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Economic Commission for Africa

Enhancing domestic private sector development in Africa: Construction and energy sectors





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Tel: +251 11 544-9900
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E-mail: ecainfo@uneca.org
Web: www.uneca.org

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Executive summary

This paper explores how Governments in Africa can effectively employ interventionist industrial policies to stimulate domestic production and the growth of private entrepreneurship, especially in sectors where multinational companies currently dominate. The construction and energy sectors were chosen for this paper because they are vital for economic growth and poverty alleviation in Africa.

1. Private participation in the construction industry

The construction sector is a key element of national economies and provides critical support for social and economic development because it is a relatively large employer of skilled, semi-skilled and unskilled labour. It generates strong backward and forward linkages with many other activities throughout an economy. The World Trade Organization (WTO) has long defined the construction services sector in terms of two key subsectors: physical construction services, and architectural and engineering design services (WTO, 1998). This two-part definition is used in this paper.

For the past 50 years, economists have been studying the relationship between construction and economic development and growth, as measured by indicators such as gross domestic product (GDP), and the role of the construction sector in national economies. The general consensus seems to be that construction activity tends to increase during the early stages of economic growth, stabilizes or flattens out in middle-income countries and then declines in advanced economies.

As of 2011, construction activity in Africa amounted to about 10.5 per cent of GDP, much less than in East Asia (about 15 per cent). A number of factors affect construction's share of GDP, and a small share does not necessarily reflect under-performance. But the 2011 numbers do suggest that industrial development in Africa, as reflected in non-residential construction figures,

is under-performing when compared with other regions.

In most developing countries, the main target of government- or donor-funded construction investment is infrastructure. Residential and non-residential structures are necessary and in short supply in most African countries, but more often than not the public sector leaves this kind of construction to the private sector (both individuals and companies). The energy sector accounts for over 60 per cent of all infrastructure construction needs (Foster and Briceño-Garmendia, 2010).

A key challenge in most African countries is to expand the role of the domestic private sector in major construction projects. Domestic private sector construction firms in most African countries have difficulties competing – even in their own country markets – with the larger firms that operate internationally by offering a wide range of specialized engineering and management services, as well as the use of advanced technology.

Case study: Botswana offers a valuable example of the construction sector's shortcomings in a middle-income African country. In a recent survey, stakeholders identified poor government project planning, management, supervision and payment procedures as some of the challenges facing projects. The government has used the results of this study and other investigations to improve its approach to construction planning and management.

2. Private sector participation in the energy sector

In many respects, public-private partnerships can be said to be the result of dissatisfaction with conventional construction contracts on the part of both Governments and private contractors. Many construction firms have responded to the fragility and volatility of the market by trying to add more value to their services and finding ways of taking on more work that closely complements physical

construction, such as maintenance, facility management and infrastructure operations. The idea of bundling services suits the needs of government owners of projects as well. Design-build contracts evolved to allow Governments to improve the cost-effectiveness of construction projects. Taking this notion of integrated project development a step further led to design-build-operate contracts, where contractors became responsible for whole-life project operations, assumed part of the financial risks associated with a project, and often also acquired equity stakes. This whole-life approach to projects is the basic idea behind such partnerships.

Public-private partnerships are long-term contracts requiring a private contractor to invest its own money in the design, construction (or rehabilitation) and operation of an infrastructure facility that generates the revenue necessary for the contractor to recoup its costs. A typical example of such a partnership in the energy sector is the independent power producer (IPP). This usually involves the development of a new (greenfield) power-generating facility by a private company that sells the power on a wholesale basis to government utilities that distribute it to individual customers.

The energy sector in Africa is arguably the infrastructure sector where private investment is most needed because of problems with insufficient energy generation, poor access, unreliability and high costs and tariffs. Current capital investment in Africa's energy sector is far less than the total needed to meet sector development goals. However, the private sector contributes relatively little to that total. IPPs are much more widely used in other regions of the developing world, including poor countries in South and East Asia.

There has long been a presumption that only large international operators can successfully handle large-scale public-private partnerships because of project size and complexity. But this perception started changing after large multinational investors began pulling out of developing

country markets after the Asian crisis in the late 1990s. By 2003, new operators from developed countries had emerged and the share of private infrastructure investment mobilized by these investors has steadily increased since that time.

The key challenge in expanding the role of private companies in Africa's energy sector is to get projects structured and services procured from any type of private firm capable of designing, building and operating the required facilities. Multinational firms are likely to continue playing important roles in large energy sector IPPs. But Governments should reconsider the multinationals' long-standing biases towards designing public-private partnerships tenders exclusively for large international operators. Governments should at least try to ensure supporting roles for local private firms in these projects.

Case study: Kenya and Nigeria demonstrate two different approaches to energy sector reforms. Kenya has successfully used what experts call a "hybrid" model, which is part private, part public, with a monopoly State-owned generator and "single-buyer" of power, KenGen, operating alongside a growing number of IPPs. Nigeria's approach goes much further than Kenya's with plans to privatize nearly all power facilities owned by the federal Government. By the end of 2014, Nigeria's process was behind schedule, but had weathered several major challenges and was still generally on track to achieve major reforms.

Case study: Uganda is one of the most innovative countries in Africa when it comes to using different approaches to involving the private sector in the energy sector. Two energy sector public-private partnerships done in the country are examples of what most experts consider to be the most difficult forms of such projects. The first is the Umeme project, a distribution-only brownfield concession. The second example is the Bujagali hydropower IPP, the first hydro IPP of any significant size to become operational in Africa. Both projects have been controversial, but are now considered to be reasonably successful.

3. Government action to increase domestic competitiveness in construction and energy

The benefits of helping local firms become more competitive in construction and energy seem beyond question – this kind of increased competitiveness can promote poverty alleviation and inclusive economic growth, with specific benefits that include local employment, more work for local companies and consultants, more business opportunities for suppliers of local materials, and more sustainable infrastructure and buildings. Government action can be divided into supply-side and demand-side measures.

Supply-side measures are government policies and programmes designed to increase the supply of local firms capable of doing construction work or participating in more complex energy sector public-private partnerships projects. Typical supply-side measures include capacity-building and training to impart basic skills, business strategy know-how and understanding of more sophisticated contractual arrangements such as public-private partnerships.

Low-powered demand-side measures are those that “level the playing field” on which domestic firms must compete for work. This essentially means that in selecting contractors for public-private partnerships or construction, Governments give special consideration to contractors that are domestic firms or that include domestic firms as partners or subcontractors (or use domestic labour, materials, etc.). These are termed “low-powered” measures because they are non-controversial ways of increasing competition, and are generally endorsed by the World Bank, WTO and other advocates of the global free trade.

High-powered demand-side measures are more powerful and controversial. Demand-side tools available for Governments to assist local businesses to become more competitive involve public procurement requirements that create strong preferences for local firms over international competitors in tendering processes. These are termed “high-powered” measures because they are not

sanctioned by the World Bank or WTO. Nevertheless, an increasing number of developing country Governments have reserved the right to use public procurement as an industrial policy instrument to help local companies participate more frequently in construction projects and in public-private partnerships. Most of these high-powered demand-side tools for promoting local businesses are referred to as “localization” measures or local content requirements.

There is also a growing number of development economists who are sympathetic to the use of localization measures. Some of these experts have attempted to identify lessons learned over the last 40 years about how and when to use these sorts of policies, particularly for job creation and industrial development.

Case study: Nigeria is an example of a country that has recently tried to design a law to encourage local participation in its construction industry. But the pressure to get this legislation passed quickly may have led to a draft bill that will cause more problems than it will solve if it is passed. A recent independent evaluation of the bill cautioned that if local content provisions are introduced in a way that does not enable Nigerian firms to achieve international competitiveness, then the most likely outcome is the unintended negative effect of entrenching an uncompetitive domestic industry with significant production inefficiencies.

Conclusion

African Governments are beginning to think about how to use industrial policy to promote domestic businesses and there is a substantial body of guidance available to help with this. This paper assesses some of this guidance in exploring how modern industrial policy prescriptions can help domestic private companies compete effectively for work in construction and energy.

This paper also notes that although African Governments are beginning to think about how to use industrial policy, they can and should do more to help domestic businesses compete effectively for construction contracts and public-private partnerships in infrastructure. The benefits in terms of

jobs and broader economic development seem beyond question. But many African Governments are still reluctant to adopt interventionist industrial policies or they remain biased in favour of large international firms and complex projects requiring the most advanced equipment and technology.

A number of topics touched on in this report deserve much more in-depth attention. A partial list of these topics includes the following: better data on construction activity in Africa needs to be collected and analysed; better data on energy

sector public-private partnerships is also needed; action should be taken to find ways of making financial support available to local enterprises; Governments need to find ways of incentivizing local private sector ownership and action in efforts to enhance their competitiveness; African Governments need help in understanding how and when to use the so-called “high-powered demand-side” policy measures; and much more work needs to be done to understand how to organize and develop regional power projects, and how power pools can help facilitate such projects.

I. Introduction: contributing to modern industrial policy in Africa

A. “Modern” industrial policy

This paper addresses what some experts refer to as the “modern” industrial policy in Africa by exploring how to enhance the participation of domestic private companies in two related African business sectors: the construction industry and conventional power generation, transmission and distribution.

Industrial policy in Africa is once again under the spotlight following decades of tarnished credibility. Policymakers in the region are now looking for new interventionist approaches to directing State action in order to stimulate high-productivity domestic sectors and businesses. This need for State intervention became more apparent following the 2008 global financial crisis, which exposed the persistent weaknesses in African economies, primarily, their inability to compete in emerging markets in fast-growing regions. While economic growth is still strong in some African economies, poverty levels remain unacceptably high and productivity is slowing due to volatile commodity prices, poorly-skilled labour, inadequate infrastructure, government red tape and graft, inefficiencies in the informal economy, and lack of competition and credit unavailability in regional markets.

As a result of the current global reassessment of trade protectionism, several experts have attempted to identify the most effective ways of using industrial policy. Wells and Hawkins (2010), for example, demonstrate that expanding the local content of infrastructure construction is an achievable and worthwhile objective, and they offer practical guidance on how to do it using government procurement policies and procedures. Kuntze and Moerenhout (2013) outline a “correct set of tools” to use in formulating productive policies for meeting local content requirements in renewable energy public-private partnerships.

Similarly, WTI Advisors (2013) identify key issues and lessons that “...determine the success or failure of local content policies” (p. 19). The Economic Commission for Africa (ECA, 2011) has endorsed this positive reassessment of import substitution, and suggests its own set of derived knowledge based on an evaluation of the East Asian experience.

Most recently, the Inter-American Development Bank has sought to re-ignite productivity growth in Latin America by stimulating the emergence in the region of what it calls “modern” industrial policy (Crespi and others, 2014). The first step by the Bank was to rebrand industrial policy as “productive development policy”. The nomenclature signals a wider coverage for such policy, including services and farming as well as manufacturing. It also signals a more balanced combination of supply- and demand-side interventionist measures, with the former including elements such as government-supported research and development, professional training and access to various kinds of debt and grant funding. Demand-side measures designed to aggressively protect domestic industries from foreign competition are also part of the Bank’s approach. But lessons from East Asia have been incorporated so that public assistance for domestic private businesses is strictly limited via sunset clauses and is dependent upon demonstrated performance in increased exports and innovation.

B. Objectives of the paper

In view of this industrial policy resurgence, this paper seeks to explore how Governments in Africa can effectively employ deliberate and calculated public policies and strategies to stimulate domestic production and grow private entrepreneurship, especially in sectors such as construction, infrastructure development (namely energy) and

public-private partnerships, that is sectors where multinational companies currently dominate in the region. The choice of the sectors reviewed in this paper (listed below) is not random; they are related and important for economic growth and poverty alleviation in Africa.

Construction is a very important service sector with extensive backward and forward linkages in every economy: the success of many other industrial sectors, such as manufacturing, is highly dependent on construction. However, domestic firms face formidable obstacles that hamper their participation in construction projects of any significant size even in their home countries, much less in foreign markets. This situation persists despite the likelihood that an increased role for domestic firms in construction could help generate additional domestic, social and economic benefits.

The energy sector is the infrastructure area in Africa requiring the most investment, as much as 60 per cent of all new capital investment by some accounts. Of course, reliable power is essential for modern economic and social activities of all kinds.

The private sector, operating pursuant to public-private partnership contracts, currently plays a relatively small role in the sector: only about 10 per cent of all private investment in infrastructure goes to power. And the role of domestic private companies in such projects is smaller than in any other infrastructure sector.

One of the most effective ways of increasing the ability of domestic firms to become competitive as public-private partnership sponsors and subcontractors is to help them first become competitive construction companies. Many of the developing country firms that have become successful private partners in infrastructure public-private partnerships began as construction companies. By adopting and using some of the basic tools used in improving the competitiveness of local construction firms, Governments may be able to help kick-start the emergence of companies that can eventually compete for more complex public-private partnership projects combining construction with project design, financing and operation.

II. Private participation in the construction industry

A. Importance of construction industries

The construction services sector in developing countries plays a fundamental role in all economic sectors and is a key part of the efforts to achieve social and economic development. The sector is important for employment creation and is a critical instrument for upgrading socio-economic welfare through the erection of structures, including homes and office buildings, as well as civil works involving the provision of bulk infrastructure. Construction is a critical infrastructure service. Domestic firms and personnel should be active participants in the process but all too often, in developing countries, this is not the case. However, over the last 15 years, there has been increasing international interest in identifying how Governments in developing countries can play a productive role in the expansion of their construction services sectors. Intervention tools studied have included the use of domestic policy instruments and strategies, participation in multilateral trade negotiations, as well as via efforts to influence the policies of international funding agencies working in their jurisdictions to ensure positive measures to promote the participation of domestic firms in construction projects.

WTO has found that the construction sector accounts for about 11 per cent of GDP and 7 per cent of employment (WTO, 2009).¹ Construction firms can be government-owned or private, multi-sectoral or focused on single sectors (e.g. housing or water), specialized in physical construction or architecture and engineering design, or completely diversified and able to work in all key project areas such as design, financing, construction, operations and maintenance. Much of the global construction industry is made up of a huge num-

¹ It should be noted that WTO defines construction slightly differently from what is normally adopted in compiling national accounts statistics. However, the WTO definition of construction is used in this paper.

ber of very small firms, including Small, Medium and Micro-sized Enterprises that operate in the informal sectors of developing countries. Even in Europe, companies with fewer than 20 employees traditionally have made up 95 per cent of all active firms; companies with fewer than 50 employees undertake about 60 per cent of all European construction work (WTO, 2009). Because of government under-reporting of the activities of these smaller firms, industry statistics tend to be skewed in favour of larger firms and, therefore, are not very accurate. They vary widely from data set to data set, and from year to year.

Data on the relatively small number of large firms that do most of the very large projects are better. These are firms that provide services to large private corporations and Governments. Multinational construction firms tend to specialize in particular areas: firms from the United States of America do well in the areas of petroleum, chemical and other industrial processing facilities; Japanese and Korean firms tend to focus on technological and project management in manufacturing markets involving automobiles and electronic assembly; European companies do well in general building construction, transport infrastructure and power generation; Chinese firms have been successful in competing for general building projects as well as for infrastructure construction in energy, water, transport and telecoms (WTO, 2009). But information about these larger projects is also far from complete, largely because very little reliable statistical data are available that monitor and report on government purchases of construction services.

B. Construction subsectors

WTO has long defined the construction services sector in terms of two key subsectors: physical construction services and architectural and engineering design (WTO, 1998). This two-part definition is used in this paper. Physical construction is carried out by general contracting firms that

offer complete construction packages, or by specialized contractors working as subcontractors to the general contractors. The work of both kinds of contractors can be undertaken for separate project owners or for the account of the general contractor who sometimes may be the project owner. Projects normally develop through specific stages, which are: pre-investment work, such as feasibility studies; project execution, beginning with architectural design and structural planning; and formal project implementation that involves physical construction, personnel training and maintenance.

