, a Saudi developer, investor, owner, and operator of power-generation companies. Vale of Brazil and Mitsui of Japan also hold sizable shares in the project and will serve as sponsors. A Mozambican state-owned utility and another investor hold minority stakes.

The Moatize plant will make smart use of byproducts to introduce efficiencies. While exporting higher-grade coal, it will use lower-grade thermal coal to power the plant, minimizing fuel transportation costs. Similarly, although the mine will use most of the power generated by the plant, ACWA plans to sell the extra electricity it generates to the grid, and to this end it has entered into two power-purchase agreements: one with Vale's Mozambique subsidiary for 220MW, and another with Mozambique's state-owned utility for 50MW megawatts. The lesson for companies in sectors (such as mining) that require huge amounts of power is that hidden gains are possible in countries with the right enabling environment in place.

APPENDIX 1

AFC PROFILE




Key Investment Highlights
AFC is well-positioned to participate in Africa's development
Attractive growth region with huge infrastructure needs
AFC's approach
A3 rating from Moody's is based on AFC's strong business profile, underpinned by...
Robust risk management model
Solid financial performance
Conservative financial policies
Strong track record since inception
World-class leadership team with strong track record

APPENDIX 2

CHECKLISTS

These planning checklists itemize steps that project developers, investors, policy makers, and regulators need to take in preparing for a major infrastructure investment project.

Project developers

Technical aspects

- ✓ Bankable Feasibility studies carried out
  - ✓ Technical Studies carried out
  - ✓ Economic and market studies carried out
  - ✓ Demand forecasting, if appropriate, carried out
  - ✓ Financial analysis conducted
  - ✓ Is the business case robust and sophisticated?
- ✓ Environmental compatibility assessment carried out
- ✓ Environmental impact assessment carried out
- ✓ Socioeconomic cost benefit analysis carried out
- ✓ Buy-in and leadership of high level political champions secured
  - ✓ Project-supporter identified in the government

Governance aspects

- ✓ Governance structure designed
  - ✓ Does it comply with regulation
  - ✓ Does it include clear roles and responsibilities
- ✓ Construction phase planned
  - ✓ Project Management Office included
  - ✓ Clear milestones and deadlines set
- ✓ Handover plan created from construction to operation
- ✓ Comprehensive operation and maintenance plan created

Community engagement

- ✓ Community engagement plan developed
  - ✓ Clear value proposition for the community developed and shared
  - ✓ Community engagement channels selected
    - ✓ Community liaison officer designated
    - ✓ Primary community representative identified
  - ✓ Community employment opportunities and skill gaps identified
    - ✓ Training plan for skill gaps developed
    - ✓ Community recruitment process signed off
- ✓ Public engagement plan developed
  - ✓ Clear messaging developed around purpose and value of the project to the larger population

Regulatory/contractual aspects

- ✓ Existing regulation interpreted together with government representatives
- ✓ Necessary legal agreements put in place
  - ✓ Power-related
    - ✓ Power Purchase Agreements
  - ✓ Infrastructure-related
    - ✓ Concession documentation
    - ✓ …
  - ✓ Are all contractual counterparts credible?
- ✓ Do they all understand their contractual obligations?
- ✓ Are they well positioned to deliver on their contractual obligations?

Investors

Investors (Debt, Mezz, Equity)

- ✓ Are the Sponsor & project team credible?
- ✓ Investor team & independent advisor assembled
  - ✓ Is it a competent, diverse group of professionals?
- ✓ Concessions/Permits/Licenses: Are all key ones in place?
- ✓ Mix of different players arranged
  - ✓ Can they fill specific niches in the project?
  - ✓ Do they have clearly defined roles and responsibilities in the project?
- ✓ Legal agreements discussed and in place
  - ✓ Are they extensive and comprehensive?
  - ✓ Are they understood by all parties?
  - ✓ Are the counterparts credible and able to deliver on their obligations
- ✓ Complete financial engineering and structuring ensured
  - ✓ Is the project fully funded?
- ✓ Clear investment strategy created
  - ✓ Does it define the focus sector?
  - ✓ Does it stipulate the desired return profile?
  - ✓ Does it include and exit plan?
- ✓ In-house technical expertise ensured
  - ✓ Is it enough to accurately assess opportunities and risks of the project?
- ✓ Analyses, studies and documentation thoroughly analyzed
- ✓ Financial modelling completed
- ✓ Extensive KYC completed
- ✓ Site visits completed
- ✓ All necessary permits secured

