The excess savings in many advanced countries could be channeled into financing profitable infrastructure projects in Africa. That this mutually profitable global transaction is not taking place is one of the biggest paradoxes of current times.

More than $100 trillion is managed by institutional investors and commercial banks globally. African countries seeking financial resources now have a wide variety of options, well beyond foreign aid.

Many new financing mechanisms could be implemented in all African countries, taking into account the specific economic circumstances and the productive structures of national economies.

Countries should better leverage public funds and infrastructure investments, while encouraging private sector participation. But the different stages of development of African countries mean that the policy approaches need to be country specific.

Universal access to high-quality infrastructure can only be a long-term goal. Trying to achieve it with limited resources has led governments to spend too much on too many projects with low economic returns and little impetus for industrial growth and employment creation.

But African countries do not need to solve all their infrastructure problems before they can achieve sustained and inclusive growth. Instead, they should focus on how to best use their scarce infrastructure budget to achieve the highest economic and social returns.
For much of the past two decades, the global economy has been characterized by excess savings in many advanced countries. Those savings could be channeled into financing profitable infrastructure projects in developing regions, especially Africa, to achieve the G20’s industrialization goal. That this mutually profitable global transaction is not taking place is one of the biggest paradoxes of current times.

Some of the world’s major economic problems—slow growth, global unemployment, climate change, uncontrolled migration—can be solved only if Africa becomes economically prosperous. Industrial development there powered by infrastructure would not only alleviate pain and suffering among the 1.3 billion people who live there. It would also contribute to reducing the global poverty that sustains violence, terrorism, socio-political tensions, the mass migrations of unskilled labor, and high unemployment in some advanced countries—notably in Europe.

Rich countries have excess savings. By contrast, poor countries have investment deficits that could be absorbed by the abundant financial resources (and knowledge) from rich countries. Excess savings are creating financial and economic problems in rich countries (such as inordinately low interest rates) and investment deficits are weakening growth prospects and perpetuating economic and social misery in developing regions. This mismatch is a major weakness in the global growth engine, which former U.S. Federal Reserve chairman Ben Bernanke once referred to as the “global savings glut” or “investment dearth.” Today’s low interest rates are evidence of the glut: There are more savings searching for yield than there are obvious profitable investment opportunities.

Three solutions for the international financial community to resolve the savings glut are straightforward:

• First, adopt a policy of even more negative real interest rates in high-income countries—adding to inflation—but this would be technically and politically difficult.
• Second, use the excess savings to finance public investment in rich countries. For example, a recent government report indicates that 44 percent of Germany’s bridges need repair—again, that would be difficult to deliver politically given the limited appetite for further fiscal stimulus and rising fiscal deficits in rich economies.
• Third, facilitate the flow of capital to developing countries, where there are many profitable investment opportunities would require purchasing capital equipment from industrialized economies.

With every G7 central bank having committed to a long period of low interest rates, organizations of global governance such as the G20, and private organizations of global reach and influence such as the World Association of Investment Promotion Agencies, could help by making two points: That the current era of low inflation is ideal for investing in competitive ventures—in fact, despite the uncertainty, the potential benefits of investing exceed the potential costs; and that investment should be promoted in low-income countries, where the needs are enormous, using capital from high- or middle-income countries.

Matching the excess savings and the investment opportunities beyond national boundaries would create win-wins for all players. Policy makers in advanced and developing countries should be striving to create conditions for harmonious development, to sustain or generate lasting prosperity. Private actors everywhere are searching for profitable ventures at reasonable levels of risk—they need to make profits to stay in business. Civil society organizations want to ensure good opportunities among all citizens and create social peace. All these players are driven by different motives, but they all strive for faster growth and greater prosperity. But because economic policy making is still largely conceived and implemented within national borders for national constituencies, the world economy is not reaping the potential dividends of international cooperation.
In a continental approach, the African Union Commission, the NEPAD Planning and Coordinating Agency, and the African Development Bank have created financial vehicles to address the continent’s infrastructure deficit. In addition, the G20 Infrastructure Action Plan, Infrastructure Consortium for Africa, EU-Africa Infrastructure Trust Fund, and Africa Infrastructure Country Diagnostic all highlight regional infrastructure for Africa’s growth.

In a global framework, the international community could launch a global pact to finance Africa’s infrastructure and stimulate industrialization. Such a pact, much like the Global Structural Transformation Fund recommended by economists Justin Yifu Lin and Yan Wang (box 4.1), would allow Africa to address its major economic and sociopolitical problems and take its natural place in the world as a strong contributor to global demand. It would also provide advanced economies with opportunities to channel their excess savings into productive investment ventures, and allow them to create jobs in many industries within their own borders. Ultimately, Africa could become an even larger new market and contribute more to global demand.

**A NEW APPROACH FOR INFRASTRUCTURE FINANCE IN AFRICA: FROM “INFRASTRUCTURE DEFICITS” TO STRATEGIC TARGETING**

A common conclusion drawn from the analysis is that more money is needed before African countries can ignite or accelerate their industrialization and structural change. At face value, that claim seems logical. After all, infrastructure—the pillar of growth—is notoriously inadequate or in bad shape on the continent and in many parts of the world. But the numbers and the reasoning may be misleading.

First, a lot of financial resources are underutilized in the international system and domestically in all developing countries. An estimated $120 trillion is managed by institutional investors and commercial banks globally. Developing countries seeking financial resources now have a wide variety of options, well beyond foreign aid. Remittances amounted to $430 billion in 2016, more than three times the volume of global aid. Private grants from philanthropists are growing rapidly. And tax revenues, which already amount to about $500 billion in Africa,

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**BOX 4.1 A Global Structural Transformation Fund**

To avoid a protracted “new normal” of slow growth, with high unemployment, high economic volatility, and low returns to financial investment, one solution, proposed by Lin and Wang (2014), would be to create a Global Structural Transformation Fund. By mobilizing excess savings from advanced and emerging economies, and institutional investors such as sovereign wealth funds, it would support green-growth, bottleneck-releasing infrastructure projects worldwide.

Unlike the traditional Keynesian stimulus, the proposed Fund would have several unique features.

First, rather than increasing government spending to support consumption, or “digging a hole and filling a hole” in advanced economies, the Fund would increase demand in the short term and raise growth prospects in the longer term. Traditional stimulus directs spending to the domestic economy, while this proposal recommends a globally coordinated initiative, directing global savings to the highest developmental impact of employment generation and the highest social rates of return. The projects funded would increase demand and jobs in advanced countries and offset the contractionary effect when less advanced countries implement the structural reforms. Here is why:

- Infrastructure investment in developing countries can mitigate some of the post-2008 crisis ills that some advanced countries still face, and help create jobs and generate growth in advanced economies. Most of the capital goods—such as turbines and excavators to build power plants, sewage systems, and roads—are produced in advanced economies. Infrastructure investments (continued)
in developing countries would thus increase demand for manufactured goods in advanced economies. For every dollar invested in developing countries, imports of capital goods increase by 50 cents. About 70 percent of traded capital goods from developing countries are sourced from high-income countries. This implies that a one dollar increase in investment in developing countries would produce a 35 cent increase in exports from high-income countries.

- Infrastructure investments can also create jobs and improve competitiveness. For the United States, $1 billion in new investment spending in transportation, schools, water systems, and energy could create 18,000 jobs, about 40 percent of them in construction and 10 percent in manufacturing, the two sectors hardest hit by the 2008–09 recession. Supporting manufacturing, on a secular decline in the United States and several European economies, would create large-scale employment opportunities, particularly in capital-intensive sectors where labor productivity is consistent with the incomes of advanced countries.

Second, investing in “bottleneck-releasing” infrastructure could increase social and financial rates of return, as well as employment generation and poverty reduction in the long term. The proposed Fund would help use the excess capacity and excess savings in industrial and emerging market economies. In Japan, a large amount of household savings is trapped in extremely low interest rates—well below 1 percent for 10-year government debt. In the United States, the yield on the 10-year Treasury bond is close to 2 percent. In China, the nominal interest rate on 10-year government bonds is 3 percent, with the real interest rate close to zero. The average economic rate of return for World Bank projects evaluated over 1983–92 was 11 percent for electricity projects, and 29 percent for road building. The estimated rate of return to electricity-generating capacity could be as high as 100 percent a year (in Bangladesh, Bolivia, Kenya, and China), but as low as 10 percent—even negative—in some countries.²

Third, investing in infrastructure alone may not propel the growth engine and generate jobs unless it is combined with productive assets and human capital. A common misconception is that the lack of investment in infrastructure is always to blame where the private sector is not creating jobs. The causes may in fact be related to inadequate agglomeration and cluster development, and to other productive assets and human capital or capacity.

Fourth, for the large infrastructure funding and capacity gap in developing countries, especially for renewable energy and green technology, the Fund could help “crowd in” funding and increase the use of green technology by transforming cities into green cities. This would incentivize emerging-market economies such as Brazil, China, and India and those in Arab countries to invest abroad and relocate some of their excess production capacity to low-income developing countries where there is demand.

Fifth, infrastructure consists of a spectrum of public, semi-public, and private goods. Government budget and official development assistance should finance public goods such as drinking water and sanitation. Other financing sources (including FDI) could support semi-public goods, such as electricity, roads, ports, and airports. The Global Structural Transformation Fund would be a bridge fund aiming to crowd in official development financing from other sources. Infrastructure investment must be associated with zone or urban development, such as special economic zones and industrial parks, which can foster structural transformation.