Physical construction can include the following activities:

- General construction work for all types of buildings; residential or non-residential, publicly or privately owned.
- General construction for civil works, including infrastructure provision such as roads and railways, bridges, tunnels, waterways, sewage systems and related plants, dams, manufacturing plants and power lines. This category includes public infrastructure and industrial facilities.
- Installation and assembly, including heating and air conditioning, water plumbing, electrical wiring, fencing and elevators.
- Building completion and finishing, including glazing, plastering, painting and tiling.
- Pre-erection work such as preparation of foundations, drilling of water wells and demolishing structures.
- Work on existing buildings, including repair, renovation and retrofitting.

Architecture and engineering design involves intellectual activity that takes place across the various stages of project development mentioned above. It relies heavily on knowledge and technology, and is now closely tied to various aspects of advanced information technology systems such

as computer-aided design. Architecture and engineering services are a critical part of the construction process because they determine the specifications for and quantities of materials to be used in projects as well as the technology to be used in physical construction. These specifications, aimed at least-cost, highest-productivity solutions, often determine the extent to which domestic firms in developing countries can participate in projects.

The kinds of service skills involved in architecture and engineering include the following:

- Engineering to evaluate technological alternatives, which often requires the integration of engineering and other skills, including urban planning and architectural design.
- Architectural services to prepare basic design plans, which usually include a variety of specific sub-fields, such as landscape architecture.
- Economic skills to carry out economic and social cost benefit analysis.
- Procurement, project management and commissioning.
- Financial analysis to confirm the commercial viability of projects and
- Scientific skills needed to evaluate environmental impacts.

C. Construction and economic development

The construction sector is a key element of national economies and provides critical support for social and economic development because it is a relatively large employer of skilled, semi-skilled and unskilled labour. It facilitates strong backward and forward linkages to many other activities throughout an economy. Backward linkages refer to the use in construction of a wide range of products generated by an economy, including building materials and equipment. According to Pietroforte and Gregory (2003), construction has one of the highest backward linkages among all sectors.

Forward linkages include the use by many different economic actors of the outputs of construction, i.e., the buildings and the infrastructure produced. The construction industry is often thought of as a type of economic barometer for a country, because growth in the economy is reflected by growth in the construction industry. But many Governments also depend on investment in construction, particularly for infrastructure, as a kind of strategic economic stimulant. During economic downturns, many Governments use construction spending as a means to re-ignite growth because of the ways in which construction supports the national economy through forward and backward linkages. However, these linkages are less when a country imports most of the skills and materials used in construction.

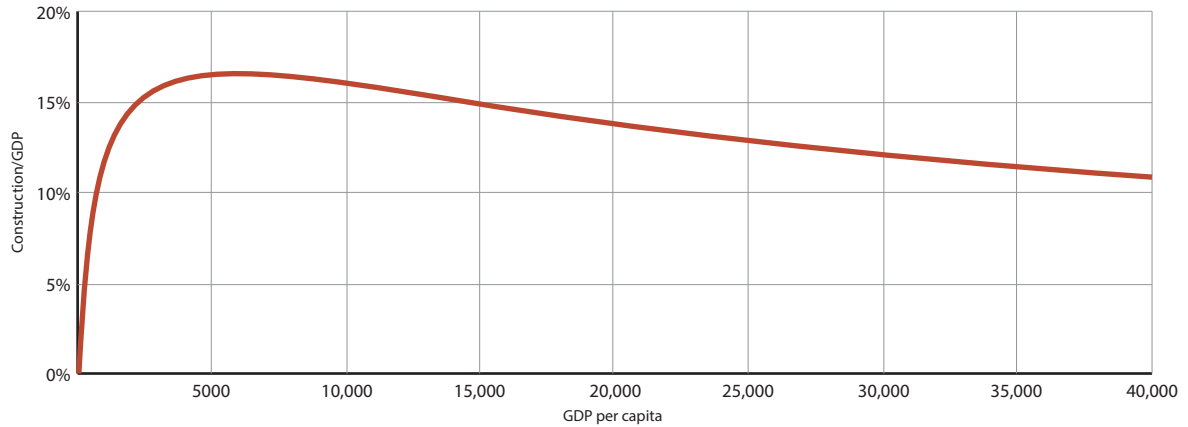
For the past 50 years, economists have been studying the relationship between construction and economic development, the direction of causality between construction activity and economic growth measures such as GDP, and the role played by construction in national economies, as evidenced by input-output tables. Early work by Turin (1969, 1974) and also work by Bon (1992) has attempted to assess whether or not growth in the construction sector has followed a pattern that reflects a country's level of development, mimicking similar trends as the agriculture or manufacturing sectors were thought to demonstrate. Bon's research was among the most influential. Like Turin and others, he postulated that the share of construction in GDP is determined by the stages of development of a country. Thus, it tends to increase during the early stages of economic growth, stabilizes or flattens out in middle-income countries, then declines in advanced economies.

This bell-shaped development pattern is sometimes referred to as Bon's curve (Choy, 2011). The

concept is backed by a kind of common sense logic regarding development. Initial surges in economic growth are driven by urbanization and population growth, as well as the need for residential and non-residential structures such as basic infrastructure and industrial plants. Some economists talk about the labour force shift that occurs in these emerging economies from subsistence agricultural to the industrial sector. This shift drives internal migration flows from rural to urban areas; those flows in turn drive urbanization and the need for housing and urban infrastructure. The construction industry is able to flourish in such conditions because it is better able (even than manufacturing) to make use of unskilled and under-employed labour drawn from subsistence agriculture. In later stages of growth, after industrialization has peaked, the need for structures and related infrastructure starts declining and is often overtaken by growing demand for other kinds of goods and services, often involving higher technological content. During these later stages of growth, construction is likely to be more focused on support for service sectors as well as renewal, repair and maintenance of existing housing and infrastructure.

More recent empirical studies have tended to confirm the existence of Bon's bell-shaped growth pattern, although these have experimented with more comprehensive measures of economic growth than GDP, including the use of concepts such as gross fixed investment and value added. Some researchers including Girardi and Mura (2013) argue that the curve may be asymmetric in that after the share of construction in GDP peaks, it then stabilizes or at least declines more slowly, somewhat distorting the symmetrical bell-shaped nature of the curve (see figure 1.1).

Figure 1.1: Girardi and Mura’s construction-development curve



Source: Girardi and Mura, 2013.

According to Girardi and Mura, construction activity peaks on average at about 14 per cent of GDP, which tends to happen when per capita income levels reach almost 5,000 euros (at 2011 prices).²

D. Construction activity in Africa

Girardi and Mura’s calculations of fixed investment in construction as a share of GDP for various regions over different time periods seem to support their notion of a construction-development curve (see figure 1.2).

Figure 1.2 shows that construction investment as a share of GDP has been increasing in Africa, Asia, Oceania and South America. But sector activity seems to have peaked in Europe and North America in 2006, just before the onset of the global financial crisis.

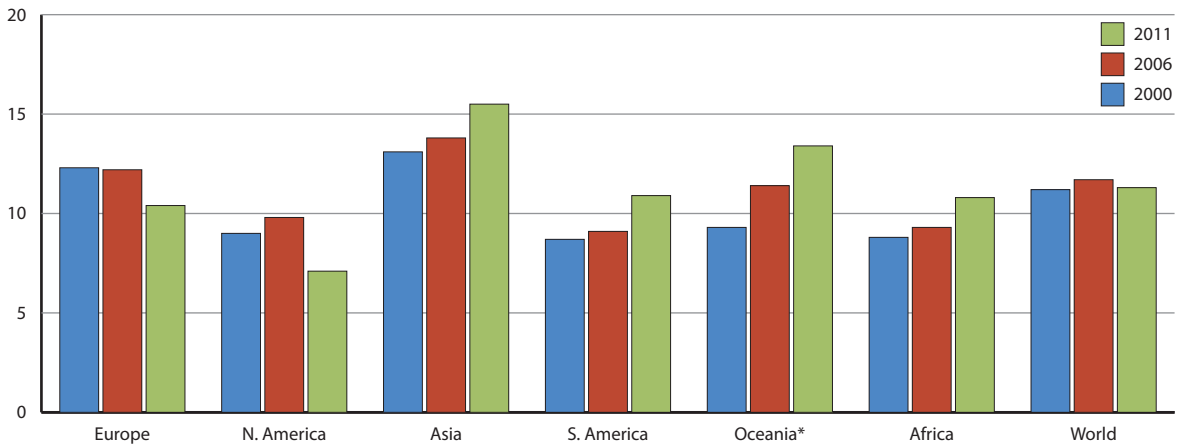
Figure 1.3 compares Africa with other regions in terms of construction activity. Europe is focused on residential activities, particularly those related to housing renewal and maintenance. But residential work is less important in the United States of America where markets are now only beginning to recover from a major collapse in the housing sector in the late 2000s. In Asia, Africa and other developing country regions, infrastructure is the

main target of construction investment. North America is the only region where non-residential construction (mostly in industrial facilities) leads the other sectors.

Figure 1.3 underscores the fact that Africa invests much less in infrastructure and residential/non-residential construction than other regions, including Oceania, a region with only about 3 per cent of Africa’s population. Among other things, this means that industrial development in Africa, as reflected in the non-residential construction figures, is severely under-performing when compared with these other regions.

A more detailed snapshot of the African construction sector in 2013 appears in table 1.1, which covers projects over \$50 million in size, and under construction as at 1 June 2013. These numbers are broadly consistent with the graphic presentation in figure 1.3. Most of these projects (57 per cent) are owned by Governments and involve mostly infrastructure investment, with energy and transport accounting for 60 per cent of the projects. The private sector (foreign and domestic) owns about 30 per cent of the projects, reflecting much less investment in industrial development (and much of the private sector investment goes into mining rather than industrial facilities). But ownership is not the same as funding. Almost a third of the funding for these projects comes from development finance institutions (DFIs) and only about 6 per cent from Governments. Most of the construction is carried out by international private

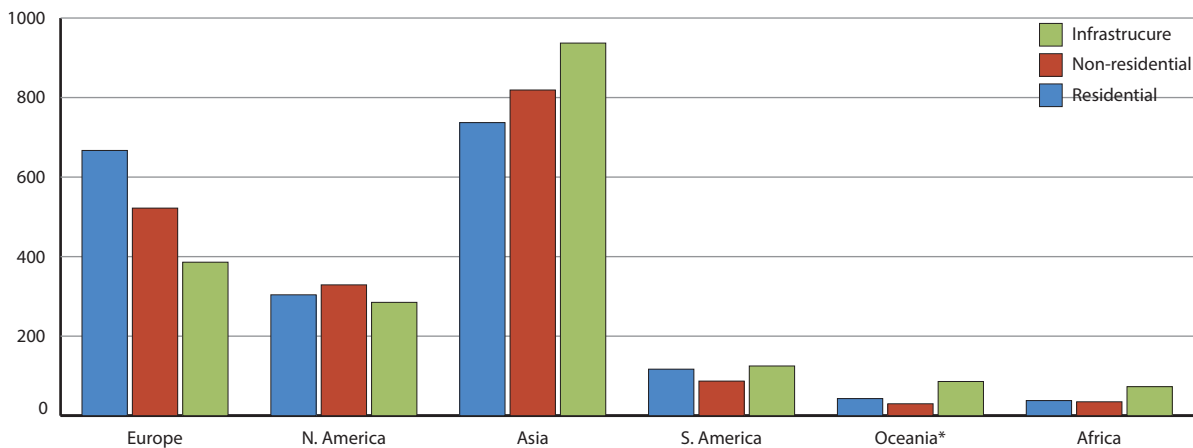
² Earlier work by Edmonds and Miles (1984) made a similar observation on the proportion of construction to GDP that is critical if a nation is to develop. But this kind of cross-sectional analysis has been criticized in other studies. As Brazil, China and South Africa continue to develop, their historical construction data should provide the material for useful uni-country longitudinal analysis that may generate different findings.

Figure 1.2: Fixed investment in construction as a share of GDP

* Australia, New Zealand and proximate islands.

Note: Fixed investment includes the net product of the sector and its demand for intermediate goods.

Source: Girardi and Mura, 2013

Figure 1.3: Investment in construction by sector and region, 2011 (billions of euros)

* Australia, New Zealand, and proximate islands.

Source: Adapted from Girardi and Mura's analysis of the Cresme Ricerche, Simco Database, 2012.

companies from Europe, the United States of America and China (a total of 52 per cent of all projects). Domestic private sector construction companies account for only about 16 per cent of this construction, and much of that is likely to be in the guise of subcontracting, joint ventures or other forms of partnerships with international companies.

Some regional differences in Africa are worth noting. Mining takes up a large share of construction investment in Central Africa, West Africa and Southern Africa. Activity in the energy sector is dominant in every region except East Africa,

where transport activities attract slightly more investment. A higher percentage of projects are foreign owned in North Africa than in other regions, possibly reflecting the proximity of the region to European markets.

North Africa and Southern Africa are clearly different from the other regions in many ways, reflecting the fact that these are largely made up of middle-income countries that have industrialized faster than the rest of Africa. Private domestic ownership of projects is slightly higher in North and Southern Africa, reflecting the predominance of industrial development and real estate activi-

Table 1.1: African Construction Activity by Region - 2013*

	North Africa	West Africa	Central Africa	East Africa	Southern Africa	Regional Averages
Total value (US billions)	6.7	49.9	15.3	67.7	83.2	
No. of projects	22	66	17	93	124	
Who owns? (in %)						
Government	41	56	59	72	55	57
Europe/US	32	26	17	11	15	20
Private domestic	18	8	6	5	15	10
Intra-Africa	-	1	-	2	1	1
China	-	-	-	-	1	0
Other/undisclosed	9	9	18	10	13	12
Who funds? (in %)						
DFIs	23	40	35	35	22	31
Europe/US	14	24	12	13	12	15
Private domestic	27	6	6	2	20	12
China	-	8	17	17	7	10
Government	14	1	6	4	7	6
Intra-Africa	-	3	-	3	2	2
Other/undisclosed	22	18	24	26	30	24
Who builds? (in %)						
Europe/US	59	50	29	37	28	41
Private domestic	14	11	29	10	17	16
China	4	11	12	19	8	11
Government	-	5	12	1	1	4
Intra-Africa	5	4	-	3	3	3
Other/undisclosed	18	19	18	30	43	26
Priority sectors? (in %)						
Power	59	24	35	37	31	37
Transport	14	23	18	42	18	23
Mining	4	20	29	2	19	15
Real estate	14	4	12	4	17	10
Water	9	5	6	8	9	7
Other/undisclosed	0	24	0	7	6	7

*Projects over US\$ 50m, under construction at 1 June 2013

Source: Deloitte, 2014.

ties in these two regions. Similarly, DFI-funded projects are much less dominant in North and Southern Africa. The role of Chinese builders is also less prominent in these two regions, perhaps reflecting less willingness (or ability) to pay for infrastructure construction with natural resource barter arrangements – the so-called “Angola model” of construction finance – that is widespread in other regions.

The relationship between GDP and construction activity, discussed in an earlier section, seems supported by this snapshot and by other available data. Middle-income countries are more industrialized and have a stronger and larger middle-class. Therefore, the demand for infrastructure and residential/non-residential construction services tends to be higher than in low-income countries. At the same time, one would expect to see more domestic opportunities for private construction

Table 1.2: Construction and materials firms ranked in the 250 top African companies

Country	No. of firms	Tot. market cap (\$m)	GDP status*
Egypt	9	13 898	MIC
South Africa	6	3 307	MIC
Morocco	4	5 305	MIC
Nigeria	3	25 094	MIC
Kenya	1	845	LIC
Zambia	1	748	LIC
United Republic of Tanzania	1	273	LIC

*LIC - low-income country; MIC = middle-income country

Source: *African Business*, 2014.

firms in middle-income countries. This hypothesis is supported by a 2014 survey of Africa's "top 250 companies" (*African Business*, 2014). A total of 26 African-based private construction and materials companies are on the list, but only three of those are based in low-income countries (see table 1.2).