Policy makers

Long term planning

- ✓ Consistent policy plan created
  - ✓ Does it outline a steady infrastructure project pipeline?
  - ✓ Does it leverage other countries' experience?
  - ✓ Can the policy be stable in the long term?
- ✓ A centralized infrastructure development agency in the country established
- ✓ Strategic subsidies created for projects that require government support

Cooperation with other players

- ✓ Arm's length relations with regulators
- ✓ Clear understanding of the profiles of the key appointments for the regulator

Enabling environment for private investment

- ✓ Legislation enabling private investment in infrastructure created
  - ✓ Does it encourage private investment in infrastructure?
  - ✓ Does it clearly define the roles, responsibilities and rights of various parties?
  - ✓ Does it allow unambiguous interpretation by regulators?
- ✓ Required time to obtain approvals minimized
- ✓ Competitive, transparent tender processes defined

Regulators

Capabilities and scope

- ✓ Necessary in-house capabilities to apply the policy ensured
  - ✓ Legal
  - ✓ Technical
  - ✓ Public relations
- ✓ Processes to allow for policy implementation well defined
- ✓ Transparent, fair code of conduct established
- ✓ Skilled, competent team assembled to cooperate with investors on an equal footing
- ✓ Templates developed for agreements
- ✓ Clear guidelines for investors to follow
- ✓ Clear understanding or the scope of the regulatory role

Cooperation with other stakeholders

- ✓ Ongoing engagement with relevant policy makers

APPENDIX 3

COUNTRY ATTRACTIVENESS RANKING

	Rank	Index	Country (%)
Tier 1	1	100,00	South Africa
	2	89,60	Nigeria
	3	78,50	Mauritius
	4	74,88	Rwanda
	5	71,61	Tanzania
Tier 2	6	71,55	Botswana
	7	70,98	Ghana
	8	70,72	Ethiopia
	9	70,57	Kenya
	10	70,11	Zambia
Tier 3	11	69,38	Uganda
	12	69,07	Seychelles
	13	68,66	Mozambique
	14	67,96	Namibia
	15	67,77	Sudan
Tier 4	16	67,05	Côte d'Ivoire
	17	66,73	Sierra Leone
	18	66,66	Burundi
	19	66,45	Senegal
	20	65,02	Burkina Faso
Tier 5	21	64,09	Guinea
	22	63,83	Mali
	23	63,82	Gambia
	24	63,50	Malawi
	25	62,75	Swaziland
	26	62,71	Madagascar
	27	62,66	Angola
	28	62,51	Cape Verde
	29	62,42	Benin
	30	62,21	Togo
	31	61,57	Cameroon

	Rank	Index	Country (%)
Tier 6	32	61,12	Republic of the Congo
	33	59,86	Gabon
	34	59,66	Chad
	35	58,99	Zimbabwe
	36	58,98	Djibouti
	37	57,57	São Tomé and Príncipe
	38	54,62	Liberia
	39	53,47	C. African Republic
	40	52,87	Guinea-Bissau
	41	50,54	Eritrea
	49	26,63	Somalia
No enabling environment	42	43,08	Lesotho
	43	41,44	Mauritania
	44	40,70	Niger
	45	38,54	Dem. Rep. of the Congo
	46	31,88	Comoros
	47	31,40	Equatorial Guinea
	48	29,56	South Sudan

APPENDIX 4

KEY PLAYERS

THIS APPENDIX LISTS CONTACT information for key players in five categories of infrastructure investment: noncommercial banks and institutions, private equity funds, international commercial banks, local commercial banks, and developers and construction companies.

Noncommercial banks and institutions

Africa50
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Quartier Hippodrome
Casablanca 2000
Morocco
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African Development Bank Group
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Development Bank of Southern Africa
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European Development Finance Institutions
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West African Development Bank (BOAD)
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The World Bank
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Private equity funds

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United Kingdom
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African Capital Alliance: Capital Alliance Nigeria Limited
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Plot 1684, Sanusi Fafunwa Street
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Carlyle Group
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Denham Capital Management
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Lancaster Place, London
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Development Partners International
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Emerging Africa Infrastructure Fund
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EQT Partners
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International commercial banks

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DEG Invest
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E-mail: info@deginvest.de