Notes
could be increased substantially by rationalizing tax policies, broadening the tax base, and strengthening collections. Also in the picture are sovereign wealth funds, market finance, and foreign direct investment of more than $1 trillion a year.

Second, the main problem with the infrastructure-deficit approach is the underlying assumption that one day Africa and the world might be able to resolve it. Yet throughout history, the infrastructure deficit has been a perpetual policy problem and solving it will remain a work in progress, especially in a world of continuously changing technological development. Developing countries do not need to solve all their infrastructure problems to reduce poverty and share prosperity. If they mobilize and use the existing pool of resources more wisely and devote them more strategically to support industries consistent with their economies’ comparative advantages, they could ignite and sustain high growth rates to lift themselves out of poverty.

Moreover, Africa’s infrastructure challenges are not insurmountable. The continent’s infrastructure gap does not prevent even its poorest countries from initiating a process of sustained and inclusive economic growth. No country in human history has started its process of economic development with good infrastructure—certainly not Great Britain in the late 18th century, certainly not the United States in the early 19th century, and certainly not China in the late 20th century, where there was only a very small network of highways. True, poor infrastructure is a binding constraint on economic performance. But it is not an insurmountable barrier for launching economic transformation, especially with today’s globalized economies, decentralized global value chains, freer trade, mobile capital flows, and migration of skilled workers. No country with limited financial and administrative resources should be expected to tackle in one go the long list of reforms for building all the infrastructure it needs as “preconditions” for generating economic growth.

Africa’s infrastructure gap may never be filled, even when the continent reaches high income. Infrastructure development and maintenance are a matter of constant concern for policy makers—even high-income countries need continuous industrial and technological upgrading. A more pragmatic approach would be to focus on the government’s limited resources and implementation capacity on creating “islands of excellence,” or carefully selected areas with sound infrastructure and good business environments (even where these two elements are poor overall) to facilitate the emergence of competitive industries that exploit an economy’s latent comparative advantage.

**ATTRACTING INFRASTRUCTURE FINANCE TO AFRICA: REDUCING RISKS**

In assessing the attractiveness of infrastructure projects and programs in Africa, public and private investors use a series of key parameters and criteria. Of particular concern is the level of perceived risks and ways to mitigate them. Their severity varies by country and sector. The issues cross all aspects of project planning, development, and implementation. At the core of any financing scheme is the cash flow generated, and the “availability” of such cash flow is a critical risk determinant for any investment proposition. Infrastructure investments can provide relatively stable cash flows over a long period, making it essential for African governments to develop appropriate contractual regimes that will enable such certainty.

**In-country capacity**
- In ability to develop and implement effective and attractive infrastructure schemes.
- Lack of effective in-country management contributes to poor project performance.
- Lack of effective management capacity in potential off-takers and public service providers can contribute to below-standard performance and be a major barrier to increased use of private financing, such as independent power producers (IPPs).

**Governance**
- Support is needed at the highest level of government.
- Infrastructure needs to be a sectoral and national priority.
- Costly infrastructure projects must be consistent with the budget framework.
• Budget deficits must stay sustainable and consistent with credible macroeconomic stabilization.

**Infrastructure planning**
• There is a general lack of infrastructure master-plans and associated planning capacity, with planning poorly integrated.
• Project pipelines are generally not well developed.
• Few projects are sufficiently detailed to allow for private sector involvement. (A project is bankable if it provides clear incentives for lenders to consider financing it.)

**Funding and financing**
• National funding or public support through sector funding may not be available. It may be hard to find domestic equity investors with realistic expectations or experience of complex financing.
• Constraints of aid and development finance institutions add to long development times and to the administrative requirements, though some entities such as the Multilateral Investment Guarantee Agency (MIGA) are streamlining their processes.
• Particularly for bonds, there is a need to ensure that debt liabilities are offset against productive infrastructure.
• Delays between borrowing and implementation erode the effectiveness of financing, particularly for bond issues.

**Counterparty risk**
• Infrastructure often requires the private sector to partner with national and subnational government entities, including state-owned enterprises. These public entities present counterparty risk to any private party—whether a private party operating on behalf of a public entity or a public entity responsible for repaying commercial financing, as when an SOE issues a bond in capital markets.

**Country and sector risk**
• Caution is called for when assessing the effectiveness of long-term political, regulatory, and institutional arrangements, though instruments are available for mitigating political or currency risks.

**Project development and management**
• Few projects are large enough to attract interest from major commercial players (including domestic actors) to enable efficiencies of scale in financing costs.
• Fully defined projects with appropriate feasibility and feasibility studies are lacking.
• Data are lacking on the state of the assets or the expected outcomes for assets.
• Appropriate funding for project preparation is in short supply, though addressed to a degree by institutions such as the World Bank’s Public Private Infrastructure Advisory Facility, the United Kingdom’s Private Infrastructure Development Group (PIDG), Infra Co., and other similar project preparation facilities.
• For PPPs, the capacity of counterparties (governments, subnationals, state-owned enterprises) to manage the relationship with the private sector, including changes in circumstances to long-term contracts, is very rare.

**Procurement**
• Open and consistent procurement is needed. Multilateral development institutions operating in Africa require coherence with their own procurement standards, but these systems still vary widely.
• Government decision-making criteria may be inadequate for project selection.
• The continent lacks common contractual forms.
• Difficulties of transparency and clarity of procurement rules abound.
• Long lead times, with long transaction times, are common.
• Bid processes are inefficient.

This is not a comprehensive list, but illustrates the risks and issues to be considered in developing and implementing infrastructure investment programs. Investors will have risk issues related to their particular business perspective. The major aid and funding agencies, such as AfDB, provide a range of support to address these issues through stringent processes, technical support, and capacity building to assist in planning, evaluating,
and implementing at all stages of the infrastructure project cycle.

Other entities such as the International Finance Corporation (the World Bank’s private-sector investment arm) provide support for project development and attracting private investment, with funds such as PPIAF addressing project preparation for PPP projects.

More recently, multidonor platforms such as the Global Infrastructure Facility (AfDB is a partner) provide more targeted development funds aimed at the entire project cycle. Money for project development (typically on a grant basis or recoverable only if the project is successfully taken to market) is coupled with project support. Such project support funding and financing is still under design, but it is understood that the money would be available to provide credit enhancement or other financial support, such as buying down the total cost of capital in some form of viability-gap funding mechanism. Several entities—including MIGA, AfDB, GuarantCo, and Nigeria’s InfraCredit—offer risk mitigation, credit enhancements, and guarantees to support financial arrangements, PPPs, and access to local and international capital markets (box 4.2).

**BOX 4.2 Project development funds for African infrastructure**

*Infrastructure Consortium for Africa:* Hosted by the African Development Bank, the ICA is a catalyst for projects rather than a funding agency. Its members include all G8 and G20 countries and a range of regional and multilateral banks.

*Private Infrastructure Development Group:* Established in 2003, the PIDG is a multidonor organization governed by development agencies. Its members commit funds through a range of mechanisms, including a technical assistance facility, a mechanism that supports the preparation of projects for private sector involvement (DevCo); InfraCo Africa, which invests in bankable projects not being developed due to high risks in the early stages; the Emerging Africa Infrastructure Fund (EAIF), which provides long-term loans to private infrastructure projects; and GuarantCo, which provides local currency guarantees. More recently, the PIDG has also supported the creation of InfraCredit, the guarantee facility for Nigeria that has recently approved its first local guarantee structure.

*EAIF:* Created in 2002, the EAIF pools funding from DFIs and private commercial banks. Managed by Investec Asset Management, it is part of PIDG, a multidonor organization with members from seven countries and the World Bank Group. At end-2017, it had financed 67 projects, with total investments of $16 billion.

*Power Africa:* Launched by the United States, this initiative is one of the most ambitious plans for regional infrastructure development. The five-year strategy envisages doubling electricity access in Sub-Saharan Africa, providing access to 50 million people by 2020. Power Africa brings together technical and legal experts, the private sector, and governments from around the world to increase the number of people with access to power. The framework includes financing from commercial banks, private equity firms, and major energy companies. The initiative is a focal point for the energy infrastructure activities of a range of U.S. agencies, including the Export-Import Bank, the Agency for International Development, and the Overseas Private Investment Corporation.

*EU-Africa Infrastructure Trust Fund:* Supported by 12 EU member states, this fund uses its grants to leverage additional finance from EU DFIs.

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**Multidonor platforms such as the Global Infrastructure Facility (AfDB is a partner) provide more targeted development funds**
Vast amounts of capital are looking for higher yields than those in OECD countries. Some African countries are taking advantage of the low rates (box 4.3). The securitization of sovereigns such as Mozambique and Ghana, as well as the lengthening of maturities for local currency debt, are major trends.

**PENSION FUNDS**

Since the high inflation of the 1970s, world interest rates have tumbled. Today, vast amounts of capital are looking for higher yields than those in OECD countries. Some African countries are taking advantage of the low rates (box 4.3). The securitization of sovereigns such as Mozambique and Ghana, as well as the lengthening of maturities for local currency debt, are major trends.