E. African regional summaries

Southern Africa leads the continent in both the numbers and total value of construction projects. A large share of this is driven by South Africa's mammoth infrastructure development programme involving over \$30 billion in the construction of two power plants and another \$9 billion in a crude refinery. Mozambique is likely to make a growing contribution to regional construction investment because of recently confirmed oil, gas, coal and iron-ore reserves. Construction activity is also growing in the country as ports, rail, and roads are developed to move resources from mines to ports and on to foreign markets. Angola is also busy with the construction of critical infrastructure such as transport and energy, as well as real estate development and oil and gas.

East Africa has the second most active region in terms of construction, in both the number and total value of projects. Kenya is implementing an ambitious road works programme in an attempt to deal with the traffic congestion in and around Nairobi. The African Development Bank (AfDB), China, Brazil and Japan are all involved in the effort. Nairobi is also enjoying a significant degree of commercial and residential building construction. Oil discoveries in Uganda in 2006 and later

discoveries in Kenya, and offshore gas in Tanzania, will also stimulate new construction in these countries. Additional oil and gas discoveries in these countries are likely. All these countries need significant new infrastructure, and traditional and non-traditional donors such as China are likely to help with that. Ethiopia's Renaissance Dam project involves \$4.2 billion in construction costs; the Addis-Djibouti Railway project is estimated at \$3.3 billion.

West Africa is third in ranking as far as an active construction sector is concerned, again both in terms of numbers of projects and total value. Nigeria, now ranked as Africa's largest economy, leads the way with work in telecommunications, railways and energy sector construction. Ghana is expected to harness its newly developed natural gas resources to help build much needed transport infrastructure as well as water and energy infrastructure needed to keep pace with the country's rapid urbanization. Construction of Ghana's Akyem Gold Mine Project is expected to cost approximately \$1 billion; Ghana's National Gas Project aims to build a \$850 million facility to process gas transmitted from the fields in the Western Basin. Transport infrastructure will be a focus of construction across the rest of West Africa (Senegal, Benin, Togo, Burkina Faso and Côte d'Ivoire). But the spread of Ebola in the region has the potential to decimate labour reserves in certain countries and dramatically upset existing plans for future construction investment.

Central Africa is fourth, but the history of political instability and turmoil in the region seems to have limited construction investment. Most of the work is owned by Governments and over half of it is funded by DFIs or China. The complex political and commercial structures of the Francophone countries of the region make work difficult for foreign contractors. This may be reflected in the fact that Governments play a much larger role in building projects in Central Africa than in other regions. The energy sector is currently attracting the most investment, and the DRC power projects planned for the Inga Basin on the Congo River – Inga III and Grand Inga – have the potential of being, by far, the largest complex of power-generating facilities ever built in Africa. Inga III, at 3,500 MW and a cost of \$12 billion, is now being developed with the help of a group of donors and DFIs.

North Africa rounds out the list of African regions. Political and social unrest in the region fuelled by the “Arab Spring” has reduced expectations regarding construction activity, although the need for infrastructure and residential/non-residential buildings is greater than ever. As the most stable country in the region, Morocco is driving construction activity with new projects in renewable energy, which the country expects to supply 42 per cent of its power needs by 2020. Tunisia is building a rapid rail link, and Algeria is constructing two gas processing facilities. Libya and Egypt have plans for new infrastructure development in the energy sector, but political instability makes the short- to medium-term outlooks for construction activity in these two countries highly uncertain.

F. Need for construction in Africa versus supply

In Africa, like most other developing regions, the main target of government- or donor-funded construction investment is infrastructure and, because of that, it is the largest focus for construction activity. Residential and non-residential struc-

tures are necessary and in short supply in most African countries, but more often than not, the private sector (both individuals and companies) appear to be filling the gap.

A good indication of how much construction investment is required in Africa to meet societal needs, over and above what is currently being supplied, comes from the World Bank’s Africa Infrastructure Country Diagnostic (2010). The Africa Infrastructure Country Diagnostic (AICD) estimates the annual infrastructure spending needs across all major sectors in Africa for a 10-year period. The needs, as assessed, are based on what is required to, first, address the region’s infrastructure backlog; second, keep pace with the demands of economic growth and third attain a number of modest social targets for broader infrastructure access (Foster and Briceño-Garmendia, 2010).

Existing annual spending on infrastructure is also estimated by AICD, and allows us to calculate what the annual spending gap is, that is what is needed over and above the existing spending. Table 1.3 captures this funding gap, and demonstrates that the energy sector is, by far, the largest of any infrastructure sector, representing over 60 per cent of all infrastructure funding needs.

Looked at from a slightly different perspective, the construction investment needs alone of the energy sector are greater than all construction-related funding needs (operations, maintenance and capital investment) in all the other sectors combined (see figure 1.4).

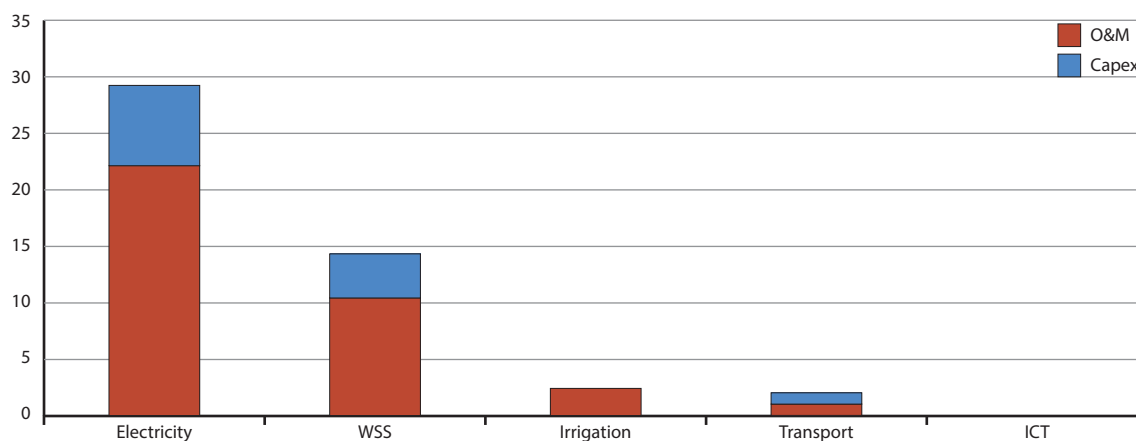
The funding gap for infrastructure construction in Africa is high because clearly not enough money is being spent on this kind of construction. Additionally, the different funding sources are also not particularly well prioritized or coordinated. Figure 1.5 demonstrates this.

Table 1.3: Africa's annual infrastructure construction funding gap

	Electricity	ICT	Irrigation	Transport	WSS*	TOTAL
Spending needs	40,8	9,0	3,4	18,2	21,9	93,3
O&M	14,1	2,0	0,6	8,8	7,0	33,0
Capex	26,7	7,0	2,7	9,4	14,9	60,4
Existing spending	11,6	9,0	0,9	16,2	7,6	45,3
O&M	7,0	2,0	0,6	7,8	3,1	20,4
Capex	4,6	7,0	0,3	8,4	4,5	24,9
Funding Gap	29,2	0,0	2,5	2,0	14,3	48,0
O&M	7,1	0,0	0,0	1,0	3,9	12,6
Capex	22,1	0,0	2,4	1,0	10,4	35,5
Percentage of Total Funding Gap	61%	0%	5%	4%	30%	100%

*Water supply & sanitation

Source: Foster and Briceño-Garmendia, 2010.

Figure 1.4: Annual infrastructure construction funding gaps in Africa by sector in US\$ billions

Source: World Bank and PPIAF, PPI Project Database

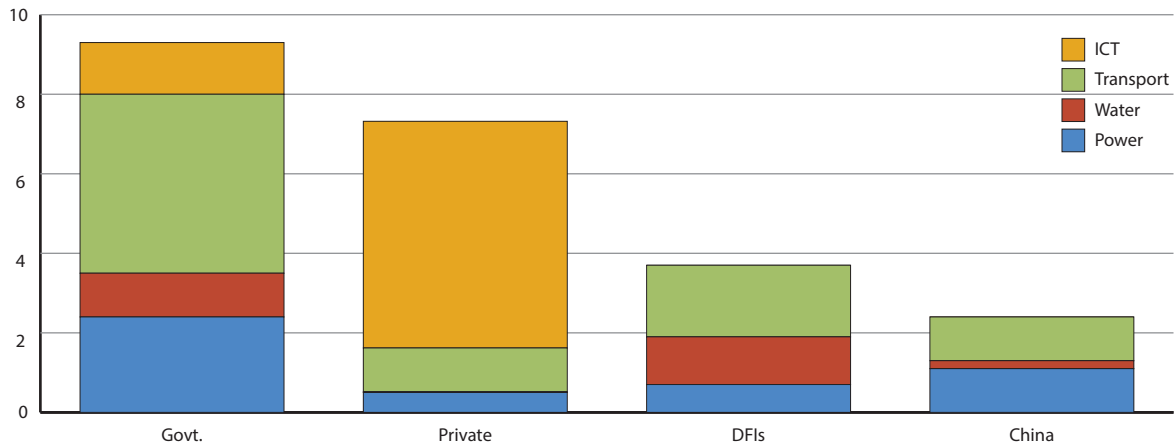
Governments spend about half of their construction funding on transport and only about one quarter on power, despite the massive needs in the energy sector. Donors and DFIs also spend about half of their construction funding on transport, although they also allocate almost a third to water and sanitation.³ Private sector companies spend the overwhelming share of their funding on information and communications technology

³ It is not clear why donor spending is allocated in this manner. Some experts speculate that the gestation period for transport is faster than for power – such that Governments and donors have a short time horizon to demonstrate delivery (politically) and so transport spending may be seen to have at least a quicker impact than power. Also, donors that focus on trade facilitation may be biased in favour of transport spending.

(ICT). Almost all of this is in the form of fully-commercial merchant financing. In other words, in most cases, private companies pay for, own and operate these ICT facilities without contractual relationships with Governments. As a result, ICT-related construction is not typically managed by Governments.

Funding for infrastructure construction provided by China, India or other partners other than OECD sources is equally split between energy and transport. Much of this construction is funded via 'tied aid', so is not competitively procured. In many cases, foreign labour is also imported to work on projects.

Figure 1.5: Funders of infrastructure construction: sector priorities



Source: Foster and Briceño-Garmendia, 2010.

As far as the water sector is concerned, it is worth noting that almost 46 per cent of total construction in this sector is funded by individual households in Africa and involves small contractors, usually from the informal sector.

G. Success factors in expanding the role of the private sector

The key challenge in most African countries is to expand the role of the domestic private sector in major construction projects. The domestic private sector tends to be made up of small firms, which operate in relatively limited geographical areas. Where they are operational, they compete by using low capital-intensive and high labour-intensive techniques, and by offering very low bids. This kind of business is extremely risky. Largely because of these limitations, these firms tend to retain traditional methods of organizing and managing projects rather than experimenting with more innovative, high-tech solutions. As such, these domestic industries have demonstrated flat, if not decreasing, productivity levels over the last 30 years (Hakansson and Jahre, 2004). Above all, domestic private sector construction firms in most African countries have difficulties competing – even in their home country markets – with the larger firms that operate internationally by offering a wide range of specialized engineering and management services (including combinations of physical construction and architectural and engineering services), as well as the use of advanced technology.

This section explores a number of factors that Governments can address to help facilitate the operation and growth of domestic construction industries.

1. Private sector factors

Contractor capacity and labour skills: the human capacity to plan, estimate costs and manage construction projects, particularly large civil works projects, is arguably the single most important factor in the success of construction companies. Skilled labour, especially in technical areas, is also critical. But such skills are in very short supply, particularly in developing countries. Unlike with manufacturing, construction involves constantly changing work sites and customized designs for each project site, including unique logistical solutions needed to conclude work in a timely manner. Because these individual projects have to be bid out, contractors need to estimate costs for each project based on forecasts involving a complicated set of variables (site conditions, weather, labour productivity, equipment type and availability, working capital needs, etc.). This estimation process is more important and more difficult as the projects increase in size, with civil works requiring the most careful estimates because the risks of losing money on such projects is so much greater. Exacerbating the capacity challenge is the fact that during periods of economic growth, domestic construction industries attract owner-managers from other businesses or from the ranks of construction employees. Such managers quickly

exhaust their ability to identify and mitigate the many risks associated with such projects. As economic growth stabilizes or declines, these domestic firms are forced to reduce their profit margins simply to maintain their business volumes, much less to preserve profits. Over time, this makes construction of residential/non-residential structures (usually by small local firms) a highly competitive business with low profit margins. In most markets, it is not unusual to see small construction companies on sale at any point in time (WTO, 2009).

Access to finance: to be competitive domestically or internationally, construction firms need access to finance that is reasonably priced. This is because market access often involves high fixed costs due to regulations and prequalification costs, including the costs of accessing tender information. Finance means the ability of private firms to obtain credit lines from banks at affordable interest rates or to access private finance from private equity funds. However, affordable credit is in short supply in many developing countries because of weak or underdeveloped domestic banking systems, the absence of firms that arrange financing for construction projects, and diminishing financial support from Governments. Similarly, smaller, family-owned firms are often unwilling to dilute their shareholding (it may make them lose control of their companies) by accessing either private equity or debt finance. This lack of access to finance means that domestic firms in developing countries cannot easily compete, even in their own markets, with larger international firms. Chinese contractors operating in Africa often gain competitive advantage because they have easy access to cheaper capital from State-owned Chinese banks.

Access to technology: among other things, lack of access to finance makes it difficult for developing country firms to acquire advanced technology on a commercial basis. Unfortunately, to remain competitive domestically, much less internationally, it is imperative for such firms to continuously upgrade their technological capacity. This is especially true when competing against firms from countries where Governments readily support research and development activities, and where technology has

already led to significant savings in physical construction management techniques as well as in architectural and engineering design and drafting approaches. As architectural and engineering work becomes increasingly driven by computerized technology, the project specifications produced by the work also tend to require more advanced technological interventions, making eventual participation in the projects by smaller developing country firms even more difficult. In many developing countries, small firms are obliged to lobby Governments or development finance organizations for research and development grants, or are reliant on technology transfer via subcontracting (or other cooperative or franchise-like) arrangements with larger international firms.

Entrepreneurship skills: a variety of market trends have added to the challenges facing small developing country firms, such as increasing international competition (intensified by overcapacity in the market resulting from the global financial crisis and rising labour costs); growing technical sophistication of the industry (especially involving the development of information technology and computerized design and management applications) and the growing size of projects, which in some cases only the biggest international firms can manage. In order to survive these kinds of competitive pressures, developing country firms need to be able to plan and strategize regarding their own business development. In many countries, this boils down to a willingness and ability to seek partnership opportunities with larger firms, even in their home countries. Large firms often need local partners for projects, but they habitually view developing country firms as unable to execute overall management of large projects, so they use subcontracting and other kinds of cooperation to allow developing country firms to provide other limited kinds of specialized or non-core services. Small domestic firms are often unaware of the basic partnership mechanisms that could benefit them.

2. Government factors

Government leadership: increasing the role of domestic firms in construction usually starts with recognition on the part of senior government

officials that support for such role expansion is a worthwhile objective of government policy. This is not as simple as it might seem. Government officials are frequently biased in favour of larger projects, the use of the latest technology and materials, and engaging international contractors. Smaller, low-technology projects that are better suited for small local contractors are often viewed as second best options. Fortunately, some countries are pushing ahead aggressively in the direction of local industry development. Tanzania formulated a construction industry policy as early as 2003 (United Republic of Tanzania, 2003). Nigeria is currently considering a similar law. But many other African countries have yet to acknowledge this as an issue.