The Export-Import Bank of China
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100031, Xicheng District
Beijing
China
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Investec
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Standard Chartered Bank
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Local commercial banks

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E-mail: mail@afreximbank.com

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NSIA Group
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Standard Bank Group
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Developers and construction companies

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Aeroports de Paris
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China
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China Railway Construction Corporation
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Electrawinds
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GE South Africa (Pty) Ltd
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Helios Towers Africa
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KBR Ventures
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Odebrecht
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SDC Investimentos
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APPENDIX 5

LIST OF DEALS

The following table lists details of 171 infrastructure investment deals—involving private equity investment and not subsequently canceled—that were closed in 29 African countries between 2006 and 2015. The sources used in compiling this table were World Bank PPI and the AFC.

#	Country	Financial closure year	Project name	Sector	Total Investment ($ millions)
1	Angola	2007	Luanda Container Terminal	Transport	53
2		2009	Luapasso Mini Hydropower Plant	Energy	120
3	Benin	2009	Container Terminal Cotonou Port	Transport	489
4		2013	Benin Electricity Distribution Company	Energy	32.25
5	Botswana	2011	KSE Orapa and Mmashoro IPP	Energy	104
6	Cameroon	2009	Dibamba Power Plant	Energy	126
7		2010	Kribi Power Plant	Energy	342
8	Cape Verde	2010	Electra Cabeolica Wind Project	Energy	80
9	Congo, Republic of	2008	Pointe-Noire Container Terminal	Transport	735
10		2008	Pointe-Noire Container Terminal	Transport	n.a.
11		2010	Brazzaville, Pointe Noire and Ollombo Airports	Transport	n.a.
12	Côte d'Ivoire	2014	Henri Konan Bédié Bridge	Transport	365
13		2015	Singrobo Hydro Power Plant	Energy	120
14	Djibouti	2007	Doraleh Container Terminal	Transport	396
15	Ethiopia	2014	Daewoo Aysha Wind Farm	Energy	120
16	Gabon	2011	CODER FE II SHPP	Energy	234
17		2012	CODER Ngounie Imperatrice SHPP	Energy	124
18	Gambia, The	2006	National Water and Electricity Company Management Contract	Energy	n.a.
19	Ghana	2007	Osagyefo Power Barge	Energy	100
20		2007	Sunon-Asogli Gas Fired Power Plant	Energy	200
21		2011	Sunon-Asogli Gas Fired Power Plant	Energy	360
22		2009	Tema Osonor Plant Limited	Energy	140
23		2013	Takoradi 2 Thermal Power Expansion	Energy	440
24		2014	Kpone Independent Power Project	Energy	900
25	Guinea	2009	Port of Conakry Concession	Transport	159
26	Kenya	2006	Kenya Electricity Generating Company Limited	Energy	108.8
27		2006	Kenya Power and Lighting Company Management Contract	Energy	n.a.
28		2006	Kenya-Uganda Railways	Transport	404
29		2008	Mumias Power Plant	Energy	50
30		2008	Rabai Power Plant	Energy	155