**Sovereign wealth funds**

SWFs operate out of 60 countries, and globally manage $7.2 trillion. African SWFs represent a small but growing share (20-plus funds) amounting to around $1.6 billion. They have not yet featured much in infrastructure, though several of them have mandates that favor infrastructure and industrial development. Because the funds are based on sovereign wealth such as oil and commodity prices, the economic climate over the last few years has not been the best for some of the funds.

**Pension funds**

Pension funds are potentially a highly valuable untapped source for infrastructure funding. Pension savings enjoy high liquidity, but the funds are risk-averse. Even though returns can be high, these funds make only a small share of Africa infrastructure investment.

**Foreign direct investment**

FDI, one of the least volatile forms of investment, accounts for 70 percent of private capital flows to Africa. Although most flows are into mineral resources (including oil and gas), there is some potential for infrastructure at this stage, such as PPP arrangements in the power sector.

**International bond markets**

The entry of Africa into the eurobond market has increased from the original highly successful Ghana bond issue in 2007. This is fueled by low international interest rates, and in the region by low public debt and rapid domestic growth. The eurobond market offers a niche for infrastructure funding.

**Box 4.3 African countries have borrowed at rates below those in eurozone economies**

African countries have borrowed at rates below those in some eurozone economies. Zambia’s 2012 yields were below those for Spain; Nigeria’s rates were lower than those for Ireland. Among the major bond issues:

- Zambia issued a heavily oversubscribed 10-year $750 million eurobond with a yield of 5.6 percent in September 2012, with the funds earmarked for a number of infrastructure projects.
- Nigeria made its debut on the bond market in 2011 and returned with a $1 billion issue in 2013. Yields were 5–6 percent on an issue that was four times oversubscribed. More recently Nigeria issued international bonds for $300 million maturing in 2022 with a 5.625 percent coupon.
- Rwanda issued a $400 million bond with a coupon paying 6.8 percent that was nine times oversubscribed in 2013, and an infrastructure bond worth Rwf 15 billion ($200 million) in 2015.
- Ghana issued a $750 million eurobond in 2013, three times oversubscribed at a rate of 7.8 percent. The proceeds were earmarked for capital investment and reducing the public debt. A total of 22,394 transactions took place on the market from August to December 2015, with the value of bonds reaching $1.5 billion and the average monthly value of trades around $258 million.
- Mozambique entered the market for the first time with a $500 million seven-year bond issued by a government-backed agency with an 8.5 percent yield.
- Gabon raised $1.5 billion in an oversubscribed 10-year eurobond issue and debt exchange (2013).

Infrastructure-related funds
The Africa50 Infrastructure Fund has 25 shareholders with African investment connections, including AfDB subscriptions of $830 million to the initial share capital. Established to facilitate infrastructure development in Africa, the fund acts as a bridge between public and private sectors, with private companies taking the lead in project structuring. It invests as a strategic minority investor, leveraging funds from other investors. The first investment will be for a solar-photovoltaic independent power producer in Nigeria.

Other international financial institutions
The New Development Bank, active internationally, supports finance for green and renewable energy. Its first commitment to infrastructure development in Africa was a 2016 loan of $180 million to South Africa’s state-owned power utility, for transmission lines to connect a 500 MW renewable energy plants to the grid.

The Asian Infrastructure Investment Bank, though not yet active in Africa, has stated that it is willing to look at investments on the continent to strengthen regional integration and South-South cooperation.

ATTRACTING INSTITUTIONAL INVESTORS
Institutional investors are not heavily represented in African infrastructure. However, pension funds and SWFs have the potential to be big (box 4.4), but country reforms and new financial instruments are required to attract them.

Sovereign bonds
Sovereign bonds are issued by a growing number of African countries and parastatals. These should potentially be attractive to pension funds and SWFs, but the potential market risk appears to be holding back the more risk-averse investors. Some development partners, such as the Agence Française de Développement (AFD), are developing financial instruments to attract this class of investor. With a similar aim, development partners are looking for ways to guarantee or mitigate project risks to attract institutional investment and private capital.

Development capital
Several DFIs are looking to promote a development capital approach, such as CDC in the UK, Norfund in Norway, and AFD in France. Typically, these would involve taking projects to financial close with a planned exit strategy. For example, AFD is investing $664 million in equity over five years, with a focus on independent power producers and airports. For another example, the IFC committed $413.3 million in 2016, with disbursements of $203 million to the private sector, including debt financing. The projects included telecoms as well as power generation and distribution facilities, with emphasis on renewable energy.

PRIVATE PARTICIPATION IN INFRASTRUCTURE FINANCING IN AFRICA
Private participation in infrastructure (PPI) is widely seen as a strategy to lift efficiency in operations, maintenance, and long-term asset lifecycle management (box 4.5). It can be in the form of PPPs or mobilizing private capital from commercial loans (even if provided to publicly owned entities such as SOEs) and through the capital markets (local and international). Yet PPI numbers globally are low. Sub-Saharan Africa saw 11 infrastructure deals totaling $3.3 billion, or 5 percent of global PPI investment, in 2016. This falls 48 percent below 2015 investment totals and the five-year average (both $6.4 billion). Nine deals were in the energy sector in 2016, and two in transport. Uganda had four projects, Ghana and Senegal two. Ghana’s two projects—Amandi Energy Power Plant ($552 million) and Tema Port Expansion ($1.5 billion)—resulted in $2.05 billion invested in 2016; and Uganda closed four projects totaling $64 million (box 4.6). By contrast, the region had 24 projects in 2015: 22 in energy, and 1 each in transport and water.
BOX 4.4 African institutional investors

In Africa, the assets managed by African institutional investors are expected to rise to $1.8 trillion by 2020 from $670 billion in 2012 (box table 1).

African pension funds have expanded in several countries, offering a viable option for long-term financing opportunities. Africa’s economic growth—with the rise in the continent’s middle class, deepening financial markets, and regulatory changes bringing more people into the social security net—have contributed to expanding these pension funds. Price Waterhouse Coopers estimates that pension fund assets under management in 12 African markets will rise to around $1.1 trillion by 2020, from $293 billion in 2008. More than half the global population growth between now and 2050 is expected on the continent. And the African middle class is projected to reach 1.1 billion by 2060, or 42 percent of the population. So far only 5–10 percent of the population in Sub-Saharan Africa is covered by a pension system (except for South Africa), far from North Africa’s 80 percent.

Based on asset size as a share of GDP, the top three pension funds are in South Africa (87 percent), Namibia (77 percent), and Botswana (47 percent). South Africa has about $258 billion in assets, but growth is strong elsewhere on the continent. In Nigeria, where regulatory changes were implemented in 2006, pension funds have accumulated more than $30 billion in assets, and Ghana’s pension fund reached $2.1 billion in 2014. Pension funds in Africa have typically invested heavily in domestic debt. Nigeria, Tanzania, and Uganda focus on fixed-income assets, mostly government bonds, while Botswana, Namibia, South Africa, and Swaziland allocate more to equity investments.

African SWFs have grown in recent years as a result of significant revenue increases from commodities, notably in oil-exporting countries (Libya, Nigeria, and Chad). African SWFs manage $154 billion in assets, 2.1 percent of the global SWF industry, growing in number from 15 in 2011 to 21 in 2016. Around 83 percent of African SWF assets are from oil revenues, and 17 percent from mineral and other commodity sources. According to IE-SWF Lab 2016, the Algerian Revenue Regulation Fund is the largest SWF in Africa, with assets of more than $77 billion, followed by the Libyan Investment Authority, with more than $60 billion. In Sub-Saharan Africa, Botswana’s Pula Fund and the Ghana Petroleum Fund are two well-governed funds with a successful investment track record. Both funds try to preserve future income and invest in the local economy.

African insurance companies, closely linked to economic growth, account for 1.6 percent of the global insurance market. Against the OECD average penetration rate of 10 percent, African insurance companies have a low average of about 3.5 percent of GDP. With $46 billion, South Africa is the largest insurance market in Africa (72 percent). Other markets include Egypt, Morocco, Kenya, and Nigeria.

The continent’s insurance industry continues to expand despite the recent economic downturn. Global insurance companies such as Axa and Allianz have recently boosted their investments on the continent, covering certain insurance lines. Axa recently acquired local insurance companies in Nigeria (Mansard) and Egypt (CIB) and is considering Algeria as a potential market.

Notes
1. PwC 2015.
2. IE-SWF Lab 2016.
3. Although the assets of these two funds are expected to dramatically decrease as a result of the drop of the oil price.

Source: AfDB forthcoming.
BOX 4.5 Increased local and international partnerships in Africa

In November 2013, the U.S. energy company AES purchased a majority stake in Cameroon’s power utility, Société Nationale d’Électricité. Other partnerships between global and national companies are becoming more common: During Nigeria’s $2.5 billion privatization in 2013, local companies that had formed consortia with foreign players—including Siemens, Manila Electric, Sym-bion Power, and KEPCO—emerged as winners of most projects.

In 2015, Meridiam launched the €300 million Meridiam Infrastructure Africa Fund to invest for the long term in African infrastructure. This approach, and the ability to act as a value-added partner for public authorities, is particularly appropriate for the African marketplace. The fund focuses on greenfield infrastructure, leveraging Meridiam’s expertise in developing and managing such projects.