Negotiated access to projects funded by international agencies: a key task of government leaders in extending the role of domestic firms in construction involves negotiating expanded access with the bilateral or multilateral funding agencies that pay for the majority of construction projects in developing countries. In fact, multilateral organizations such as the World Bank account for a large number of such construction projects. Until the 1990s, the combination of large contracts and the strict use of international competitive bidding procedures meant that small developing country firms were ill-equipped to compete effectively for such work. Following a review of World Bank projects in 2000, the United Nations Conference on Trade and Development reported that foreign contractors dominated Bank-funded construction in developing countries. The World Bank first adopted an explicit policy of promoting the growth of domestic construction industries in borrowing countries in 1973, but progress in this area was very slow (World Bank, 1984). Over the past 15 years, many of the multilateral agreements began to recognize the development opportunities involved in making these projects more accessible to local firms. Some projects were downsized or divided into smaller activities to promote competition by local firms, and some measure of preference for domestic firms was built into bidder procedures. Nevertheless, by 2011, AfDB, for example, found that still less than 45 per cent of new construction contracts were being awarded to firms located in African countries

(including the African offices of international firms) (AfDB, 2013). The problem persists because some bilateral donors still “tie” receipt of their funding to the use of firms from their own countries, effectively crowding out (or at least reducing to a minimum) involvement by developing country firms. Traditionally, both China and the United States of America have tied their aid in Africa. A 2012 study found that a quarter of total aid provided globally by all bilateral donors was still tied (OECD, 2012). Chinese construction firms typically source materials, components, equipment and even labour from China. Theoretically, Governments that are motivated to do so can negotiate expanded access to construction work for local firms. But some officials admit that international funders are sometimes unwilling to back down and, on occasion, succeed in reducing or eliminating even modest government rules giving preference to local firms.

Project conceptualization, structuring and management: to maximize the sustainable involvement of domestic private firms in public construction, Governments need flexibility of action to ensure that smaller local firms benefit. Officials need to conceptualize, plan and manage the implementation of projects; as well as manage the finances associated with these projects, particularly by making timely payments to contractors. Projects that are not properly designed when construction commences are typically plagued by a multitude of change orders and related increased costs, which small firms are less able to manage. Delayed payments, leading to cash flow problems, represent one of the main obstacles blocking the expanded role of local firms in larger projects. A manifestation of these institutional deficiencies, highlighted in the AICD study, is the finding that Governments in poor countries are unable to fully spend their budget allocations for capital investment and for recurring maintenance expenditure. The problem stems from weak institutional capacity, reflected in poor sector planning, incomplete project designs, poor or delayed project appraisals, procurement delays, delays in releasing funds, changes in terms agreed on with contractors, and reallocations of budget amounts in response to political or social pressures.

Transparent and competitive procurement: government procurement and contracting procedures in many countries are often not fair, competitive or transparent. In many African countries, the standard forms of contract used for public-sector construction projects are either too old, or have been borrowed from elsewhere and do not suit the context of local construction industries. Procurement must be a rigorous vetting process that helps avoid project implementation delays and litigation. But contracts should not be one-sided or too complex. Contracts should include protection in the case of default by project owners or compensation for cost escalations resulting from problems (associated with things such as licensing or site selection) that are beyond the control of contractors, especially small local firms.

Facilitative domestic policies and regulations: often, the fiscal policies of a home Government impose severe limitations on the competitiveness of domestic construction companies. These domestic firms are often denied the tax concessions on imported construction materials and equipment, which are made available to foreign companies. Taxation is also imposed unfairly on domestic firms in misguided efforts to attract more foreign direct investment. Another problematic area for domestic firms is the time and

cost required to arrange for the licences, permits, notifications, inspections, utility connections, etc., necessary to build simple structures. Foreign firms, especially if supported by donors or DFIs, often receive waivers to speed up this process or at least have the working capital to cover the financial costs of these processes. Domestic firms are, therefore, at a competitive disadvantage because they must bear the full impact of local red tape. On average, Africa's construction regulations are second only to those of South Asia in terms of cost – more than 100 per cent higher than the region with the next highest cost structure (see table 1.4).

Policies and procedures to limit corruption: according to Transparency International, the construction sector tends to be the most corrupt of all sectors. Corruption, of course, can have many different kinds of impacts, but among other things, it can reduce the quality and productivity of construction work, reduce incentives to innovate in terms of management, planning or use of technology, steer public spending away from the most cost-effective developmental solutions and, ultimately, cause poor project selection and lead to poor quality of buildings (and, therefore, risk of collapse) or inadequate maintenance.

Table 1.4: Dealing with construction permits (time and cost)

Region	No. of procedures	Time (in days)	Cost (% of pc income)
South Asia	16	193	850
Sub-Saharan Africa	15	171	737
Europe & Central Asia	18	192	327
Middle East & N. Africa	16	146	283
Latin America	13	216	137
East Asia & Pacific	16	146	105
OECD high income	13	147	84

Source: *Doing Business, 2013*.

Case study 1-1: Construction contractor performance in Botswana¹

The challenges and problems facing domestic construction firms in Africa have had severe impacts in terms of their performance, especially the timeliness, cost and quality of their construction work. In an effort to try to quantify how significant such problems might be in a middle-income African country, Ssegawa-Kaggwa, Ngowi and Ntshwene (2013) carried out an empirical study of construction shortcomings in Botswana. The authors collected and analysed data on 323 projects completed over a five-year period. These were public projects commissioned by various national departments and ministries, and implemented by private contractors pursuant to government procurement regulations (mostly traditional public procurement procedures involving separately contracted architectural and engineering and construction services). The authors followed up their quantitative analysis of project data with 200 structured interviews of government officials and contractors to try to determine more about the nature and cause of the deficiencies identified during the quantitative analysis.

Of the 325 projects studied, 42 (13 per cent) were abandoned by contractors and reentered for completion. All sizes of projects were affected. Of these remaining projects in the sample, 72 per cent experienced cost overruns averaging 21 per cent (with maximums reaching 100 per cent). Over half of the non-cancelled projects experienced time overruns averaging 80 per cent (with maximums reaching 400 per cent).

Deficiencies of government project owners: stakeholders identified a number of shortcomings on the government side of these publicly-procured projects:

- Project conceptualization: stakeholders complained that, in many cases, the projects were not adequately conceptualized by the time work began.
- Project management: stakeholders complained that government owners did not exercise sound, comprehensive approaches to project management.
- Project supervision: during the review period, no government institution regulated the conduct of contractors on government projects, and no contractor code of conduct existed.
- Contractor payments: contractors reported that they often received payments later than the agreed payment dates because of bureaucratic inefficiencies.
- Procurement management: many contractors complained that, often, the procurement evaluation process took so long that by the time an award was made, bid prices no longer accurately reflected marketplace costs.

Contractor deficiencies: most of the complaints about contractors focused on their glaring lack of management skills necessary to keep projects on time and within cost expectations:

- Contractors often underestimated the number and/or quality of personnel needed to complete jobs.
- Contractors often made poor decisions regarding considerations such as whether to rent or purchase equipment.

¹ Source: Ssegawa-Kaggwa and others (2013).

- They often overstretched their cash flows and logistical capabilities by taking on too many jobs at the same time.
- Basic skills in key areas often seemed to be missing: cost estimation, pricing, project planning, site management, risk assessment, financial management, contracting, etc.

Lack of industry facilitation: contractors and other industry stakeholders complained about the lack of an effective industry association that could collect and disseminate information on industry players and performance, as well as basic data on costs/prices for supplies, components and equipment. At the time of the survey, no government office or agency was tasked specifically with supporting and developing the construction industry in the country, or interacting with contractors on policy issues or the need for reform or improvement in government processes such as procurement and contract supervision.

Postscript: since this study was published by Ssegawa-Kaggwa, Ngowi and Ntshwene in 2013, the Government of Botswana has taken steps to address many of the problems identified. But the report provides a valuable overview of the kinds of shortcomings that still characterize many of Africa's domestic construction industries.

III. Private participation in the energy sector⁴

A. Introduction: from construction projects to public-private partnerships

As already explained in some detail, the construction industry is a highly competitive sector with relatively low profit margins. Price increases (and price volatility) affecting the basic materials used in construction, especially fuel, steel and cement, can wreck havoc on the cash flows of construction firms. Economic downturns can drive bids below costs as firms struggle to maintain activity levels and keep workers and equipment productively engaged.

Many of the larger firms have responded to the fragility and volatility of the market by trying to add more value to their services and finding ways of generating stable income streams over the longer term. This often means taking on more work that closely complements, but is technically separate from, physical construction, such as maintenance, facility management and infrastructure operations. Bundling these services into a project implies a closer working partnership with clients and a focus on the 'whole-life' costs of a constructed facility.

This whole-life project perspective suits the needs of government owners of projects as well. Public procurement has traditionally involved tendering each stage of project development separately and on the basis of the lowest bids. So architectural and engineering services would be contracted first, followed by separate contracts for the general contractor and subcontracts for the specialty contractors. But as the Botswana case study demonstrated, contracting the architectural and engineering and construction service providers separately can dilute quality control and lead to a facility that may be less expensive to design but more expensive to build, operate and maintain. To

counter this risk, many Governments have turned to design-build contracts that involve a single supplier doing both the design and the construction. That way, the contractor has an interest in designing a facility that can be built cost-effectively.

Taking this notion of integrated project development a step further leads to design-build-operate contracts, where contractors become responsible for whole-life project operations, assume part of the financial risks associated with a project, and often also acquire equity stakes. This is the basic idea behind public-private partnerships. Under a public-private partnership, a firm designs, builds, operates and maintains a project, usually for a long period. In classic forms of public-private partnerships, a firm invests the money necessary to pay for all of this and recovers its investment plus a profit from the delivery of services provided by the built facility (although there are now many cases of Governments sharing project costs in various ways). This internalizes the whole-life costs of the project and makes a single private sector firm responsible for them. Since a public-private partnership firm is usually rewarded exclusively on the basis of providing the project services over the life-time of the partnership contract (rather than being paid only for design or construction), the firm has an interest in designing infrastructure that can be built and maintained in a cost-effective manner. Theoretically, this means that public-private partnerships can provide higher quality, less expensive infrastructure services.

B. Public-private partnerships in the energy sector

There is no single, authoritative definition of a public-private partnership. However, for the purposes of this paper, public-private partnerships are long-term contracts requiring a private con-

⁴ The focus of this paper is on energy, meaning electricity generation, transmission and distribution, as opposed to the broader definition of the term, which normally includes things like oil and gas in addition to electricity.

tractor to invest its own money in the design, construction (or rehabilitation), and operation of an infrastructure facility that generates the revenue necessary for the contractor to recoup its costs. In other words, public-private partnerships offer whole-life services. The operational dimension is so important that often the consortia that bid on large-scale public-private partnership projects are led by service operators who raise money from financiers and later contract out the construction to separate firms, often referred to as engineering, procurement and construction contractors, that design the facility, procure the necessary materials and build the project. Construction is critical to the success of public-private partnerships, and many construction firms have become operators, but the successful operation of the project over long periods of time is the way in which the private partner in such a partnership gets paid. Box

2.1 offers a typology of public-private partnership projects, as defined for the purposes of this paper.⁵

The types of public-private partnership contracts, referred to in box 2.1 as concessions, must be long-term in order for the private entity to recoup its investments via the sale of the services. An example of this kind of contract would be an electricity distribution concession, in which a private company takes over management of a power distribution utility, rehabilitates and extends the useful life of the assets, then manages distribution of power to customers and recoups its investments via user fees.

Another typical example of this kind of concession in the energy sector is the Independent Power Producer (IPP) project. This usually involves the development of a new (greenfield) power gener-

Box 2.1: A typology of public-private partnerships

1. **Brownfield concessions:** a private entity takes over the management of an existing government-owned enterprise and also assumes significant risk for investments needed to extend, complete or rehabilitate the enterprise's facilities.
 - Rehabilitate, operate and transfer: a private sponsor rehabilitates an existing facility, then operates and maintains the facility at its own risk for the contract period.
 - Rehabilitate, lease or rent and transfer: a private sponsor rehabilitates an existing facility at its own risk, leases or rents the facility from the government owner, then operates and maintains the facility at its own risk for the contract period.
 - Build, rehabilitate, operate and transfer: a private developer builds an add-on to an existing facility or completes a partially-built facility and rehabilitates existing assets, then operates and maintains the facility at its own risk for the contract period.
2. **Greenfield concessions:** a private entity builds and operates a new facility for a period, and under conditions specified in a contract.
 - Build, lease and transfer: a private sponsor builds a new facility largely at its own risk, transfers ownership to the government, leases the facility from the government and operates it at its own risk up to the expiry of the lease. The government usually provides revenue guarantees through long-term take-or-pay contracts for bulk supply facilities or minimum traffic revenue guarantees.
 - Build, operate and transfer: a private sponsor builds a new facility at its own risk, operates the facility at its own risk, and then transfers the facility to the government at the end of the contract period. The government usually provides revenue guarantees through long-term take-or-pay contracts for bulk supply facilities or minimum traffic revenue guarantees.
 - Build, own and operate: a private sponsor builds a new facility at its own risk, then owns and operates the facility at its own risk. The government usually provides revenue guarantees through long-term take-or-pay contracts for bulk supply facilities or minimum traffic revenue guarantees.

Source: Adapted from the World Bank and PPIAF, PPI Project Database

⁵ Also, see the annex to this paper for a more extensive discussion of the challenges associated with private project types used in Africa's power sector.

ating facility by a private company that sells the power on a wholesale basis to government utilities that distribute it to individual customers. In the case of IPPs, the assets may belong to the private company but the power must be sold to the government (or a government power utility) for retail distribution as a public service to customers. For IPPs, the critical form of public-private partnership contract is usually the Power Purchase Agreement (PPA) between the private power generator and the government purchaser of the wholesale service.

It is worth noting that public-private partnerships may be either brownfield, meaning that they involve rehabilitation or extension of existing assets (for example, an existing transmission line or distribution system), or greenfield, meaning that they involve the design and construction of new assets (e.g., a new power plant or new transmission lines). It is also worth remembering the two principal ways in which a private partner in a public-private partnership is paid for its services: either by managing the commercial retail sale of

services to customers, or via payments by Governments or government utilities on a periodic basis (usually annually or semi-annually) for the wholesale sale of services by the private provider. These government payments may be referred to in a number of ways, for example, “unitary” or “annuity” payments.

C. Other types of PPI

It is worth distinguishing several other ways in which the private sector can be involved in infrastructure service provision, generally classified under the general heading of “private participation in infrastructure” (see box 2.2).

A popular form of PPI in Africa, especially in the energy sector, is the rental contract, whereby a government or government-owned power utility rents a mobile power plant from a private sector entity for a period that might extend to 15 years. In effect, this is a new (greenfield) facility supplied by a private entity, usually on the basis of a PPA that formalizes a revenue guarantee by the Government. But in terms of ownership and operations,

Box 2.2: A typology of other types of private participation in infrastructure

Merchant: a private sponsor builds a new facility in a liberalized market in which the government provides no revenue guarantees. The private developer assumes construction, operating and market risk for the project (for example, a merchant power plant).

Rental: electricity utilities or governments rent mobile power plants from private sponsors for periods ranging from 1 year to 15 years. A private sponsor places a new facility at its own risk, owns and operates the facility at its own risk during the contract period. The government usually provides revenue guarantees through short-term power purchase agreements.

Divestitures: a private entity buys an equity stake in a State-owned enterprise through an asset sale, public offering or mass privatization programme. There are two basic categories:

Full: the government transfers 100 per cent of the equity in the State-owned company to private entities (operator, institutional investors etc.).

Partial: the government transfers part of the equity in the State-owned company to private entities (operator, institutional investors, etc). The private stake may or may not imply private management of the facility.

Management and lease contracts: a private entity takes over the management of a State-owned enterprise for a fixed period while ownership and investment decisions remain with the State.

Management contract: the government pays a private operator to manage the facility. The operational risk remains with the government.

Lease contract: the government leases the assets to a private operator for a fee. The private operator takes on the operational risk.

Source: Adapted from the World Bank and PPIAF, PPI Project Database

the private entity usually takes on these responsibilities at its own risk. These rentals tend to be expensive, and done on an emergency basis.