#	Country	Financial closure year	Project name	Sector	Total Investment ($ millions)
31	Kenya (cont.)	2012	Thika Thermal Power Project	Energy	112
32		2012	Triumph HFO Power Plant	Energy	140
33		2013	Aeolus - Ngong Wind Project	Energy	171
34		2013	Kwale Sugar Plantation	Energy	200
35		2014	Aldwych Lake Turkana Wind Farm	Energy	635
36		2014	GEL Heavy Fuel Oil Fired Power Plant	Energy	95.5
37	Liberia	2009	Buchanan Biomass Plant	Energy	170
38		2009	Kakata Power Plant	Energy	170
39		2010	Liberia Electricity Corporation Management Contract	Energy	n.a.
40		2010	Port of Monrovia	Transport	120
41		2010	Port of Monrovia	Transport	25
42	Madagascar	2007	Hydelec Madagascar S.A.	Energy	17.8
43	Mauritius	2009	Terminal 2, Sir Seewoosagur Ramgoolam International Airport	Transport	n.a.
44		2014	Suzlon Plaine Sophie Wind Farm	Energy	69.5
45	Mozambique	2013	Kuvaninga Energia Power Plant	Energy	98.67
46		2014	Ressano Garcia Gas-Fired Plant	Energy	250
47	Nigeria	2006	Calabar New Port, Terminal B	Transport	53.82
48		2006	Central Railway	Transport	5.82
49		2006	Murtala Muhammed Terminal Two	Transport	200
50		2006	PTML Lagos Ro/Ro Terminal	Transport	60
51		2006	PTML Lagos Ro/Ro Terminal	Transport	40
52		2006	Warri Old, Terminal B Concession	Transport	2.5
53		2007	Egbin Power Plant	Energy	280
54		2008	Lekki-Epe Expressway	Transport	382
55		2011	Bullnose Port Facilities	Transport	124.4
56		2013	KEPCO Egbin Power Plant	Energy	407.3
57		2013	Lekki Deep Seaport	Transport	1500
58		2013	Onne Port Expansion, Phase 4B	Transport	2900
59		2013	Kainji Hydroelectric Generation	Energy	170
60		2013	Ughelli Power Plc	Energy	215
61		2015	Azura-Edo Gas-Fired Power Plant Phase 1	Energy	880
62	Rwanda	2010	Gisenyi Methane Gas Plant	Energy	16
63		2011	KivuWatt	Energy	142
64		2012	Rwanda Mountain Tea Giciye SHPP	Energy	12
65		2014	Agahozo-Shalom Youth PV Solar Plant	Energy	24.1
66		2015	Akanyaru Valley Peat-Fired Power Project	Energy	320
67	Senegal	2008	Dakar Seaport	Transport	134
68		2009	Dakar Diamniadio Toll Road	Transport	264
69		2010	Saint-Louis - Dagana - Podor Rural Electrification	Energy	22
70		2012	Blaise Diagne International Airport	Transport	n.a.
71		2013	Dakar Port Terminal	Transport	132
72		2014	Senegal Thermal Facility	Energy	172
73		2014	Tobene IPP	Energy	164
74		2015	Cap des Biches Oil-Fired Power Plant	Energy	114.15

#	Country	Financial closure year	Project name	Sector	Total Investment ($ millions)
75	Senegal (cont.)	2015	Dakar-Diamniadio Toll Road Extension	Transport	134.5
76		2015	Taiba N'Diaye Wind Farm	Energy	288
77	Sierra Leone	2010	Port of Freetown Container Terminal	Transport	130
78		2011	Addax Biomass Plant	Energy	30
79	Somalia	2013	Aden Adde Airport	Transport	10
80	South Africa	2006	Darling Wind Farm	Energy	9.9
81		2006	Gautrain Light Rail Concession	Transport	3483
82		2009	Bakwena Toll Road	Transport	160
83		2011	Beitbridge Border Post	Transport	97
84		2012	Abengoa KaXu Solar I CSP Solar Plant	Energy	844
85		2012	Abengoa Khi Solar I CSP Solar Plant	Energy	430
86		2012	ACED Cookhouse Wind Farm	Energy	300
87		2012	Biotherm - Aries Solar PV	Energy	34
88		2012	Biotherm - Dassiesklip Wind	Energy	68
89		2012	Dreunberg Solar PV	Energy	n.a.
90		2012	Gestamp Karoo Wind Farm	Energy	185
91		2012	Inspired RustMo1 Solar Plant	Energy	25
92		2012	Jeffrey's Bay Wind Farm	Energy	296
93		2012	Kathu Solar Plant	Energy	394
94		2012	Konkoonsies Solar PV	Energy	34
95		2012	Mainstream De Aar Solar Plant	Energy	150
96		2012	Mainstream Droogfontein Solar Plant	Energy	150
97		2012	MEMC Soutpan Solar Plant	Energy	180
98		2012	MEMC Wiktop Solar Plant	Energy	195
99		2012	Metro Wind Van Staadens Wind Farm	Energy	50
100		2012	Mulilo De Aar Solar Plant	Energy	35
101		2012	Old Mutual - Greefspan Solar PV	Energy	48
102		2012	Old Mutual - Herbert Solar PV	Energy	96
103		2012	Old Mutual Hopefield Wind Farm	Energy	173
104		2012	Scatec Kalkbuilt Solar Plant	Energy	259
105		2012	Soitec CPV Solar Plant	Energy	150
106		2012	Solar Capital De Aar Solar Plant	Energy	259
107		2012	Solar Capital De Aar3 PV	Energy	n.a.
108		2012	SolarReserve Lesedi Solar Plant	Energy	294
109		2012	SolarReserve Letsatsi Solar Plant	Energy	280
110		2012	Standard Bank Kouga Oyster Bay Wind Farm	Energy	222
111		2012	Sumitomo Dorper Wind Farm	Energy	258
112		2012	Witkop Solar Power Plant	Energy	184.7
113		2013	ACWA - Bokport CSP	Energy	n.a.
114		2013	Amakhala Emoyeni Wind Farm	Energy	410.38
115		2013	Avon OCGT	Energy	654.1
116		2013	Bokpoort CSP Plant	Energy	382.47
117		2013	Chaba Wind Farm	Energy	36.25
118		2013	Dedisa OCGT	Energy	327
119		2013	Gouda Wind Farm	Energy	271.71