BOX 4.6 Public-private partnerships in African infrastructure

PPP numbers in Africa are lower than in other developing regions. Africa saw 17 infrastructure deals totaling $4.18 billion in 2016, much lower than the $11.4 billion in 2013 for 29 projects (box figure 1). Eleven deals were in energy in 2016, two in transport, and one in telecommunications.

PPPs can also fund brownfield infrastructure. In some instances, such assets, already built, have effectively been de-risked. A fully operational asset can benefit from private management to increase operational effectiveness and efficiency, or private capital to allow for major rehabilitation, upgrades, or extensions. Multilateral development banks (MDBs) may want to redouble their efforts to:

- Identify a stock of assets where private participation may be for improved management, technology, or services.
- Assess whether public funding can enhance the public provision of the infrastructure asset and whether it can capture local institutional investors.
- Identify complementary actions to release stranded assets, such as strengthening institutional oversight, laws, and regulations.

Note
1. See World Bank PPI Database Annual Report 2017 (January–June Update, p.6); and Arezki et al. (2017).
POSSIBLE NEW FINANCING MECHANISMS TO SUPPORT AFRICAN INFRASTRUCTURE

Despite the challenges of providing productive infrastructure in Africa, there are successful practices of infrastructure project development experimented with on the continent and across the world. Many of them could be implemented in all African countries, taking into account the specific economic circumstances and the productive structures of national economies.

Infrastructure projects as an asset class to attract institutional investors
Infrastructure debt has not yet been widely considered a major asset class by investors in Africa. But some countries on the continent are using a wide range of financing mechanisms to support investments in infrastructure, and the successful new approaches should be scaled up. They include creating an “infrastructure asset” class to attract institutional investors and the enhanced use of guarantees by government or DFIs that can lower perceived private sector risk and crowd in funding.

Learning from experience in product initiation
African policy makers should also draw on the experience of international financial institutions in designing and initiating innovative financial products to mobilize international sources of finance for infrastructure (table 4.1).

Innovative financial products for infrastructure
African countries can attract new financing into infrastructure either through PPPs or through local and international capital markets. Demand is increasing for efficient public spending, and depending on a country’s macroeconomic situation and ratings, innovative products are being designed to help developing countries create new platforms for institutional investors interested in financing infrastructure. But the Basel II and III solvency requirements constrain some financial investors potentially interested in infrastructure.

Project puttable bonds
The bonds are designed to mobilize pension and life insurance funds as well as sovereign funds for PPPs in emerging economies. They would finance long-term investment funds from the beginning to the closing of a project, avoiding refinancing risk. They would apply to a greenfield project. To facilitate long-term finance, an MDB could provide a put option after the construction and ramp-up period and receive a guarantee premium. The MDB would then take the construction and early operational risk to facilitate financing, complemented by commercial loans, if appropriate.

To make the structure bankable, the bonds should be investment graded. Consider if an institutional investor with an appetite for long-term investments bought a 20-year bond (assuming 3 years for construction, 2 for ramp-up, and 15 for operation), with principal and interest payments guaranteed by the MDB. After five years, the investor would have a put option to sell the bond to the MDB, on the condition that the projects did not meet predefined specific minimum conditions (triggers), such as successful construction completion, minimum coverage ratios, and minimum credit rating conditions. The MDB would hold such a bond and support the project to meet performance obligations, and could then consider selling the bond to pension funds again. Only projects that are sound, economically viable, and aligned with the MDB’s country assistance strategy would be considered.

Debenture structure
The proposal is for an MDB to provide short-term, flexible loans for governments to buy debentures or convertible bonds to finance the initial phases of a project. The debentures would be issued by a privately owned special-purpose vehicle (SPV) that builds and operates the infrastructure facility and finances the initial phase of the project. After construction and after some of the initial risks have subsided, the government would sell the debentures in the market to investors and use the proceeds to repay the MDB. The government could benefit from any upside in the projects, if bonds are convertible.
### TABLE 4.1 Project examples in Africa

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<tr>
<th>Project description</th>
<th>Critical risk issues and how addressed</th>
</tr>
</thead>
</table>
| **Kenya Lake Turkana Wind Power Project**  
Total project cost, estimated at $880 million, includes the cost of the envisaged 400 km transmission line from Lake Turkana to the Susua substation near Nairobi, as well as the cost of upgrading 200 km of roads and bridges.  
The project will be financed through equity debt (25%), mezzanine debt (5%), and senior debt (70%).  
The project showed some innovation in how the liquidity risk was managed (by a combination of letters of credit and escrow account arrangements). | • PPP structure for generation (private sector) and 428 km transmission line (public sector).  
• The African Development Fund applied its first partial risk guarantee to mitigate T-Line delay risk (which is otherwise covered by delay payment obligations of the Kenya government to the project company and its lenders).  
• ADB used its B-Loan structure, allowing participant banks to benefit from its preferred creditor status.  
• The European Investment Bank, with guarantee structures from the Danish Export Credit Agency (political and commercial cover) and from two South African banks—Standard Bank of South Africa Limited and Nedbank Limited (commercial cover)—could leverage €200 million into the project.  
• The application of the EU–Africa Infrastructure Trust Fund financial instrument (which blends DFI money with grant money from the EC) was crucial to filling the equity gap. |
| **Uganda Bujagali 250MW hydropower IPP project**  
This is a build, own, and operate contract by Bujagali Electricity Limited, whose sponsors are Industrial Promotion Services (Kenya) Limited and SG Bujagali Holdings Ltd, an affiliate of Sithe Global Power, LLC (United States). Total financing requirements are $798 million.  
The project showed some innovation in how the liquidity risk was managed (by a combination of letters of credit and escrow account arrangements). | • The structure mobilized commercial lenders by providing a credit enhancement and a pooled approach.  
• The debt facility consists of a commercial loan of $115 million, from Standard Chartered and Absa banks, covered by a World Bank partial risk guarantee.  
• The rest of the financing came from other multilaterals, such as IFC, which committed $150 million in loans, the European Investment Bank, which lent $140 million, and the ADB, $110 million. European DFI financing consists of French development agency Proparco, with a $73 million loan, DEG/KfW of Germany with $45 million, and Dutch financier FMO with $73 million. All senior loans have a 16-year door-to-door maturity, of which $627 million is financed by debt, and $171 million by equity. The debt-equity ratio is around 78:22. MIGA provided an equity investment guarantee of up to $115 million for 20 years. |
| **Namibia local currency bond**  
IFC has launched the first bond by a nonresident issuer in Namibian capital markets, raising 180 million Namibia dollars ($12 million) for private sector development. The five-year bond is named Namibia “vast space”) after the world’s oldest desert. | • The structure looks at systematically developing local capital markets by creating “reference” transactions for bonds in the domestic market. Proceeds support private companies that would not have access to locally denominated long-term capital.  
• The bond is part of a medium-term note program registered with the Namibian Stock Exchange that allows IFC to issue up to 10 billion Namibia dollars (roughly $650 million), in bonds in the domestic market.  
• IFC invests the proceeds of the bond to support private development in Namibia. The bond yield is 9.812 percent a year.  
• Standard Bank and IJG Securities (Pty) Ltd are lead managers for the bond issuance. IJG Securities is also the sponsoring broker on the transaction, while Standard Bank and Transfer Secretaries (Pty) Ltd are fiscal agents. |
| **SOE access to capital markets guarantee: Kenya Power and Lighting Company**  
Interactive loan facility of the World Bank to backstop Rolling KPLC’s debt service obligations under a credit facility. The $200 million loan guarantee to backstop KPLC’s debt service obligations under a $500 million syndicated loan facility. Ultimately, KPLC’s financial position will be strengthened with nearly $180 million saved by the debt restructuring.  
Guarantee signed in 2015, with a tenor of 10 years. | • Providing SOE access to the capital markets achieves refinancing savings.  
• The debt restructuring facility is part of a new commercial financing to refinance KPLC’s existing debt with a much longer tenor loan and with a lower interest rate.  
• A $200 million loan guarantee to backstop KPLC’s debt service obligations under a $500 million syndicated loan facility.  
• Ultimately, KPLC’s financial position will be strengthened with nearly $180 million saved by the debt restructuring.  
• Guarantee signed in 2015, with a tenor of 10 years. |

The advantages of the proposed approach are fourfold. It minimizes overall financing costs (and government subsidies) because it uses government interim finance at the time it is most expensive for the private sector. It maximizes private involvement since all financing would come from the private sector in the end (maximizing incentives for efficiency in operations). It supports capital market development in the host country. And it minimizes the use of MDB capital, since the loan to finance debentures would be relatively short term (3–4 years, against 15+ years for normal project loans).

The MDB would assist the government with designing the infrastructure facility and structuring the debenture or bond instrument and SPV. It would also reduce refinancing risk by offering flexibility in the loan, allowing the government to choose the optimal time to float the debenture or convertible bond.

**Output-based long-term PPP agreements**  
This structure incorporates output-based arrangements. Output-based aid (OBA) is a financing strategy for public funds to support the delivery
The OBA concession model should be used where developers cannot set tariffs to achieve full cost recovery of basic service where policy concerns would justify public funding to complement or replace user fees. Payment typically is made only once a pre-agreed output has been reached. In the proposed model, the grantor enters a PPP agreement with the developer. The developer commits to performance targets specified in the PPP agreement and receives financing for capital spending from commercial capital markets. Tariff revenues provide the developer’s source of cash flow. These are used to cover O&M expenditure, debt repayment, and capex financing, with any remainder retained as profit. Tariff revenues are supplemented by funds payable by a subsidy fund, which is to pay on an output basis. This could apply to sectors such as electricity or water and wastewater.