A relatively short-term form of PPI, but one with relevance for the topics discussed in this paper, involves a contract that requires management of public services by a private entity, but not major capital investment. These contracts are typically shorter in term because the private entity does not need long periods of time to recoup investments. An example of this kind of contract would be a management contract, pursuant to which a private entity would manage (but not invest in) a government-owned power distribution company, for which the private entity would be compensated via annual payments from the Government rather than by selling power to customers.

Finally, two additional kinds of PPI projects should be distinguished from public-private partnerships as defined above. The first is divestiture or privatization of government assets, in which a Government relinquishes ownership of assets by selling them to a private company. The sale itself is not a form of public-private partnership as defined above, but the subsequent use of those assets in public service delivery might qualify, as in the case of a power plant sold to a private company that in turn signs a PPA to sell the power back to the Government for retail sale to customers through a government-owned distribution utility (this would be a brownfield IPP). The second kind is merchant projects involving the ownership, construction and operation of assets by a private company at its own risk without government commitment to buy the services. In the telecommunications or energy sectors, merchant projects normally operate in liberalized markets where the sale of services is unrestricted by a public-private partnership contract with government – in other words, the private entity is free to sell the services to anyone who can pay.

Divestitures and merchant projects have grown in popularity since the mid-1990s because, in many cases, they are less risky for private companies. Both of these additional kinds of PPI projects are important ways in which the private sector can

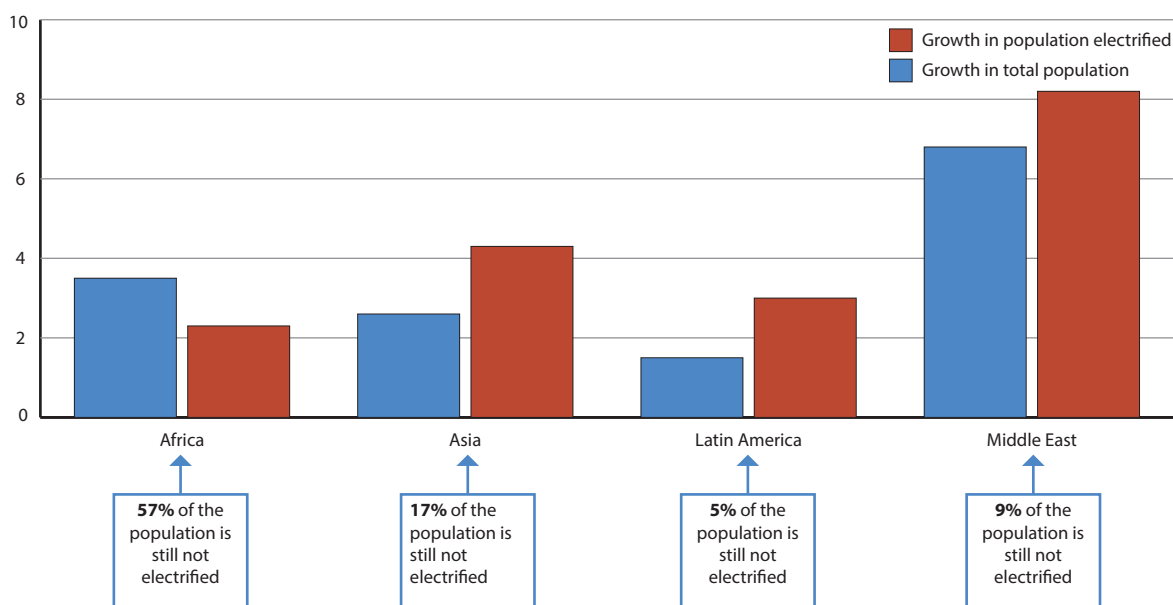
be involved in infrastructure services, and both will be touched on in this report. But both are also somewhat different from public-private partnerships as defined here.

D. Public-private partnerships and PPI in Africa's energy sector

The energy sector in Africa is arguably the place where investment via public-private partnerships and PPI is needed most. Power plays a central role in sustainable development and poverty alleviation efforts on the continent. Energy services enable basic human needs, such as food and shelter, to be met. They also contribute to both economic transformation and social development by promoting manufacturing, supporting ICT investments and improving education and public health.

But the African energy sector is plagued by problems. According to an AICD study (Foster and Briceño-Garmendia, 2010) these problems are already severely retarding economic development and poverty alleviation:

- Power supply: Africa has fallen far behind other developing country regions in building installed generating capacity. Africa's capacity has developed at only about 3 per cent annually over the last three decades, falling far behind as the region's GDP growth rate has accelerated to about 5 per cent in recent years.
- Access rates: rates of access to electricity in Africa have also stagnated as population growth has exceeded growth in new connections. No other developing region has a mismatch of this kind, and still has such a large percentage of the population without access to electricity (see figure 2.1).
- Reliability: the economic costs of power outages can reach 4 per cent of GDP in some countries, as manufacturing enterprises face an average of 56 days per year without power.
- Costs and tariffs: power costs are unusually high in Africa because of heavy reliance on

Figure 2.1: Rate of electrification versus population growth, and share of population without electricity access, as of 2013 (percentage)

Source: Renewable Energy Policy Network for the 21st Century (2014).

small-scale production, inefficient technology (too much diesel-based generation and too little hydropower), and widespread use of expensive, short-term leases for generating capacity, which can cost the equivalent of 3-4 per cent of GDP in some countries. It is difficult to compare tariff levels across regions because so many factors influence them. But in general, tariffs in Africa tend to be high, as much as three to four times more expensive than in South Asia and twice as high as East Asia. However, these high tariffs in Africa still do not cover costs because of poorly-targeted subsidies, collection inefficiencies and distribution losses.

E. Private investment in Africa's energy sector

AICD found that current capital investment in Africa's energy sector (from all sources) was about \$4.6 billion per year, far less than the \$26.7 billion needed to meet the ten-year energy sector development goals for AICD. The private sector contributed relatively little to that total, particularly when compared with private investment in other sectors. From 1995-2012, 141 power projects were concluded in 35 African countries, according to the World Bank's PPI Database (see table 2.1).

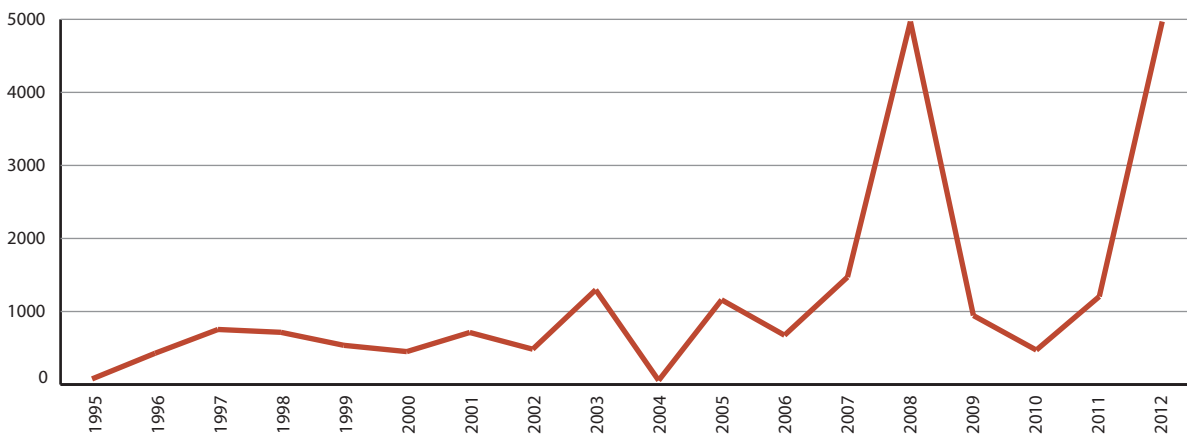
Investments in these projects, including the projects that were initiated prior to 2000, represent about 10 per cent of total private infrastructure investment in Africa over the period reviewed. These low levels of investment have contributed to an erratic investment profile over the 1995-2012 period, as infrequent, relatively large investments in individual projects (such as South Africa's recent renewable energy programme) have had inordinate impacts on the overall market (see figure 2.2).

If it takes so much time and money to properly prepare these projects, and they are particularly difficult to do in poor countries, why are public-private partnerships and PPI given such special attention in sub-Saharan Africa? Should Governments and donors not consider putting more effort in enhancing traditional forms of public investment in, and management of, power facilities? After all, countries such as Ethiopia have ambitious plans for developing their own energy sectors without using the private sector. Why are donors and multilateral development banks unable to help Governments develop their energy sectors without the need to rely on the private sector? In fact, there are several reasons for focusing on public-private partnership and PPI projects in the energy sector in sub-Saharan Africa:

Table 2.1: New public-private partnership and PPI projects in Africa's energy sector, 1995-2012

	PPPs:				Other PPI:						Totals			
	Brownfield Concessions		Greenfield Concessions		Rental Contracts		Mgmt/Lease Contracts		Divestiture (full/partial)		Merchant Projects		US\$ mil-lions	No.
Electricity:	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.
Generation	524	5	11,457	71	158	24	-	1	1,020	5	-	1	13,159	107
Distribution, transmission & generation	1,304	7	-	0	-	0	-	6	-	1	-	0	1,304	14
Distribution & generation	74	2	22	1	-	0	-	2	-	0	-	0	96	5
Distribution & transmission	-	1	-	0	-	0	-	1	274	1	-	0	274	3
Distribution	87	2	-	0	-	0	5	2	-	0	-	0	92	4
Transmission	-	0	110	1	-	0	-	0	-	0	-	0	110	1
Natural Gas:														
Distribution	-	0	55	1	-	0	-	0	16	1	-	0	71	2
Distribution & transmission	-	0	1,234	2	-	0	-	0	-	0	-	0	1,234	2
Transmission	-	0	944	3	-	0	-	0	-	0	-	0	944	3
Totals	1,989	17	13,821	79	158	24	5	12	1,310	8	-	1	17,284	141

Source: World Bank and PPIAF, PPI Project Database.

Figure 2.2: Private investment in Africa's energy sector, 1995-2012
Current US millions

Source: World Bank and PPIAF, PPI Project Database.

- Value for money: private participation in the energy sector, even in poor countries, is generally viewed as successful in terms of meeting reasonable government objectives for investment and improved operating efficiency. A Stanford University study of IPPs in 12 countries covering the five years after the

Asian crisis in 1997 found that two-thirds of the projects resulted in investment leading to power generation, at prices and quality levels that met reasonable government expectations (Woodhouse, 2005). In an energy sector study comparing the performance in power distribution of 160 public-private partnership

and PPI projects with 90 State-owned enterprises, the World Bank found that private projects, on average, decreased distribution losses (by 11 per cent), while increasing bill collection rates (45 per cent), increasing the electricity sold per worker (32 per cent), as well as the number of residential connections per worker (29 per cent) (Gassner and others, 2009).

- Global track record: IPPs are widely used in many regions of the developing world, including poor countries in South and East Asia, and routinely account for 30-35 per cent of all private investment commitments in countries like Vietnam and India, slightly less in Bangladesh, and more (close to 50 per cent) in Pakistan. Energy is the only sector in which global investment numbers do not appear to have been affected by the recent global financial crisis. In fact, private investment in energy reached an all-time record level in 2009, accounting for over 45 per cent of all private investment across the developing world, more than investment in telecommunications (and all other sectors) for the first time since 1997.
- Performance in sub-Saharan Africa: overall, the private sector still plays only a marginal role in the energy sector in sub-Saharan Africa, but three-quarters of the 24 countries surveyed by the AICD study had introduced some form of private involvement in the sector, one-third had IPP projects, seven had more than one IPP, and several (including Kenya and Côte d'Ivoire) had registered significant successes with IPPs. Despite difficulties with public-private partnership and PPI projects in the past, countries like Nigeria and Ghana are planning massive increases in private participation in their energy sectors. In their pioneering study of IPPs in sub-Saharan Africa, Eberhard and Gratwick (2010) found that:

“...IPPs have been an important source of new investment in the power sector in a number of African countries.” (p. 3)

“...the majority of projects have delivered and their contracts have been upheld.” (p. 5)

“...the performance of IPPs is generally superior to that of State-owned plants.” (p. 30)

- Resource scarcity: AICD estimates that about \$4.6 billion from all sources is invested annually in the energy sector in sub-Saharan Africa. About half of that total comes from a combination of private investment, official development assistance, and non-OECD sources (like China, India, the Middle East, etc.). But an additional \$22 billion in capital investment is needed annually. In other words, filling this gap would require a ten-fold increase in the combined energy sector investments made by PPI, official development assistance and non-OECD financiers. Some African countries, like Ethiopia, can meet their own individual energy sector investment needs without the private sector's help. But sub-Saharan Africa as a whole cannot.

F. Public-private partnerships and PPI: the role of the domestic private sector

Public-private partnerships and other forms of PPI are mechanisms for involving the private sector in infrastructure service provision. But as with government tendering of large construction projects, there has long been a presumption that only large international operators can successfully handle large-scale power public-private partnerships because of their size and complexity. But this perception started to change in the early 2000s as the global public-private partnerships market struggled to recover from the fallout caused by the Asian crisis in 1997. By 2003, an estimated 40 per cent of infrastructure public-private partnership contracts were being renegotiated, and over 150 projects were cancelled or in distress after being abandoned by multinational investors who were reducing their exposure to developing countries (Schur and others, 2008). About half of the international energy sector investors responding to a survey in 2002 indicated that they were less

interested in, or were retreating from, projects in developing countries (Lamech and Saeed, 2003).

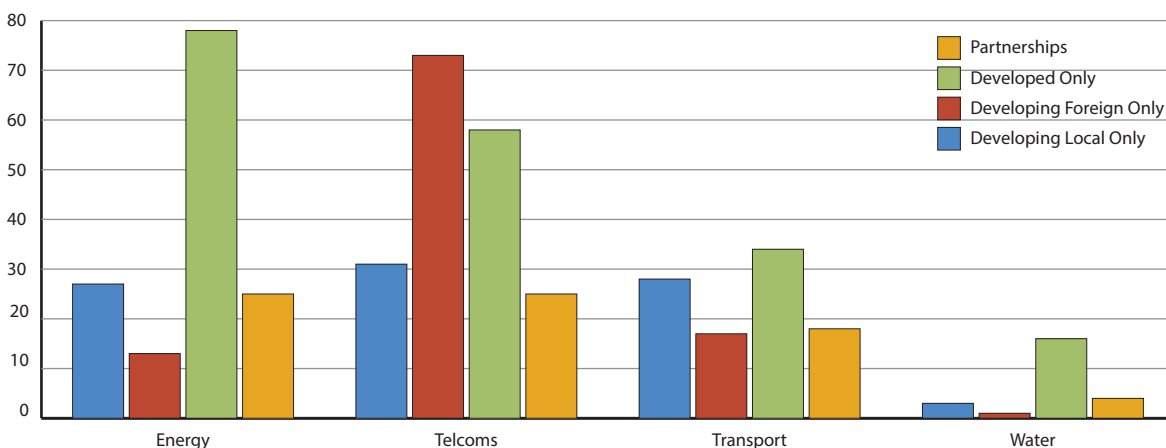
But 2003 marked the post-Asian crisis 'low point' for public-private partnership investments in developing countries and as the market began recovering, new operators from developed countries emerged to take the place of the multinationals that had left in the early 2000s. Perhaps the most striking feature of this market recovery was the role played by developing country investors who quickly became a major source of finance for developing country infrastructure projects. A World Bank review published in 2008 found that these kinds of investors mobilized about 44 per cent of the private investment committed to public-private partnership and PPI infrastructure projects over the 1998-2006 period (Schur and others, 2008). Over 70 per cent of this investment came from local companies investing in projects in their home countries (termed "developing local" investors by the World Bank study). The remaining share of the 44 per cent came from investors from other developing countries; often neighbouring countries (termed "developing foreign" investors by the study). The study found that, together, the two kinds of developing country investors accounted for 58 per cent of the private investment in transport, 45 per cent in telecommunications, 40 per cent in water, and 34 per cent in energy. In transport, the greater share reflects a relatively sizeable involvement by local construc-

tion firms. In telecommunications, the investment reflects participation of large companies from mostly middle-income countries. In the energy sector, major firms from developed countries, including utility companies, were still dominating. Local firms engaged in this sector mostly via small power projects.