#	Country	Financial closure year	Project name	Sector	Total Investment ($ millions)
120	South Africa (cont.)	2013	Grassridge Wind	Energy	109.4
121		2013	Jasper Solar PV	Energy	n.a.
122		2013	Linde Solar PV Plant	Energy	386.1
123		2013	Neusberg Hydro Electric Plant	Energy	56
124		2013	Sishen Solar PV	Energy	238.8
125		2013	Waainek Wind Farm	Energy	46.39
126		2013	West Coast One Wind Farm	Energy	213.4
127		2014	Mulilo Prieska Copperton Solar Plant	Energy	70
128		2015	Adams Solar PV 2	Energy	109.6
129		2015	Gibson Bay Wind Farm	Energy	173.9
130		2015	Johannesburg Landfill Gas to Electricity	Energy	26
131		2015	Karoshoek Solar One CSP	Energy	688.4
132		2015	Khobab Wind Farm	Energy	281
133		2015	Loeriesfontein 2 Wind Farm	Energy	281
134		2015	Mulilo De Aar 1 Wind Farm	Energy	180
135		2015	Mulilo De Aar 2 Wind Farm	Energy	252.5
136		2015	Mulilo Prieska Solar PV Plant	Energy	58.75
137		2015	Nojoli Wind Farm	Energy	265.9
138		2015	Noupoort Mainstream Wind	Energy	160
139		2015	Paleisheuwel Solar PV	Energy	109.6
140		2015	Pulida Solar PV Plant	Energy	265.9
141		2015	Second Mulilo-Sonnedix Prieska Solar PV Plant	Energy	133
142		2015	Tom Burke Solar Park	Energy	87.7
143		2015	Upington Solar PV	Energy	n.a.
144		2015	Xina Solar One CSP	Energy	900
145	Sudan	2006	Juba Port Concession	Transport	30
146	Tanzania	2007	Tanzania Railways	Transport	134
147		2011	Symbion Rental Ubungo Power Plant	Energy	129.4
148	Togo	2008	Centrale Thermique de Lome	Energy	196
149		2011	Lome Container Terminal	Transport	495
150	Uganda	2006	Kakira Cogeneration Plant	Energy	43
151		2006	Kenya-Uganda Railways	Transport	404
152		2007	Bujagali Hydro Project	Energy	860
153		2008	Bugoye Hydro Electric Power Project	Energy	35
154		2008	ECO Ishasha Mini Hydropower Plant	Energy	14
155		2008	Mpanga Hydro Power Project	Energy	23
156		2008	Namanve Power Plant	Energy	88
157		2009	Buseruka Hydropower Plant	Energy	27
158		2009	Kinyara Cogeneration Plant	Energy	29
159		2009	Kinyara Cogeneration Plant	Energy	30
160		2009	Tororo Power Station	Energy	32
161		2009	Tororo Power Station	Energy	n.a.
162		2009	Tororo Power Station	Energy	n.a.
163		2009	Tororo Power Station	Energy	n.a.
164		2012	SAEMS Nyamwamba SHPP	Energy	34

#	Country	Financial closure year	Project name	Sector	Total Investment ($ millions)
165	Uganda (cont.)	2015	Rwimi Hydroelectric Power Plant	Energy	30
166		2015	Siti Small Hydro Power Plant	Energy	15.4
167	Zambia	2010	Sinohydro Kafue Gorge Lower HPP	Energy	1500
168		2011	TATA Itezhi-Tezhi HPP	Energy	230
169		2012	Itezhi-Tezhi Power Corporation Transmission Line	Energy	110
170		2015	Maamba Coal-Fired Power Plant- Phase-I	Energy	830
171	Zimbabwe	2011	Beitbridge Border Post	Transport	97

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