The subsidy fund could be financed by an IFI. The subsidy, based on a predefined output that incentivizes the developer to provide the output, is paid into a fund administered as a neutral escrow account, backed by an independent auditor that confirms service provision. The debt incurred by the subsidy fund would be the responsibility of the grantor.

The main advantage of introducing OBA subsidies is reducing the burden on the developer of recovering all its costs (O&M expenditure, debt repayment, capex financing, and profit) through the tariff and connection charges (box 4.7). Tariffs can remain low, and the developer can obtain full cost recovery and, in some instances, a return on investment. The predefined outputs linked to the incentives can include:

- The provision of access to service is defined as the delivery of working connections demonstrated through a paid water bill. In this case, the total or partial cost of a connection is paid by the subsidy fund based on each new connection. An added advantage is the increased accountability that comes with this system, because customers can monitor the developer’s performance on the basis of connections provision.
- Having the subsidy paid to the developer as a proportion of the customer’s bill provides an incentive to improve and extend billing capabilities and reduce unbilled water. In this way, the subsidy is paid at the same frequency as a customer is billed, giving the developer an incentive to increase the amount of water billed and to improve service delivery. Another advantage is the transparency provided to customers, who can view the subsidy level on their bill.
- Assurance is given to commercial lenders cautious about the regulatory and political risks to debt repayment, by linking the subsidy to outputs but paying it directly to the commercial lenders.
- A wastewater incentive bases the subsidy on the volume of wastewater treated.

The OBA concession model should be used where developers cannot set tariffs to achieve full cost recovery for political or social reasons and where the political and regulatory risks do not threaten the project and can be comfortably managed.

**BOX 4.7 Mozambique: Using subsidies to strengthen bankability**

Two national water projects between 1999 and 2007 increased access to water to 37 percent in the major cities of Beira, Maputo, Nampula, Pemba, and Quelimane. They also strengthened sector institutions and the regulatory framework. And they piloted the delegated management framework, which separates assets from operations, contracts out operations management to private operators, and oversees a regulatory body. They also aim to secure full cost recovery through tariffs, but this will not include connection costs.

The Global Partnership on Output Based Aid provided $6 million targeted to poor households that cannot afford to pay the connection costs. A single connection fee ranges from about $160 to well over $240. The output-based subsidy encouraged uptake by poor households.

Source: Mandri-Perrott and Stiggers 2009.
managed. An independent verification agent ensures that the predefined output has been achieved, to provide certainty of revenue to the developer and thus enhance the bankability of the scheme overall, and to avoid disputes between the grantor and developer. Even so, it may be necessary to allow for provisions for contract adaptations and renegotiations to take into account unforeseen changes to the initial assumptions underpinning the PPP agreement, including tariff indexations and periodic and emergency reviews.

**FINANCIAL INSTITUTIONS**

**IFC’s new infrastructure initiative**

The Managed Co-lending Portfolio Program, a first of its kind, aims to scale up IFC’s debt mobilization from institutional investors to support infrastructure in emerging markets. It will:

- Address capacity constraints of institutional investors by leveraging IFC’s ability to originate, structure, and manage a portfolio of bankable infrastructure projects.
- Offer institutional investors a portfolio that has sufficient scale and diversification through cost-effective portfolio syndication.
- Provide credit enhancement through an IFC first-loss tranche to create an investment grade risk–return profile, clearing a key capital constraint.

The fund’s structure is based on a partnership with private fund managers for IFC to support new private infrastructure debt vehicles. Each vehicle will invest in infrastructure loans originated by IFC and syndicated through the program’s platform, ensuring that each vehicle meets the commercial and regulatory requirements of large institutional investors. What is notable is that IFC’s investment will be in a first-loss position, subordinated to other senior investors, improving the risk position of the senior investors to an investment grade profile. Each $1 of IFC’s investment will support an additional $8–$10 of third-party investment.
The natural diversification offered by IFC’s portfolio, coupled with an innovative portfolio first loss, allows IFC to credit enhance the senior investors to investment grade.

**Land value capture and property development**

Land value capture refers to mechanisms that monetize the increase in land values that arise around public infrastructure projects. For example, in metro transit development, property development around stations is a common example of an external benefit that results from investments in rail. One financing mechanism that can often arise in planning rail projects is “air rights,” where a developer, through owning or renting land (or a building), gains the right to use and develop the empty space above the property. Building over tracks, platforms, depots, or stations can be very profitable and has been tried in developing a number of metro systems. Several metro or light rail projects have internalized the value of property development to offset operating losses resulting from insufficient farebox revenues. In New York, for example, the Metropolitan Transportation Authority sold air rights to the New York Jets to build a stadium over railyards near Penn Station. Other transport projects such as bus and light rail train projects have obtained upfront funding (equity or grants) from local developers whose other investments stand to benefit from new transport services. Property developers have also been active in private consortiums. For example, the Tanayong Company, one of Thailand’s leading residential and commercial property developers, led efforts to build Bangkok’s Skytrain system.

Real estate development is not, however, a panacea to resolve infrastructure funding and should not be seen as a substitute for sound operations. Planning for new infrastructure projects should focus on providing intelligently designed, high-quality public transportation services, not on developing new venues for consumer shopping. Overreliance on external development revenues can reduce scrutiny of system operations and service delivery. In some instances, project partners whose interests lie primarily in real estate may have perverse incentives to promote an infrastructure project with little regard for sound transport planning.

**Policy recommendations**

Countries should better leverage public funds and infrastructure investments, while encouraging private sector participation. But the different stages of development of African countries mean that the policy approaches need to be country specific.

**Strengthen the governance and institutional framework**

African governments will remain the main players in providing financing, setting up the institutional and regulatory environment, and implementing policies to boost productive investments. Private financing of infrastructure will likely remain a small share of global spending on infrastructure, estimated at 5–10 percent. Not all infrastructure projects are appropriate for PPPs, and regulatory barriers impede greater investment by institutional investors. Nor does increasing the availability of critical infrastructure for economic growth require investing in new infrastructure. Governments can optimize the use of existing infrastructure to reduce inefficiencies and waste, and prioritize investments into projects with the highest economic and social returns. Effective institutional arrangements are thus essential for effective management of the complex tasks of project planning, design, coordination, development, implementation, and regulation.

To improve efficiency, governments should also focus on the soft side of infrastructure development—on policy and regulatory issues, education and training of the teams involved in infrastructure financing, and constant research to keep up with new knowledge. Soft-side interventions in transport could include adopting a multimodal approach to integrate transport networks, address tariff and nontariff barriers to trade, facilitate movement of people and goods across borders, and put in place an effective regulatory framework to discourage monopolies and cartels. Some 75 percent of border delays are caused by trade facilitation constraints, against 25 percent related to hard infrastructure.7

**Focus on maintenance and the productivity of infrastructure**

Some of the losses in infrastructure are due to lack of maintenance. Even if infrastructure projects are
Governments should establish effective infrastructure systems, including autonomous institutions and self-sustaining funding mechanisms. Part of a fuel tax can be directed to a road maintenance fund, and a tax on power consumption can be earmarked for transmission and distribution maintenance. More generally, proceeds from infrastructure taxes can be directed to funding new infrastructure, including schools and hospitals. But governments should avoid a system where maintenance is allocated from the budget every year as political considerations may not favor this line item.

**Adopt a pragmatic approach in strategically prioritizing infrastructure**

Infrastructure projects are among the most profitable investments any society can make. When productive, they contribute to and sustain a country’s economic growth, and therefore provide the financial resources to do everything else. But many governments try to do too much at the same time and end up not actually doing much. Or they give priority to the wrong industries and sectors and devote their limited financial, administrative, and human resources to activities that are not competitive and cannot generate enough payoffs to sustain development.

Africa now collects about $500 billion in tax revenue every year, $50 billion in foreign aid, $60 billion in remittances, and $59 billion in FDI inflows. These numbers are unlikely to increase quickly in the medium term. Because the continent cannot finance its needs in education, health, security, and many other priorities, it is unlikely that it will have the financial resources anytime soon to finance the $130–$170 billion annual budget for infrastructure. Africa’s infrastructure deficit problem will always be a work in progress, especially in a world of continuously changing technology.

The financing needs of countries in transition or coming from violent conflicts are typically much larger, up to 37 percent of GDP, impossible for any government. Half the infrastructure assets in Democratic Republic of Congo need rehabilitation. And after years of conflict and political instability, infrastructure in Libya and Somalia may require a strategy radically different from those in other African countries. African countries also differ in their ability to attract private financing for infrastructure projects. For instance, of the $39 billion worth of PPP projects in Africa in 2012–16, low-income countries received only 4 percent.

Universal access to high-quality infrastructure can only be a long-term goal. Trying to achieve it with limited resources has led governments to spend too much on too many projects with low economic returns and little impetus for industrial growth and employment creation.