An analysis of the number of public-private partnership and PPI projects involving developing country investors for the period 1995-2012, paints an even more dramatic picture of this involvement, suggesting a growing role for such firms after the period covered in the earlier study. Figure 2.3 shows that the two types of developing country firms collectively played dominant roles in telecommunications and transport, but much smaller roles in energy and water. Figure 2.3 also demonstrates that, in most cases, developing country firms handled these projects without partnership arrangements with firms from developed countries. It is likely, however, that in many of these cases, the developing country firm concerned may have been established as a subsidiary of a developed country "parent" company. However, these are still genuinely local firms, paying local taxes and employing, for the most part, local people.

Anecdotal evidence suggests several reasons for the increased role in public-private partnership and PPI projects taken on by developing country

Figure 2.3: Developing country investors in Africa's public-private partnership and PPI projects, 1995-2009, by number of projects



Source: World Bank and PPIAF, PPI Project Database.

firms. First, in some developing country markets, local investors now have increased access to financial resources, through capital markets that have deepened or liberalized, and from local banks that have developed better understanding of project finance techniques. Additionally, local firms may have better access to local banks for raising local currency financing for projects that have revenues denominated in local currency. Second, many of these local firms have gained project experience by partnering with larger foreign firms, employing the kinds of partnership strategies frequently used in the construction industry. Indeed, several of these developing country firms started as local construction companies. Third, local companies are at times in a better position to deal with domestic legal, policy and regulatory issues because they have better access to government officials. It is also possible that such firms understand and can more appropriately deal with the political economy issues that arise in Africa when private firms provide public services.

But whatever the reasons for why local firms play such important roles in certain kinds of public-private partnership and PPI projects, it is imperative that Governments and their development partners abandon their long-standing biases towards designing public-private partnership and PPI tenders for larger international operators. Many of the same techniques mentioned in the previous section on construction can easily be used to make public-private partnership and PPI projects more user-friendly for domestic contractors.

G. Success factors in expanding the role of the private sector

Unlike in the construction sector where involving local firms is an important objective, the key challenge in expanding the role of private companies in the energy sector is to get projects structured and services procured from any class of private firm capable of designing, building and operating the required facilities.

The number of such projects is so low in Africa that Governments cannot afford to limit the projects to any particular nationality or size of private firm. The magnitude and complexity of energy sector

public-private partnership and PPI projects, along with the need for relatively high levels of private investment, mean Governments cannot rule out the possibility that the lead “private partners” in such deals will be large international firms.

Governments can ensure at least smaller supporting roles for local private firms with special bidding requirements. Keeping this in mind, there are a number of factors that account for the success of public-private partnership and PPI projects, over which Governments do have some control.

1. Private sector factors

General capacity factors: private sector success factors, particularly with regard to small domestic firms, are virtually the same for public-private partnerships as they are for construction projects. Firms need to have, first, the capacity to plan, estimate costs and risks, manage projects, and negotiate contracts (including highly complex power purchase agreements); second, access to technology, especially advanced computerized technology; and third, the kinds of entrepreneurial skills necessary to plan and strategize on growing their own business, particularly when it comes to seeking partnership opportunities with larger firms.

Access to finance: firms of all sizes need access to finance to be able to compete for public-private partnership projects. For very large projects, local currency finance may not be available in sufficient quantities to adequately support project development. But even if large, reputable foreign firms are sponsoring the project, the host country’s investment climate may limit the amount of foreign currency available or make it too expensive to borrow. Gratwick and Eberhard (2008) refer to an extensive list of country characteristics that help reduce the cost of financing, but most of these are missing in African countries. They include: macro-economic stability, an active capital market and efficient banking system, a history of upholding contracts, easily available access to arbitration, the relative absence of corruption, the availability of a well-educated and productive workforce (at reasonable rates of pay), and a growing economy with a focus on increasing the private sector’s role in infrastructure service provision.

2. Government factors

Government leadership: a critical success factor in facilitating significant infrastructure investment via public-private partnerships and PPI arrangements in Africa is the willingness of government leaders to recognize the importance of using the private sector to improve or enhance public service provision. Government leadership is well recognized as being critical to the success of public-private partnerships and other PPI programmes in Africa, beginning with the evaluations done of the African privatization programmes in the 1980s and 1990s (Jones and others, 2002). Donors and development agencies frequently pressure developing country Governments to take initial steps to develop policies conducive to private participation, but if key government leaders do not fully embrace public-private partnerships and PPI concepts, the reform steps are usually piecemeal and half-hearted and do not send clear messages of intention to potential private partners. In fact, Africa's energy sector demonstrates this partial approach to public-private partnership and PPI-related reforms. For the much-needed regional or cross-border energy projects, power pools and regional economic communities have key leadership roles to play.

Programme champions: an important function of political leadership in many countries is to overcome ideological opposition to the involvement of the private sector in public service delivery. Political leaders need to act as or become programme champions. For many politicians, as well as members of the general public, it is counter-intuitive to believe that the private sector can be trusted to provide essential services at affordable prices. In many poor countries, especially those with high levels of corruption, such skepticism is not uncommon. Politicians may feel uncomfortable promoting policies that appear to open the door to corruption.⁶ The role of programme champions is to defend and justify the programme, and to build political support that goes beyond the

usually narrow circle of supporting government officials.

Project conceptualization, structuring and management: shortcomings in these areas have led to long delays in preparing, structuring and negotiating such projects – 3 to 5 years of preparation is not uncommon in many African countries. An important aspect of the leadership role is the willingness to apply available resources to project identification, prioritization and preparation. Since the end of the 1990s, many Governments in developing countries have followed the lead of countries such as the United Kingdom, Australia and South Africa in establishing specialized units for developing, supervising the development of, and/or monitoring the implementation of public-private partnership projects that present significant contingent liabilities for government owners. Some of these units have been tasked with supervising and signing off required steps in project development, including the use of technical feasibility studies, public-private partnership option assessments and cost-benefit analyses. But the challenge with these units is to get the right balance between bureaucratic regulation and deal flow. Recently in South Africa, the National Treasury's Public-Private Partnerships Unit has had its role shifted from regulating project development to actually developing projects, in the interest of accelerating the flow of projects (see box 3.3).

Transparent, competitive procurement: often, Governments will attempt to use limited competition and direct negotiation to accelerate procurement of these contracts. Gratwick and Eberhard (2008) found that IPPs procured this way tend to be more expensive and subject to more problems during implementation. If donors or multilateral development banks are involved in financing these projects, they may require some form of competitive procurement, but rarely are donor procurement rules exactly the same and, in the case of involvement by multiple donors and banks, this added complexity can lead to further delays while rules are harmonized.

⁶ In addition to fears of corruption, the popular expectation in many African countries of free or highly subsidized infrastructure services also presents a challenge that PPP programme champions must deal with.

Policies, laws, plans and regulatory frameworks: Gratwick and Eberhard (2008) define an “ideal” policy framework for guiding and supporting IPPs as one involving two essentials: (i) a clear policy, based on a comprehensive sector master plan, which is consistently implemented by government; and (ii) legislation that formalizes the policy. The adopted framework needs to include reasonably accurate supply/demand forecasts, an assessment of least-cost options and contingencies. It also needs to elaborate how various subsectors fit into the overall sector policy, how State-owned utilities are to be governed, how private participation relates to government provision of services, how private projects are to be developed, procured and negotiated (and who is responsible for doing this), and the powers and functions of reg-

ulators (including how licensing of private service providers is to be handled). The authors found that few African countries have established both a clear policy statement and supporting legislation for the energy sector. Some have passed laws permitting IPPs, but almost none has addressed the relationship between IPPs and State-owned power providers. In order to facilitate public-private partnership and PPI projects, regulation must be transparent, fair, accountable, credible and predictable. Unfortunately, these regulatory features have not yet gained traction in most African countries. The AICD study similarly points out that government interference in regulation continues to seriously undermine regulatory independence in Africa (see case study 2-1).

Case study 2-1: Legal/regulatory reforms to enhance private participation in energy: two African approaches¹

In the early 1990s, several African countries began to embrace energy sector reforms, driven by severe power shortages due to decades of poor performance by State-owned utilities (including inadequate investment in new generation capacity, operations and maintenance). Influenced by innovative restructuring of energy sectors in the United States of America, the United Kingdom, Chile and Norway, and on the advice of the multilateral development banks and bilateral development agencies, these African Governments adopted various aspects of what has been called the ‘standard’ model of electricity sector reform, defined as a series of steps (inclusive of private sector participation and regulatory reform), that move vertically-integrated utilities towards competition. These steps usually included the unbundling of generation, transmission and distribution assets. Countries that followed this approach to some extent were Côte d’Ivoire, Ghana, Kenya, Nigeria, Senegal, the United Republic of Tanzania and Uganda. But their experiences in implementing reforms were dissimilar. This case study compares and contrasts the legal/regulatory reforms in Kenya and Nigeria.

Kenya: Eberhard and Gratwick (2010) describe the reformed energy sector in Kenya as a “hybrid” model, which is part private and part public, with a monopoly State-owned generator and “single-buyer” of power, KenGen, operating alongside a growing number of IPPs. The reform process started in the mid-1990s. At the time, the Kenya Power and Lighting Company (KPLC) was the main vertically-integrated power utility in Kenya, with a history dating back to 1922. Inefficiencies in the utility were underscored by a decade of inadequate generation capacity, unreliable power supply, and exacerbated by heavy reliance on hydro-power despite persistent drought. A government policy reform paper adopted in 1996 set out a strategy to separate the regulatory and commercial functions of the sector, facilitate restructuring and promote private-sector investments, including through IPPs.

IPP procurement started in 1995 with two 20-year ‘build, own and operate’ contracts being awarded on a competitive-bidding basis. Because of the haste in procurement and short duration of the PPAs,

¹ Source: ECA compilation.

the cost of power from these two facilities was considered excessive, leading to renegotiations at the end of the contract periods. Despite the involvement of IPPs, KenGen and KPLC remained dominant players in the sector.

The Government continued to pursue IPPs as a strategy, such that by 2010, more IPPs had reached financial close in Kenya than in any other African country. By 2013, KPLC had signed PPAs with 12 IPP for a combined capacity of 1,194 MW from a portfolio of different technologies and fuels, including diesel engines, gas turbines and geothermal. As of March 2014, of these IPPs, plants with a total capacity of 469 MW were operational, while others were at various stages of development. In the process of negotiating and sustaining the first generation of IPPs, KPLC has developed a reputation as a reliable off-taker with a good payment record. The plants have generally operated with high availability rates and, together, these IPPs have been able to supply electricity to meet a substantial part of demand, particularly during periods of shortfall due to drought. The first generation of IPPs were financed by development finance institutions without the participation of commercial lenders. However, three IPPs, supported more recently by the International Development Association Partial Risk Guarantee (PRG) instrument, all successfully attracted long-term commercial financing – one is being financed wholly by private capital. This series of IPPs has set new benchmarks for infrastructure financing in Kenya and the programme is considered a success.

Nigeria: Kenya is one of the few African countries that has successfully implemented far-reaching energy sector reforms and moved on to initiate an impressive roster of IPPs. By mid-2014, Nigeria was still in the process of implementing reforms. Nigeria's approach goes much further than Kenya's with plans to privatize nearly all power facilities owned by the federal Government. So in most respects, Nigeria is aiming squarely at the standard reform model, as defined by Eberhard and Gratwick (2010). But Nigeria is also different from Kenya in another significant way: instead of the gradual approach to reform taken in Kenya, Nigeria is taking a big bang approach to sector reform, attempting to completely restructure the sector in one massive effort.

Plans for Nigeria's reform process originally took shape in 2005, with the passage of the Electric Power Sector Reform Act. The Act ended the Government's monopoly in the sector, opening it up to private sector investment and management of power generation, transmission and distribution. The Power Holding Company of Nigeria was established to assume the assets and liabilities (including staff) of the former National Electric Power Authority. The Power Holding Company of Nigeria was then broken up into 18 different companies: 6 generation companies; 11 distribution companies; and one transmission company. Its assets, liabilities and staff were also parceled out to these companies. The Nigerian Electricity Regulatory Commission was established to regulate the sector. But full implementation of these reforms suffered delays.

By early 2014, the reform programme's timeline had slipped considerably, but the programme was still making progress. On 30 September 2013, the Minister of Power handed over ownership of five generating and 10 distribution companies to private operators who had reached financial close and had made full payments (negotiations were almost complete for a sixth generator and an eleventh distribution company).

However, by mid-2014, some of the risks associated with this "big bang" approach were becoming abundantly clear. Trying to do everything at once led to financial shortfalls caused by inadequate revenue flows from consumers to distribution companies, then to the generating companies, and on

to the gas suppliers. It was assumed that the reform process would be sustained as electricity generation improved; that customers would pay their bills, and generators would have sufficient revenues to pay gas suppliers, as well as their financiers. But electricity supply has not improved, owing largely to restrictions in gas for generation because of pipeline sabotage. Money is not flowing through the system, and tariff hikes are unlikely. By mid-2014, the Nigerian Central Bank was considering some kind of bold move in an attempt to bail out the sector, confirming once again that support for the reform process does exist at the highest levels of government.

Case study 2-2: Uganda: two approaches to energy sector public-private partnerships²

Uganda is one of the most innovative countries in Africa when it comes to using different approaches for involving the private sector in the energy sector. The two types of public-private partnerships described in this case study involve considerable complexities and risks, and are arguably the most difficult forms of public-private partnerships in the energy sector. But in each case, Uganda was able to access expert financial engineering, often supported by development partners, to design, develop and negotiate the projects to financial close.

Umeme: the first example is the Umeme project, one of the rarest of public-private partnership types in the African energy sector. Umeme is a distribution-only brownfield concession that is obliged to purchase power from a government wholesaler, sell it to retail users, and in the process recoup the investments it is contractually required to make in the rehabilitation and extension of existing assets. Brownfield distribution concessions were the hardest hit form of public-private partnerships during the Asian crisis and the only kind to have never really recovered in the years since. Only two such projects reached financial close in Africa from 2000-2012, despite the urgent need to rehabilitate brownfield assets in this sector.

These sorts of projects are rare because they are exceptionally risky. The concessionaire must rely for its cash flow and profitability on its own skills in targeting and managing rehabilitation investments; its ability to achieve efficiency improvements in retail service delivery; the willingness and ability of the government power generating and transmission company to make power available at reasonable wholesale rates; and the willingness of government regulators to set retail tariffs at levels appropriate to ensure that investments can be recouped over the lifetime of the concession.

In 2004, the Government of Uganda signed a 20-year concession agreement with Umeme Ltd., a consortium jointly-owned by Globeleq (an investment company owned by the Government of the United Kingdom) and Eskom Enterprises, the non-regulated investment subsidiary of South Africa's State-owned power utility (in 2006, Eskom dropped out of the consortium, and Globeleq was later replaced by Actis Capital, another British company).

To make this structure work, the Government and its development partners had to agree to several measures designed to mitigate the risks that Umeme perceived to be associated with government promises regarding regulation and payments for electricity services. First, a partial risk guarantee (PRG) of \$5.5 million was issued in support of the concession by the World Bank. It backed government commitments regarding tariffs, the payment of electricity bills by government agencies, as well

² Source: ECA compilation.

as payments in the event of early termination due to breach by the Government. Second, a \$40.5 million multilateral investment guarantee agency guarantee arranged by Globeleq and Eskom to cover against the risks of capital transfer restrictions, war and civil disturbance, and breach of contract. Third, an opt-out clause allowing its international shareholders to walk away from the arrangement after 18 months. Umeme would be allowed to recover half of its initial investment of \$5 million if it decided to exit during the trial period, which was later extended by another six months.

Although Umeme and the Government disputed a number of issues during the trial period, the opt-out clause was never used. On 15 October 2012, Umeme became a listed company on the Uganda Securities Exchange with an initial public offering estimated at about \$68 million.

Bujagali: The second example of a ground-breaking public-private partnership in Uganda's power sector is the Bujagali hydropower IPP, which began limited operation in 2011 and was formally inaugurated in 2012. Bujagali is the first hydro IPP of any significant size to become operational in Africa, despite the fact that the region boasts huge hydropower potential, much of which remains largely unexploited. Bujagali's experience provides a dramatic account of the kinds of challenges facing hydro IPPs in Africa, a much needed kind of public-private partnership in Africa, but extremely difficult to execute successfully.

Bujagali's development began in 1994 with the signing of a memorandum of understanding between the Government and AES Nile Power, a subsidiary of the American-based AES Corporation. Years of negotiations followed the signing of the memorandum of understanding. Over this period, the project was plagued with rumours of corruption, poor planning and over-pricing, fed by the non-competitive selection of AES, and the Government's reluctance to make public the power purchase agreement. The project also quickly became the target of heated attacks by environmentalist NGOs and other civil society groups that claimed that it was not the least-cost alternative and would severely damage the environment, despite its avoidance of dam construction. In 2003, AES announced its withdrawal from the project.

But the Government and the World Bank eventually renewed their commitment to the project and, in 2004, a competitive bidding process was initiated. In 2005, the preferred bidder was announced – a consortium led by Industrial Promotion Services, the industrial sector operating division of the Aga Khan Fund for Economic Development. Bujagali reached financial close in 2007: it had become a \$860 million, 250 MW, build-operate-transfer project, based on a 30-year PPA signed with the government-owned electricity transmission company. At \$3.4 million per MW, Bujagali became the most expensive IPP to reach financial close in Africa by 2010 (Eberhard and Gratwick, 2010).

IV. Government actions to increase domestic competitiveness in the construction and energy sectors

A. Introduction

Efforts to increase the ability of domestic firms to compete for construction or public-private partnership projects in energy fall into the same general categories and will be discussed together in this section. In fact, it is a hypothesis of this paper that one of the most important ways in which local firms can be helped to play more substantial roles in energy sector public-private partnership projects is by strengthening their ability to compete for and implement construction projects. Construction work has long been the starting point for many domestic firms in developing countries that go on to achieve success as “private partners” in energy sector public-private partnerships that combine construction with design, financing and operation.

The benefits of helping local firms become more competitive in construction and energy seem beyond question, and the previous sections of this paper contain abundant evidence that confirms this. Wells and Hawkins (2010) argue convincingly that this kind of increased competitiveness can promote poverty alleviation and inclusive economic growth, with specific benefits that include the following:

- Increased local employment throughout the construction and public-private partnership value chains.
- More work for local companies and consultants – additional jobs, especially continuous workloads, allow local companies to grow, develop and retain experience and expertise, build up working capital reserves and become competitive locally and internationally.

- More business opportunities for suppliers of local materials, components and equipment; thus more employment in these businesses.
- More sustainable infrastructure and buildings because local design, construction and operator firms are less likely to promote expensive, over-designed engineering solutions; plus the expertise necessary for future maintenance and renewal will be available locally.

Government support to build the competitiveness of domestic firms for either construction or public-private partnership activities can be both supply-side assistance (e.g., capacity-building for companies and employees), as well as demand-side assistance (e.g., giving special consideration to project bidders that are domestic firms, or that include domestic firms as partners or subcontractors). These two basic kinds of assistance are discussed below.

B. Supply-side measures

Government policies and programmes have been useful in building the capacity of domestic firms and workers to compete effectively for available work. This increases the supply of local firms able to do construction work or participate in more complex energy sector public-private partnership projects.

1. Capacity-building and training⁷

- Basic skills development: This can be a critical area for government support. Key areas for

⁷ This chapter focuses on what Governments can do to enhance the competitiveness of small local firms. But many of these things, like skills development, can and should also be targeted by the private sector. Industry associations, for example, are used in many OECD countries to develop these skills.

capacity-building include: skills needed to manage large and complex projects; modern construction techniques and materials; and the basics of government procurement (such as how to respond to bidding announcements).

- Business strategy development: This is another area that typically needs enhancement in developing country firms. Key strategy issues that these firms need to understand include:

- ◊ Adopting technology: why and how to get access to new technology needed to cut time and costs and offer better design and construction processes. Governments and industry associations can sometimes help cover the costs of technology access. Computer technology, including comput-

er-aided design and work scheduling, is an essential part of modern construction service delivery.

- ◊ Identifying and arranging business partnerships: how to formalize working relationships with larger firms (both foreign and domestic) to enhance competitiveness, facilitate skills development and technology transfer. Partnerships can be joint ventures or more informal arrangements (see box 3.1).

- ◊ Diversifying products and services: thinking through how to deliver innovative products, packages and services, as well as how to gain entry into specialized markets or market segments. Maintenance is an area into which many smaller con-

Box 3.1: Partnership strategies for local African construction firms

In order to gain experience with large construction projects, even in their own domestic markets, local firms usually need to find ways of partnering with foreign firms that often win the bids for such projects because of their track records in successfully managing large, complex projects. These large foreign firms often feel that it is difficult, if not impossible, to penetrate new geographical markets without forming some kind of partnership with local firms, because the right kind of partnership can open the door to such markets and make the transition into these markets much easier.

Strategic alliances tend to develop through four stages:

1. Capacity study and validation: mutual understanding is often developed through previous informal working relationships. Potential partners identify the existence of complementary capabilities.
2. Initiation: usually, these previous experiences of working cooperation provide the basis for forming more formal alliances, but sometimes foreign firms may carry out a procurement process to find partners.
3. Negotiating alliance conditions: these relationships are formalized in various ways, with memoranda of understanding as the most common form of agreement. In Asia, oral contracts sometimes suffice.
4. Operating the alliance: a management committee, sometimes referred to as a "task force," is usually created to coordinate alliance activities.

Alliance relationships tend to fall into four basic categories:

1. Ad hoc pool: these are informal alliances requiring the least amount of resource input by the respective partners.
2. Consortium: these are alliances that involve expectations of long-term relationships with resource inputs by the partners, but not necessarily strong expectations for immediate, short-term resource outputs or profits.
3. Short-term joint ventures: these are alliances with significant resource inputs and expectations of specific, short-term profit returns to the partners.
4. Full-blown joint ventures: these are alliances with significant resource inputs by the partners, with outputs remaining with and reinvested in, the joint venture.

Source: Chen, 2005.

construction firms have diversified. Bundling services to combine design, construction, financing and operation/maintenance to create public-private partnership arrangements is another key strategic move made by many companies.

◇ Fundraising and finance: many firms in developing countries do not have the financial skills needed to raise the kind of working capital necessary for continued business operation. Understanding how to use debt finance, identifying sources of finance and negotiating loans or equity participation, are all necessary skills in this area.

- Advanced training in public-private partnerships: In some African countries, Governments offer training in the purpose, structuring and procurement of such partnerships. South Africa's Public-Private Partnerships Unit has offered such training in the past, in an effort to help local sponsors, financiers and consultants become more competitive with regard to the Government's public-private partnerships programme. Above all, the training explains government rules regarding project development, the sequencing of required analyses, and the need for and scheduling of government sign-offs, etc. South Africa has also published a series of manuals and handbooks outlining government requirements for PPP projects.

2. Government funding support

Government funding support is critical to pay for "public goods" that are essential for industrial development but not necessarily items that private companies are willing or able to pay for, such as:

- Funding for research and development: the Inter-American Development Bank has found that, in countries that have been successful in "catching up" with more advanced economies, government funding of key research and development activities has been an important part of the process (Crespi and others, 2014);

- Government investment in supportive infrastructure, including ICT infrastructure, which is available at affordable prices – this particularly includes infrastructure that usually cannot be upgraded or built via public-private partnership projects, like brownfield water distribution, electricity transmission and ICT services in rural areas.

3. Dedicated industry oversight agencies

Another type of government funding support involves the creation of offices or agencies that become centres of expertise in support of industrial development.

- Construction: dedicated, government-funded industry support agencies constitute a widely used tool in the developing world for promoting and growing domestic construction industries (see box 3.2). In Africa, the role model for such agencies is the Construction Industry Development Board in South Africa. The functions of one of the best known agencies of this kind, Singapore's Building and Construction Authority, illustrate the variety of tasks that can be carried out in developing countries in order to facilitate development of these industries:

- ◇ Promote the development, improvement and expansion of the construction industry, including the use of advanced technology.
- ◇ Advise and make recommendations to the government on matters affecting the construction industry.
- ◇ Raise standards and efficiency in the industry by encouraging the standardization and improvement of construction techniques and materials.
- ◇ Provide consultancy and advisory services related to the construction industry.
- ◇ Promote the advancement of skills and expertise of persons in the industry.

Box 3.2: Dedicated construction industry support agencies

Dedicated, government-funded industry support agencies come in many forms. In developed countries, the construction industries often create associations that undertake research and prepare reports on best industry practices. But these associations are basically inward looking – as fully private organizations, they do not typically try to influence or implement government policy for the sector.

Much more common in the developing world are government or quasi-government agencies dedicated to developing the local construction industry. Most of these agencies are expected to promote the growth and productivity of the industry, develop standards and best practices in a variety of areas and manage research into special construction topics. The best known examples in developing countries include the following:

- The National Construction Council of Tanzania, which was recommended by a panel of experts who reviewed the domestic industry in the mid-1970s.
- The Construction Industry Development Board of Malaysia created in 1994.
- The Institute for Construction Training and Development established in Sri Lanka in 1986 to improve the capacity of training institutions in the construction sector.
- The Construction Industry Development Board created in South Africa in 2001.
- The National Council for the Construction Industry of Zambia and
- The National Construction Industry Council of Malawi.

Arguably, the pre-eminent, most successful and most widely copied of these agencies is Singapore's Construction Industry Development Board, created in 1984 to drive the development of the local industry – a high priority of the government in the 1980s. In 1999, the board's functions were broadened when it was merged with the Building Control Division of the Building and Construction Authority.

Source: Ofori, 2012

- ◇ Raise the professionalism and capabilities of construction firms.
- ◇ Promote the adoption of internationally recognized quality management systems in the industry.
- ◇ Facilitate the supply of essential construction materials and secure and manage land and facilities related to their import and production.
- ◇ Carry out research for the development of the industry.
- PPP units: PPP units have recently been created by many African countries, mainly to ensure that projects are affordable, generate value for money and minimize or mitigate contingent project liabilities for government treasuries (see box 3.3).
 - ◇ Most of these units have not been created with the express purpose of promoting local contractors, but in countries where governments have formalized things like local empowerment quotas, these units are normally responsible for enforcing them. For example, the South African government has established a code of good practice for broad-based black economic empowerment in PPP projects. Government institutions are required to apply the code at all stages of the public-private partnership project development cycle and produce a "Black Economic Empowerment Balanced Scorecard" for each public-private partnership bid, which can be reviewed by the National Treasury's Public-Private Partnerships Unit (RSA, 2004).
 - ◇ Few African countries have formalized such requirements to the same degree as South Africa, but it is common for major public-private partnerships to have requirements for some kind of local participation and partnership units are usually responsible for monitoring compliance. For example, the 10-year lease for the Dar es Salaam port container terminal

Box 3.3: Government public-private partnerships units

Over the past few years, African countries such as Kenya, the United Republic of Tanzania, Uganda, Malawi, Zambia, Mozambique, Ghana and Nigeria have started setting up partnership units to oversee project development. These units represent steps forward in terms of government understanding and ownership of public-private partnership project development.

The emergence of government partnership units has been paralleled by a growing new body of guidance on the use of cost-benefit analysis specifically for public-private partnership projects. The most advanced examples of this are available from industrialized countries that have adopted variations of the so-called “private finance initiative model,” developed in the United Kingdom in the early 1990s as part of a framework for regulating the development of public-private partnership projects in that country. This approach is essentially a method for justifying a PPI project by comparing traditional government provision (the “Public Sector Comparator”) with PPP options in terms of a cost-benefit analysis that is broken down into analyses of “affordability” and “value-for-money.”

One benefit of this approach is that it is now being used in several countries, all of which have developed valuable background technical guidance that is available on websites. These countries include: Ireland, Scotland, Australia, Canada and South Africa. These sophisticated methodologies are not yet well established in low-income countries, although the use of such techniques in South Africa, with its partnership manuals available online, has exposed them to some of the other countries in the Southern African Development Community region.

Source: ECA compilation.

included a provision for the reduction of expatriate staff by 50 per cent within the first five years.

- ◇ Where Governments do not have the internal resources to establish such units, funding is often available from donors and multilateral development banks if Governments demonstrate a commitment to support public-private partnership programmes with appropriate reforms. For example, the World Bank has used grant funding to help a number of African countries establish partnership units as centres of expertise within Governments to support public-private partnership project development, procurement and evaluation.

4. Government funding support for PPP projects

A large variety of financial support measures are used across the developing world to support PPPs. The scope of this subject is much too large to be covered here. Suffice to say that governments generally use one or more of three funding mechanisms to support PPPs:

- Grants: particularly since the Asian crisis, grant funding from governments or their develop-

ment partners has been used to reduce the debt burden or other costs associated with large capital investment and, thereby, reduce private partner risks of investment losses. Grants can be paid out after outputs have been financed, achieved and certified. Grant elements can be blended into regular (unitary or annuity) payments to public-private partnerships operators based on the availability and quality of the service provided, as in the United Kingdom’s private finance initiative programme or India’s annuity road concessions. Grants can be paid out on the basis of pre-agreed dates or on achievement of performance-based construction or service delivery milestones, as in various toll road projects in Latin America (World Bank Institute, 2012). Grants can be upfront cash contributions to pay for capital costs as in the case of India’s Viability Gap Funding programme (Leigland and others, 2014). And grants can also be used to support project preparation.

- Loans: Governments sometimes lend money (often sourced from donors or multilateral development banks) to public-private partnerships to help meet funding shortfalls resulting from projects’ inability to raise sufficient debt finance on acceptable terms. Subsidy elements make the terms of these

loans more attractive than those offered by commercial sources of debt finance. Subsidy elements can include interest rate reductions, lengthened tenors, debt service grace periods, lowered ranking or security position of the debt, etc. Sometimes, the subsidy element is balanced, to some extent, by lender requirements regarding additional guarantees or the assumption of fewer risks. Justifications can vary. Occasionally, this kind of lending is warranted as a response to long-term market failure. At times, it is justified as a temporary policy response to stimulate or shape the market. As with lending facilities created by some European Governments during the global financial crisis, sometimes the expectation of these programmes is to sell these loans back into the market when conditions normalize (Farquharson and Encinas, 2010).

- Guarantees: government guarantees used by developing country Governments to back public-private partnership projects are generally of two kinds:
 - ◊ Security measures backing government support commitments: Governments make many kinds of commitments to support public-private partnership projects. But because private partners do question the strength of these commitments, particularly as happened after the problems with risk mitigation during the Asian crisis, many of these commitments now need to be backed by additional kinds of security. For example, most PPAs ought to be backed by security arrangements such as escrow accounts, letters of credit, targeted subsidies, budget commitments, etc. In countries without domestic capital markets that can finance IPP projects, PPAs often have to be denominated in hard currencies such as United States dollars or euros, indexed to currency baskets or backed by foreign exchange liquidity facilities. Without these measures, operators are subject to foreign exchange currency risks – local currency of project revenues

may depreciate against the foreign currency of project debt.

- ◊ Sovereign government guarantees: since the Asian crisis, investors have often demanded reassurance that a Government's commitments in support of a public-private partnership project will remain as strong as they can be. This may mean that, in a risky project environment, it is not enough for a government-owned power utility to sign off-take agreements with IPP project companies – a sovereign guarantee may also be required. In addition to project off-take guarantees, Governments can guarantee many other aspects critical to PPP project cash flows and profitability, including fuel supply, currency convertibility and transferability, interest rates, exchange rates, tariff rates and revenue levels.