But African countries do not need to solve all their infrastructure problems before they can achieve sustained and inclusive growth. Instead, they should focus on how to best use their scarce infrastructure budget to achieve the highest economic and social returns. Economic returns from infrastructure differ by type, with the largest payoffs from electricity generation capacity, followed by telephone density, and road length, in that order. The energy sector is more likely to have a robust positive impact than any other infrastructure sector and most likely to achieve a high social rate of return. But for landlocked countries, transport links to port countries may be more important, since they often determine the cost and affordability of other infrastructure. Transport costs can represent 40 percent of building material costs in Kigali, Rwanda, for instance.

Strategic planning that considers the circumstances of each country, as well as its comparative
Infrastructure would be most efficiently built in special economic zones and industrial parks

Advantage in specific industries, can help governments make difficult choices. Priority should be given to productive activities, such as manufacturing, that can lead to inclusive growth through job creation. That is the main lesson from economic history, and most notably from China. When China started its spectacular growth at 9.6 percent on average for 38 years (1979–2017), its leaders were well aware that the country’s infrastructure stock was poor, poorer even than that in Ethiopia or Democratic Republic of Congo today. They also realized that they would never have enough financial resources and administrative capacity to build roads, highways, railways, ports, and airports in the entire country or to foster regional interconnection with other (mainly poor) neighbors.

The only sensible solution was to get their priorities right and identify the geographic locales where high-quality infrastructure was necessary to support light manufacturing. A few quick-success stories in these well-targeted industries, sectors, and locales provided funding to support infrastructure projects in other parts of the country. The upshot? China is well placed today to launch almost any infrastructure project its economy may need. The pragmatic strategy of prioritization and industry selection has also allowed China to build, in sequence, the critical infrastructure that its economy has needed as it evolved from one level of development to another, and to be in a position today to fund infrastructure projects around the world.

Address the infrastructure deficit in special economic zones and industrial parks

To spur the development of competitive industries, infrastructure would be most efficiently built in special economic zones (SEZs) and industrial parks to develop clusters in specific sectors and locales. Clusters create agglomeration effects with positive externalities to firms, through knowledge spillovers, labor pooling, technology transfers, and close proximity of specialized suppliers.

By creating a geographic area with a good legal, regulatory, and institutional environment and all the necessary infrastructure, industrial parks attract FDI, create employment, and generate exports. Indeed, the recommendation to improve the business environment in Africa has been made for decades, yet African businesses are still hampered by inadequate regulatory frameworks, lack of energy, poor distribution systems, and poor access to finance. Supplying adequate infrastructure and simplifying regulatory systems in an industrial park can enhance private development and increase job creation.16

Industrial parks were used by China to jumpstart its economic development since 1978. They have also been used, to various degrees of success, around the world. Africa has used them since the 1970s, with mixed results. African countries should thus learn the determining factors for success and failure of early SEZs to replicate best practices and avoid mistakes. A large literature has explored the success factors for industrial parks and how to improve their performance in Africa.17 Following Mauritius, several African countries have established industrial parks that are yielding great development outcomes, such as Ethiopia, Ghana, and Morocco.

Mobilize domestic resources through well-targeted subsidies and rigorous collection of fees

To finance their infrastructure projects, several African countries have issued hard-currency debt through overseas development finance partners or eurobonds. These instruments create a debt burden and constrain capital investment in the future, especially if funds are not judiciously used for investment projects that will raise the productive capacity of the country. There are other ways in which African countries could raise funding without jeopardizing macroeconomic stability, notably through improving policies and practices, and requesting greater contributions from service users. Across the continent, electricity and water tariffs are still not cost-reflective, compounded by under-billing or by illegal connections. While it is important to ensure access to electricity for low-income households, reducing subsidies by targeting them to the neediest households, combating fraud, and ensuring that all those who can afford to pay for the service actually pay would bring in more resources. Similarly, collecting a small toll for roads and bridges would help assure maintenance funds and contribute to the funding of new infrastructure projects.
Attract more private funding to infrastructure projects

Governments can leverage their funds to attract private financing. Globally, the contribution of commercial banks and institutional investors remains low, despite their having $120 trillion dollars under management. The lack of infrastructure asset classes, the complexity of capital market structures for infrastructure, and international and national regulations (Basel III) all limit this potential. While African countries should try to attract a share of these funds, the focus should be on increasing the participation of infrastructure companies in power, telecommunications and, to a lesser extent, transport.

African countries should all adopt effective legal and regulatory frameworks, including laws for PPP operations. A well-defined policy for investment funding and private involvement in infrastructure projects—combined with associated legal instruments, procurement policies, and regulatory procedures—can improve the attractiveness and bankability of infrastructure projects. Most important, governments must ensure that rules and regulations are well implemented, without frequent policy changes. Most African countries have good policies, but rarely enforce them. Policy uncertainty should be avoided through wide consultation with all stakeholders, including opposition parties, civil society organizations, and the private sector. Buy-in from all stakeholders can ensure that policies survive changes of government.

PPP policies that reflect the best international standards are essential pieces of the infrastructure financing framework. Some jurisdictions provide general legislation allowing privatization or PPPs, while others establish laws specific to sectors. A study by The Economist in 2015 of 15 African countries revealed that 2 had no roadmap for a PPP framework (Angola and Democratic Republic of Congo), 3 were developing PPP laws (Ghana since 2013, Rwanda since 2009, and Uganda since 2012), and the others had already established legal and regulatory frameworks on PPPs (Cameroon, Côte d’Ivoire, Egypt, Kenya, Morocco, Nigeria, South Africa, Tanzania, and Zambia). While encouraging, ambitious PPP programs that may be beyond a country’s potential (on affordability and access to international investment and finance) should be avoided (box 4.8).

While PPPs are important for infrastructure provision, a careful assessment with analysis of objectives, commercial viability, risks, and their management is necessary to make them successful. Again, not all infrastructure projects are suitable to PPP structure.

Building a robust pipeline of bankable projects and programs

A project is bankable if it provides clear incentives for lenders to consider financing it. This requires good project preparation where all risks and potential returns are evident to the various parties. Given limited long-term infrastructure planning and low capacity for project preparation, many African countries do not have enough projects with the appropriate risk-adjusted returns for lenders. African countries would benefit from establishing appropriate institutions and technical capacity, and partnering with reputable project-preparation institutions and financiers. Given the uncertainties, costs, risks, and long time horizons in project preparation, credible incentive mechanisms for public funding should be put in place to attract private sector participation.

A national and regional platform approach can help deal with some inherent risks such as currency mismatch, small project size, and complementarity. Local currency infrastructure bonds can finance a group of infrastructure projects of substantial size to lower the fixed costs of bond listings. Similarly, a program that includes all complementary components such as power generation, transmission, and distribution networks, and prepaid meters to reduce commercial losses, will reduce the default risk of the power off-taker. Programmatic approaches also ensure better regional coordination with DFIs.

DFIs and donors have recognized the lack of funding for project preparation as a constraint for infrastructure development and are addressing it through institutions and instruments, such as donor-backed developers like the NEPAD Infrastructure Project Preparation Facility, and others (box 4.9). Despite the multitude of actors, there is still a shortage of funding and a lack of
PPP policies that reflect the best international standards are essential.

Create an infrastructure asset class to attract institutional investors
Given the large amount of savings managed by African and global pension funds, insurance companies, sovereign wealth funds, and other institutional investors, African countries should design and market financial instruments that can attract a larger share of those funds. Infrastructure bonds, sharia-compliant bonds, “sukuk,” debentures, and put options are among the few instruments that raise financing for infrastructure without adding debt to government balance sheets.

Efforts should be directed first to raise local currency financing to avoid currency mismatches. Regulatory changes can ensure that domestic financial intermediaries—commercial banks, pension funds, and insurance companies—devote a larger share of their resources to infrastructure development. For instance, when the Central Bank of Kenya mandated that commercial

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**Box 4.8 PPP—do’s and don’ts**

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<tr>
<th>Do</th>
<th>Don’t</th>
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<tbody>
<tr>
<td>Adapt the PPP strategy to your political, social, and economic context under principles of realism and prudence.</td>
<td>Do not plan and announce ambitious PPP programs that may be beyond your potential (on affordability and access to international investment and finance). Don’t define and select unrealistic projects, and do not specify the use of unreliable or untested technology.</td>
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<tr>
<td>Select appropriate projects.</td>
<td>Do not use PPP for small projects (as a general rule). Try to bundle small projects (for example, a group of wastewater treatment plants rather than separate processes).</td>
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<td>Acknowledge the highly demanding resource requirements of the PPP tool and procurement process, and be ready with capabilities.</td>
<td>Do not embark on a PPP process unless you know or recognize the specific capabilities and resources needed and the greater complexity of the process. In many countries, institutions tasked with developing PPPs face enormous restrictions and have considerable shortcomings. But they are expected to produce programs and projects that demand a level of specialization and effort beyond their capabilities.</td>
</tr>
<tr>
<td>Assess and appraise projects in detail to ensure feasibility.</td>
<td>Do not launch a PPP project unless you are sure of its overall feasibility and PPP feasibility specifics—that is, the project’s economic, financial, commercial, affordability, and technical terms.</td>
</tr>
<tr>
<td>Dedicated resources to properly structure the tender and contract, and to manage the process.</td>
<td>Do not believe that appraisal is everything. Inherent value for money may be lost through inadequate structuring and unclear drafting. The tender process should procure the maximum effective competition within the qualification requirements.</td>
</tr>
<tr>
<td>Allow enough time for procurement (preparation, appraisal, structuring, and tender).</td>
<td>Do not rush. Do not set overly ambitious timelines. Private sector actors are less willing to bid for projects if they are not confident of the government’s ability to meet its timetable.</td>
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<tr>
<td>Dedicated attention and resources to manage the contract beyond procurement.</td>
<td>Do not assume that the government has finished its job once the contract is signed. The government needs to manage the contract throughout its life.</td>
</tr>
<tr>
<td>Organize the frameworks (government, institutional, and policy) to deal with the PPP tool in a programmatic way. Control the fiscal implications and evaluate projects and programs for permanent improvement.</td>
<td>Do not apply PPPs as a policy strategy (at a programmatic level) unless you are prepared and ready.</td>
</tr>
</tbody>
</table>

Coordination. Given the shortage, AfDB established the Africa50 Infrastructure Fund, an investment facility that will attract funding from the private sector, governments, and DFIs to finance project preparation and finance (box 4.9).
Africa must attract global savings earning low returns elsewhere.

**Box 4.9 The Africa50 Infrastructure Fund: A one-stop shop for infrastructure development**

**Mission:** The fund aims to provide a comprehensive set of solutions to Africa’s infrastructure deficit. It will mobilize capital from nontraditional sources for regional transformational projects and supply flexible instruments to narrow the financing gap. It was designed not only to invest in fully developed projects, but also to accelerate the provision of infrastructure by supporting project development from the earliest stages.

**Shareholders:** Shareholders include 23 African countries, AfDB, Central Bank of West African States, and the Bank Al-Maghrib. They had committed $812 million in capital by end-2016.

**Priority sectors:** Power and transport (60 percent of investments by 2025).

**Investment vehicles:** The fund has two investment vehicles: The project development business line contributes to a growing pipeline of bankable projects by providing early-stage risk capital, as well as expertise and support engaging investors and stakeholders, from project development to financial close. The project finance business line invests in private sector–driven infrastructure projects, including PPPs near or beyond financial close and often with a high developmental impact, and aims to deliver differentiated returns across its portfolio.

Given the huge funding requirements for African infrastructure, local savings will not be enough. Africa must attract global savings earning low returns elsewhere. For this, close partnerships with DFIs can help mitigate risks. OECD pension funds are required by law to hold assets rated at least A–. (An African project cannot be rated more highly than the sovereign debt of the country.) Most African governments are well below this threshold, and there is no realistic prospect of getting them to A– in the near future. So, African countries should obtain guarantees from highly rated countries or institutions while working to improve their credit ratings. Since this is a long-term matter, countries should address information asymmetries by providing investors with as much information as possible about their economic and political developments and prospects. Adopting international standard such as the International Public Sector Accounting Standards (IPSAS 32) could also send strong signals on government commitments to managing transparency and liabilities prudently.

**Choosing the appropriate financing instrument to develop infrastructure**

A wide range of infrastructure development mechanisms can now finance infrastructure, but the choice should consider countries’ level of development. In addition to taxation, which is available to all governments, other financing mechanisms can be considered.

**Local debt or bonds**, issued on local capital markets, are accessible to most developing countries. While such debt is free from exchange rate risk and reduces the risk of international default, it exposes local economic actors, particularly banks. They can also be a testing ground for countries seeking to enter international markets.

**International bonds** give access to international capital markets. But for many developing countries, access can be limited, relatively expensive due to increased risks, and bring exchange rate risks. The bonds are thus more suitable for countries with strong economic performance, in the lower- and upper-middle-income category.

**Securities** are loans with repayments secured against the assignment of future cash flows. Government infrastructure bonds can be secured against income generated by the assets. Structured funds are similar securities that also structure...
At lower incomes, countries could focus on issuing local bonds, seeking concessional loans, and using guarantees

the risk, which is divided into risk tranches and sold to investors with varying risk appetites.

**Blending** combines low-cost budget funds (including grants) with funds from the international capital market to avoid project underfunding and overfunding. Combining public and private funding, these concessional loans could be adapted to infrastructure projects that generate their own income, such as toll roads or airports. They are well suited for low- and lower-middle-income countries with limited access to international markets.

**Guarantees from governments or multilateral institutions** can share the risks associated with infrastructure projects, fostering a willingness among private institutions to bring funding. They can also bring down the cost of financing infrastructure by lowering interest rates. They are typically suited to most developing countries, but especially low-income countries.

**Diaspora bonds** operate in a similar fashion. Citizens of developing and emerging countries living abroad often have an interest in supporting their homeland, and are often prepared to forgo the returns. Unlike purely commercial investors, they do not immediately withdraw their funds if economic difficulties arise.

In **PPPs**, the private sector generally takes over—partly or completely—not only the financing, but also the construction or operation of a public infrastructure facility against returns. PPPs can require very complex contractual arrangements that would challenge state capacity in several countries, particularly for monitoring the private partner’s contractual performance.

At lower incomes, countries could focus on issuing local bonds, seeking concessional loans, and using guarantees to leverage funds for building their infrastructure stocks, or raising more taxes. At higher incomes, depending on state capacity and the size of a project, countries can include complex PPPs in their mix. Diaspora bonds can also be appropriated for countries with many nationals living abroad, such as Nigeria and Ethiopia. And for more mature economies, international markets can give access to large amounts of funds through the issuance of bonds, securities, or structured funds, but the last two require well-developed financial markets and assets with secure future income streams.

**BOX 4.10 Attracting private sector financing for infrastructure in India**

In 2014, the Central Bank of India eased norms for infrastructure lending by exempting long-term funds raised by infrastructure bonds from obligations such as priority sector lending and maintenance of the statutory liquidity ratio. It also allowed for flexible structuring of long-term project loans by allowing banks to commit to loans for up to 25 years while leaving open the option to refinance such loans every five years, either through bond markets or by selling the loans to other banks. Other institutions were also set up to increase private financing to infrastructure projects.

The Africa50 Infrastructure Fund is similar to some innovative infrastructure investment schemes created in India to attract private capital to infrastructure, through the following entities.

The India Infrastructure Project Development Fund supports the development of credible and bankable PPP projects that can be offered to the private sector.

Viability Gap Funding is generally provided to projects with a long gestation period and when user charges cannot be increased to commercial levels.

The India Infrastructure Finance Company Limited (IIFCL) funds viable projects, on a consortium basis, by providing long-term debt through direct lending to project companies and refinancing to banks and financial institutions. It arranges takeout financing through agreements with the identified lender and the borrower.

The Africa50 Infrastructure Fund combines aspects of these Indian initiatives through its project development business line and its project finance business line.
Risk mitigation measures to attract private sector financing

Prudent practice at project development and assessment stages includes a detailed risk management strategy at an early stage and allocates risk to the stakeholder that can best manage it (Table 4.3).

Risk can be mitigated by additional credit enhancement. Few African countries recognize that infrastructure projects need sovereign support in the form of default guarantees. Such guarantees are needed for project developers to have recourse under sovereign guarantee to terminate a project and exit by recovering a termination payment if such political changes compromise project ownership, construction, or operation. Such government guarantees can also be essential in growing numbers of financially attractive cross-border projects, such as transport corridors, which require innovative instruments to

### Table 4.3 PPP risks and risk allocation by infrastructure type

<table>
<thead>
<tr>
<th>Risk</th>
<th>Toll road</th>
<th>Airport</th>
<th>Light rail</th>
<th>Heavy rail</th>
<th>Port</th>
<th>Solar PV</th>
<th>Hydro power</th>
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<th>Natural gas distribution</th>
<th>Water desalination</th>
<th>Water distribution</th>
<th>Solid waste collection, disposal, landfill, recycling</th>
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<tr>
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<td>PP</td>
<td>P₁*</td>
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<td>P₂</td>
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<td>P₁</td>
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<td>P₁</td>
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<tr>
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<td>P₁</td>
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<td>P₁</td>
<td>PP</td>
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<tr>
<td>Early termination (including any compensation)</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
<td>PP</td>
</tr>
</tbody>
</table>

P₁ = public. P₂ = private. PP = shared.

* Risk allocated to public authority, if emerging during project implementation.

^ Risk allocated to private party, if emerging during project implementation.

α Risk shared if emerging during project implementation.

β Referring to construction of transmission line.

δ Referring to power plant availability risk.

λ Referring to hydrology risk.

ξ Referring to payment risk.

Source: World Bank 2017d.
The AfDB’s Currency Exchange Fund provides a range of products that mitigate currency risks through medium- and long-term swap arrangements. The hedging effects have in some cases moved infrastructure projects up four levels in credit rating. Although it has helped investors to hedge interest rate risks associated with financing in local currency, the facility is limited. It could be expanded with support from DFIs operating through the AfDB private sector window. But more should be done to encourage finance from local investors, thus avoiding currency risk at source.

MIGA provides political risk insurance. Sub-Saharan Africa accounts for around one-quarter of MIGA’s overall portfolio, a figure that has risen rapidly. Further, the World Bank Group has developed a private-sector window for IDA countries. IFC is intended to develop the conditions and criteria for the use of such IDA resources to backstop government obligations and credit enhancements, and to develop other specific risk instruments to increase project bankability, particularly important for some of the countries with higher risk profiles in Africa.

**BOX 4.11 The N4 Maputo Corridor Toll Road**

The $660 million N4 Maputo Corridor Toll Road provides an example of how to attract pension funds to transport infrastructure. The project reached financial close in 1997, and was the first African PPP toll road built with a 30-year build-operate-transfer concession attributed to a private consortium, Trans African Concessions (Pty) Ltd (TRAC).

The N4 was financed by 20 percent equity and 80 percent debt, with the governments of South Africa and Mozambique jointly guaranteeing the debt of TRAC (and the equity under certain conditions). Thirty percent of the equity was held by non-sponsor parties, of which 20 percent was held by the South African Infrastructure Fund, with the AfDB, Standard Bank, and South African pension funds as shareholders.

Important features include:

- A high-level political commitment from both governments resulted in the legal constitution of the implementing authority with the legal right to engage with financiers to implement the project.
- The two governments’ joint guarantee of the SPV’s debt encouraged private sector and pension fund involvement.
- Innovative solutions of cross-subsidization of the toll revenues from South Africa to Mozambique reduced the payment risk, especially the Mozambican risk, which was expected to generate only 4 percent of total revenue.
- Mitigation of project risks through good project preparation, planning, and negotiation encouraged pension funds to invest.
- An enabling South African regulatory framework allowed pension funds to invest (unlike many African countries).
- External risks (political and regulatory) were mitigated through government undertakings and guarantees embedded in the concession agreement.

Source: ICA 2005.
Summing up, it could be said that while Africa certainly needs a massive amount of infrastructure and large sums of financing to pay for it and maintain it, “things have never stood still, and the theme of lack is only one side of a shrinking story.” Increasing financing from all sources, and adopting policies to ensure proper maintenance are important. But what is essential is to adopt a more pragmatic strategy—one that identifies the most critical infrastructure projects and programs to support agricultural transformation, industrialization (mainly manufacturing), and modern services through the development of competitive industries in carefully selected geographic zones and funds them adequately. Targeting sectors and locations is therefore a key policy recommendation. Fortunately, the current global financial conditions are still favorable and likely to remain so in the medium term, and new instruments are being developed to mitigate the higher risks facing investors in many African countries.
ANNEX 4.1 JOINT MDB STATEMENT OF AMBITIONS FOR CROWDING IN PRIVATE FINANCE

The Joint MDB Statement of Ambitions for Crowding in Private Finance collectively committed the MDBs to increase overall private sector mobilization by 25–35 percent over the next three years. The MDBs agreed to report annually on private financing mobilized using a standard, jointly developed methodology. Baseline results for 2016, summarized in the following two tables, show the MDBs’ total amount of direct and indirect mobilization from private investors in low- and middle-income countries of some $71 billion, of which the WBG accounted for more than half.

<table>
<thead>
<tr>
<th>Total long-term financing</th>
<th>Private cofinancing ($ billion)</th>
<th>Private direct mobilization ($ billion)</th>
<th>Private indirect mobilization ($ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB</td>
<td>9.0</td>
<td>0.5</td>
<td>8.5</td>
</tr>
<tr>
<td>AfDB</td>
<td>1.9</td>
<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td>AIIB</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>EBRD</td>
<td>10.0</td>
<td>1.5</td>
<td>8.5</td>
</tr>
<tr>
<td>EIB</td>
<td>90.4</td>
<td>36.5</td>
<td>53.9</td>
</tr>
<tr>
<td>IDBG</td>
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<td>0.7</td>
<td>1.0</td>
</tr>
<tr>
<td>IsDB Group</td>
<td>12.4</td>
<td>0.9</td>
<td>11.5</td>
</tr>
<tr>
<td>WBG</td>
<td>38.3</td>
<td>8.7</td>
<td>29.6</td>
</tr>
<tr>
<td>IFC</td>
<td>20.1</td>
<td>4.1</td>
<td>16.0</td>
</tr>
<tr>
<td>MIGA</td>
<td>7.2</td>
<td>4.0</td>
<td>3.2</td>
</tr>
<tr>
<td>WB</td>
<td>11.0</td>
<td>0.6</td>
<td>10.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>163.6</strong></td>
<td><strong>49.9</strong></td>
<td><strong>113.7</strong></td>
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</tbody>
</table>


Note: Long-term financing comprises financial instruments with a tenor of at least one year. Short-term (< 12 month tenor) instruments are tracked and reported separately. Private direct mobilization is financing from a private entity on commercial terms due to the active and direct involvement of an MDB leading to commitment. Private indirect mobilization is financing from private entities provided in connection with a specific activity for which an MDB is providing financing, where no MDB is playing an active or direct role that leads to the commitment of the private entity’s finance. Private cofinancing is the sum of the two. See World Bank (2017a) for more details on the methodologies.
<table>
<thead>
<tr>
<th>Total long-term financing</th>
<th>Private cofinancing ($ billion)</th>
<th>Private direct mobilization ($ billion)</th>
<th>Private indirect mobilization ($ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB</td>
<td>9.0</td>
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<td>8.5</td>
</tr>
<tr>
<td>AfDB</td>
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<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td>AIIB</td>
<td>0.0</td>
<td>—</td>
<td>0.0</td>
</tr>
<tr>
<td>EBRD</td>
<td>6.4</td>
<td>1.2</td>
<td>5.3</td>
</tr>
<tr>
<td>EIB</td>
<td>8.2</td>
<td>4.5</td>
<td>3.6</td>
</tr>
<tr>
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<td>0.9</td>
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<tr>
<td>IsDB Group</td>
<td>7.3</td>
<td>0.7</td>
<td>6.6</td>
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<tr>
<td>WBG</td>
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<td>7.9</td>
<td>28.9</td>
</tr>
<tr>
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<tr>
<td>WB</td>
<td>11.0</td>
<td>0.6</td>
<td>10.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>71.1</strong></td>
<td><strong>16.5</strong></td>
<td><strong>54.6</strong></td>
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</table>


Note: Low-income economies are defined as those with a GNI per capita, calculated using the World Bank Atlas method, of $1,025 or less in 2015. Least-developed countries are defined according to the United Nations Committee for Development Policy (CDP) as low-income countries confronting severe structural impediments to sustainable development. There are currently 48 countries on the list of LDCs (as of May 2016), which is reviewed every three years by the CDP. Middle-income economies are those with a GNI per capita, calculated using the World Bank Atlas method, of between $1,026 and $12,475 in 2015.
NOTES

2. The findings presented here are taken from the World Bank’s PPI Database Annual Report 2016. The World Bank PPI Database contains information on more than 8,700 infrastructure projects with private participation dating from 1984 to 2016. It is noteworthy that 2016 investment commitments to infrastructure with private participation in EMDEs totaled $71.5 billion across 242 projects, 37 percent lower than 2015 investments ($113.8 billion). According to the World Bank, PPI as a share of GDP also declined in 2016, dropping to the lowest level (0.3 percent) in the past 10 years. This is a 40 percent decline from 2015 when PPI investments in EMDEs were 0.5 percent of GDP. 2016 investment levels are 45 percent below the average of 0.54 percent as a share of GDP over the period 2011–15. By region, Latin America and the Caribbean had the highest investment as a share of GDP in 2016 at 0.9 percent, and Sub-Saharan Africa followed with 0.3 percent investment as a share of GDP.

3. Investment in Ghana amounts to 70 percent of the total PPI investments in countries that the World Bank classified as IDA countries in 2016.

4. OBA is a mechanism that ties the disbursement of public funding to the achievement of clearly specified results that directly support the delivery of basic services. Basic services include improved water supply, electricity delivery, health care and education, communications services (ICT), and roads. In the case of OBA, “outputs” are defined as close to the desired outcome or impact as is contractually feasible. For example, an output might be the installation of a functioning household connection to the water network. In some cases, an “output” might also include a specified period of water delivery demonstrated through billing and collection records. “Subsidies” are defined as public funding used to fill the gap between the total cost of providing a service to a user and the user fees charged for that service, justified by the need to improve basic living conditions or the existence of positive externalities. For more information on OBA schemes and the World Bank, please visit www.GPOBA.org.

5. Another interesting example of the applicability of OBA schemes can be found in the project for the expansion of water services in low-income areas of Jakarta, Indonesia. The objective of the project is to increase piped-water access to poor urban and slum households in Jakarta through the incumbent operator, PT Pam Lyonnaise Jaya (PALLYJA). PALLYJA, majority owned by international water management group Suez, has a 25-year water supply concession contract for western Jakarta and has been operational since 1997. The project uses output-based connection subsidies to connect low-income households within larger areas already served. The project is not focused on greenfield areas, but areas in the proximity of a secondary main. The project provides services to urban poor households that would not be served due to their inability to afford the upfront connection charge. The OBA subsidy transfers the performance risk to PALLYJA by paying 75% of subsidy on successful independent verification of the connection. The remaining 25% is paid after three months of satisfactory service delivery. Construction began in mid-April 2008. A total of 3,324 household connections were made as of February 2009.

6. As mentioned previously, significant political and regulatory risks act as deterrents for developers to engage in long-term investments. This model provides certainty of funding of grantor obligations through the IFI loan. This also provides a guarantee to commercial lenders that payments to the subsidy fund will be made.

REFERENCES