5. Government policies and regulations

The preceding sections of this paper cite a Government's legal and regulatory framework as an important potential success factor for PPP projects. Some of the ways in which Governments can optimize these frameworks include the following:

- By establishing coherent, comprehensive industrial policies that include coordinated approaches to policies on trade, procurement and procedures, tax and other macro-economic policies necessary for promoting stable, growing economies (and thereby the growth of demand for construction and infrastructure PPPs).
- By creating institutional and legal frameworks to effectively monitor and regulate construction services, promote transparency and recourse against anti-competitive practices. For example, establishing arbitration mechanisms to handle contracting disputes, as well as institutional arrangements to collect and analyse industry data. Governments can also establish PPP units to ensure that projects provide appropriate levels of public benefits

and support local empowerment where such policies have been formulated.

- According to AICD, operational inefficiencies of power utilities cost the African region \$2.7 billion per year. To the extent that these inefficiencies can be minimized through reductions in distribution losses and increases in revenue collections, overall investment needs – and the need for private investment – can also be reduced. In many cases, policies and plans for covering government maintenance and rehabilitation of existing infrastructure should be the first step in any PPP programme focused on this sector.
- Governments can also take steps to improve their investment climates, thereby reducing the costs of private funding for infrastructure PPPs. They can do this by simply following recommendations made in the World Bank's Doing Business surveys. Governments can also access a number of specialized funds or facilities that use combinations of funding from donors and multilateral development banks to implement business environment reforms. One of the most recent examples of this sort of assistance is the Investment Climate Facility. It uses funding from donors and the private sector to improve specific conditions thought to facilitate investment in African countries such as contract enforcement, financial market development, infrastructure facilitation, taxation and customs, competition and tackling corruption.

C. Low-powered demand-side measures

As the list of challenges that face domestic companies competing for construction or PPP project work in developing countries suggests, supply-side measures to build local capacity are not likely to solve all problems facing domestic firms. This is because access to markets or certain types of projects are essentially closed to domestic firms in these countries, regardless of their skills or experience. Accordingly, many developing countries have also adopted demand-side measures in attempts to “level the playing field” on which

domestic firms must compete for work. This means that in selecting contractors for PPPs or construction, governments give special consideration to contractors that are domestic firms or that include domestic firms as partners or subcontractors (or use domestic labour, materials, etc.). These are termed “low-powered” measures because they are non-controversial ways of increasing competition, and are generally endorsed by the World Bank, WTO, and other advocates of global free trade. Several examples of demand-side measures are described below:

1. Trade negotiations

Governments can take strategic approaches to trade negotiations to help domestic firms compete in international markets:

- In forums like WTO, least-developed countries are able to negotiate special allowances to restrict domestic market entry in some cases in order to facilitate development of domestic industries. Such allowances are made in cases of market asymmetries due to the size, structure or human resources availability in these markets.
- Governments can also negotiate regional or subregional agreements for the creation of trade or customs areas, which could involve things like the mutual recognition of contractor qualifications, the liberalization of procurement procedures, easing of local content requirements, the free movement of construction labour, the liberalization of barriers to rental of equipment, etc. These kinds of agreements would allow firms to compete in neighbouring markets and build the kind of experience and expertise that would help them become more competitive in the international marketplace and more attractive as partners for large international firms that wish to work in developing country markets.

2. Interactions with development partners

Governments can at times interact with donors and multilaterals to ensure opportunities for competitive national construction industries. The adverse effects of donor insistence on tied aid can

periodically be offset by local content and technology transfer requirements.

3. Procurement system adjustments

There are several kinds of adjustments that can be made to procurement systems to increase the chances of local bidders winning contracts – these alternatives do not violate World Bank procurement rules and can be implemented without compromising project delivery. Wells and Hawkins (2010) suggest the following options:

- Preferencing: World Bank rules allow preferences on price for local bidders. This means that if a domestic company is not the lowest bidder, but is within a certain set percentage above the lowest bid, the domestic company can be awarded the contract. However, as Wells and Hawkins report, only a handful of DFI contracts have been awarded to domestic companies using the preference mechanism.
- Unbundling: donors and DFIs usually prefer larger projects because of benefits that accrue from economies of scale, lower administrative costs, less complicated financing and lower supervision costs. Breaking up projects into smaller pieces for the purposes of increasing local content (known as “slicing and packaging”) is allowed by the World Bank and other development agencies under certain conditions. This makes possible lower bid prices, more bidders and more competition from domestic firms.
- Alternative procurement mechanisms: in some cases, project unbundling can be managed via prime contractors responsible for unbundling projects and overseeing the smaller subcontracted project pieces.
- Alternative technology specifications: allowing contractors to propose the use of local technologies or materials to achieve the Government’s construction goals, is a way of not only increasing opportunities for domestic companies, but also of increasing local employment on such projects.
- Serial contracts: bidding out a series of small contracts to one firm, with periodic performance reviews, can help small contractors keep working for longer periods, accumulate working capital and build deeper skill sets.
- Prompt payment requirements: prompt payment regimes are helpful in reducing the cash flow pressures on smaller firms. Box 3.4 describes other measures for reducing cash flow pressures on domestic construction firms.

Box 3.4: Measures to reduce cash flow pressures on domestic construction firms

A variety of measures have long been recommended for use in reducing cash flow and working capital pressures on domestic construction firms. However, such measures are still not commonly used in developing countries:

- Eliminating or reducing requirements for contractor performance bonds or using modest retentions from progress payments instead of bonds or sureties.
- Lowering the costs of accessing tender information.
- Provisions for accruing commercial interest for periods of delays in progress payments.
- Frequent progress payments, particularly for labour-intensive construction.
- Partial payments for materials when they arrive on site.
- Renting of equipment by project owner to contractor. Readiness to grant time extensions without penalty, under pre-agreed conditions.

Source: World Bank, 1984.

D. High-powered demand-side measures

A powerful and controversial demand-side tool available for governments to assist local businesses to become more competitive, involves public procurement requirements that create strong preferences for local firms over international competitors in tendering processes. These are termed “high-powered” measures because, unlike the measures described in the previous section, these are requirements that are not sanctioned by the World Bank or WTO. Staunch advocates of global free trade tend to view procurement as a neutral administrative function, separate from the active promotion of socio-economic development activities. These advocates argue that, except for the kinds of adjustments (described earlier) that are allowed by the World Bank, public procurement should offer fully competitive opportunities for any company, foreign or domestic, to win construction or PPP contracts. The World Trade Organization’s Government Procurement Agreement is an effort to formalize the agreement by Governments to general rules for open, competitive bidding for things like construction work and related services.

However, many developing country Governments see little to gain by supporting WTO efforts to further open up domestic markets to foreign companies, when domestic firms continuously struggle to compete for domestic contracts, much less contracts in developed countries. Whatever the likelihood of enforcement action by WTO (see box 3.5), many of these Governments reserve the right to use public procurement as an industrial policy instrument to help domestic companies participate in construction projects and in PPPs. However, very few African countries have developed comprehensive industrial policies that provide the conceptual framework necessary to achieve this type of procurement without sacrificing project cost and quality (For a discussion of the challenges associated with developing consistent policies and legislation of this kind, see Case Study 4-1 at the end of this section.)

Most of these high-powered demand-side tools for promoting local construction industries are referred to as “localization” measures or local content requirements. When construction or PPP services are procured by government agencies, these measures are usually structured as non-price bid

Box 3.5: Likelihood of WTO action against localization measures

A number of experts argue that PPP programmes in developing countries may face serious consequences if they incorporate local content requirements and other economic development measures. For them, such measures violate various multilateral trade agreements. WTO has become increasingly active in enforcing rules against import substitution policies, and has investigated – and ruled against – such requirements several times over the last few years. Because of this vulnerability to WTO enforcement action, localization requirements are said to introduce “legal uncertainty and...(are) not part of a stable and trusted policy environment for attracting investments” (Peszko, 2012).

Although economic development requirements in renewable energy programmes may constitute “localization barriers to trade” as defined by free trade advocates, they do not necessarily violate WTO rules, because the rules have gaps when it comes to localization barriers. WTO rules are:

The General Agreement on Tariffs and Trade Article III (the strongest legal basis for requiring equal treatment of imported and domestic products): But the article applies only to products, not services, and excludes government procurement from its obligations.

The Government Procurement Agreement (prohibits governments from giving preference to domestic suppliers or employing local content requirements): But this only applies to the 42 signatory countries to the agreement, and only to the limited number of agencies designated in those countries, none of which are in Africa.

Because of these gaps, many countries will avoid WTO action against their localization measures. If such measures are used as part of public procurement schemes, they can probably completely escape WTO enforcement because hardly any developing country, and certainly no African country, is a signatory to the Government Procurement Agreement.

Source: Cimino and others, 2014.

evaluation factors. They may require bidders to meet certain minimum thresholds with regard to:

- Jobs for local citizens.
- Local ownership and management of project companies.
- Spending on local manufacturing content and
- The establishment of local manufacturing capability.

As mentioned in the introduction to this paper, there is now a growing body of international economists who are sympathetic to the use of localization measures. Some of these experts have attempted to identify lessons learned over the last 40 years about how and when to use these sorts of policies. The discussion that follows attempts to summarize the lessons under: job creation; industrial development and monitoring and evaluation of localization performance.

1. Job creation requirements

Cimino and others (2014) argue that the most common rationale for the use of localization measures is that they create highly visible jobs for local constituents. In contrast, free trade advocates posit that localization requirements are likely to reduce the numbers of local jobs over the longer term. Their argument is that such requirements can lead to unintended negative consequences such as reduced competition, increased input costs and decreased input quality. Over time, all of this will lead to more expensive and inefficient products and increased customer costs, and ultimately job cuts in the subsector rather than increased employment.

Critics of the conventional free trade view highlight several ways in which efforts to use localization requirements for job creation can be optimized:

- Jobs, even short-term jobs, are better than no jobs at all in economies with high levels of unemployment. This is particularly true

if localization job policies do not result in significant input cost increases because, for example, industry competition and/or the mechanics of the bid process manage to keep overall costs low.

- It is important to recognize that job creation of this nature mostly results in temporary jobs rather than net employment gains. So job creation should be backed by government-funded training and capacity-building to help ensure that skills learned on the job are sustainable. It also requires policies to be put in place that encourage the use of the skilled labour once the construction and other short-term employment opportunities end.
- It would also be sensible to coordinate various localization requirements to maximize job creation effects. For example, when local content requirements are specified in value terms, the highest value elements of the manufacturing and construction chain are not always, and perhaps seldom, associated with those parts that yield the most jobs. In fact, some experts recommend that “training-by-doing” should be emphasized in order to establish high-skilled workers rather than overemphasizing manufacturing segments of the value chain (Stephenson, 2013).
- The East Asian experience suggests that localization policies work best when they are used as temporary measures to help kick-start export competitiveness and the job growth that comes with export success. They may involve targeted import protection for a set period of time, after which protection is reduced and, ultimately, withdrawn as companies are forced to compete internationally without further ‘special’ help. This withdrawal of protection may result in highly visible job losses, as unprotected, non-competitive firms lose out to global competitors. Such an approach requires a good deal of policy stamina in facing up to the political difficulties associated with strictly enforcing sunset provisions of this kind. Consequently, this

approach has not been widely successful outside of some Asian countries.

- Finally, localization requirements designed to create jobs should be part of a comprehensive industrial policy that includes capacity-building, research and development, tariff reforms and various incentives that support competitiveness and prevent complacency among the local companies being supported.

2. Industrial development requirements

According to Cimino and others (2014), the second most common rationale for localization requirements is the “infant industry” argument – the idea that nascent industries should be protected so that they can become internationally competitive. This argument resonates particularly in Africa because of the de-industrialization suffered by many African countries as a result of the structural adjustment policies (SAPs) imposed by the World Bank and the International Monetary Fund during the 1980s (Stein, 1992). As ECA notes, “In most of the cases, industries are yet to recover from the SAPs period and, given the new international context, the task will be increasingly difficult” (2011, p. 16).

The free market argument against the use of these kinds of protectionist measures is that they actually retard rather than promote industrial development by undermining free trade and, therefore, work against every country’s long-term interests. It would be inefficient for all countries to try to become manufacturers and exporters of a specific good or service.

Critics of the conventional free trade view respond with the following argument:

- As with localization job policies, infant industry protection does not necessarily have significant, negative economic consequences if the policy is focused narrowly on specific industry subsectors, and has clear sunset provisions that are strictly enforced. If the costs of construction, for example, are slightly higher for a limited period of time, it could be

a worthwhile price to pay for a measure of industrial development.

- Although critics of the free market approach believe that infant industry protection can make sense in certain circumstances, this does not mean that these industries must be locally owned. What one study describes as the “primary lesson” from global best practice in the use of localization requirements is the need for a policy focus on local capacity-building and domestic value-addition, regardless of the nationality of the firms, employees or investors (WTI Advisors, 2013). This means building domestic industrial capacity by focusing in a coordinated way on basic policy deficiencies affecting infrastructure development, trade/ industrial policy, skills transfer and research and development. For example, government support for research on innovative technologies could help create a new wave of early movers whether foreign- or domestically-owned (Peszko, 2012).
- Localization has the biggest impact in stable and sizable markets that have the potential for significant growth – localization has much less of an impact in markets focusing on established and mature technologies that have only marginal growth potential.
- In order to identify the best sectors for localization and set appropriate targets, the international experience with localization requirements suggests that requirements need to be formulated in an inclusive and transparent manner. Input should be solicited from trade unions, community groups, as well as foreign and domestic companies. But above all, the dialogue with the private sector must be close and continuous.
- Localization measures should be introduced incrementally, linked to the ability of domestic producers to learn, build capacity and become competitive. “A restrictive and ambitious program to increase technology transfer in just a few years’ time is often detrimental” (Kuntze and Moerenhout, 2013, p. 43).

- Localization seems to promote more technology transfer when it is linked to some form of financial support that can be used to offset the increased costs resulting from the need to purchase locally. Foreign investors favour arrangements where compliance with localization measures triggers a bonus rather than acts as a minimum condition for receiving any financial support – in other words, where compliance is voluntary and not an essential pre-condition.

3. Monitoring and evaluating localization requirements

All localization requirements call for clear target setting and meaningful monitoring and evaluation systems. And it is difficult to argue with critics that such targets and systems – even if adequately designed and resourced – do tend to distort the competitive process by making bidding more difficult, expensive and, ultimately, inefficient.

The management and monitoring of localization programmes are resource intensive for the host Government, requiring considerable financial support and highly professional permanent staff. Several notable examples exist of agencies responsible for monitoring local content performance in developed countries, which have struggled to adequately perform their tasks despite having considerable numbers of professional staff (WTI Advisors, 2013). But despite the complex and likely labour-intensive nature of this performance monitoring and evaluation system, few government resources are usually available to deal with it. Without a substantial number of permanent professional staff and an ongoing government budget allocation to cover performance monitoring and evaluation costs, it is difficult to sustain this kind of monitoring work at an appropriate level.

Case study 3-1: Drafting a local content bill for the Nigerian construction industry¹

It is not unusual for countries to develop policies and laws designed to encourage local participation in the construction industry. In some countries, these measures have followed similar instruments formalized for the oil and gas industries. Both developed and developing countries have adopted such processes. They range from Australia's Capital Works Management Framework, originally formulated in 2001, which includes local content requirements for government building projects, to Zambia's comprehensive "Construction Industry Policy," published by its Ministry of Works in 2003.

In Africa, a number of countries have followed Zambia's lead and adopted similar policies or legislation. As noted earlier, local contractors, consultants, suppliers and workers often do not benefit from investment in an African country's construction sector. A review by AfDB found that in 2011 over 55 per cent (by value) of all new construction contracts in Africa were awarded to countries from outside the continent (2013).

Nigeria has recently developed legislation to reverse this situation. The effort follows the passage of the Nigerian Oil and Gas Industry Content Development Act in 2010, which led to a marked increase in the number of contracts in that sector awarded to Nigerian companies. Nigeria's domestic construction industry has grown significantly over the last decade and is expected to continue growing. But the industry's contributions to GDP and employment have been very low by international standards, and foreign firms tend to dominate large projects. And as with other African countries (the example of Botswana in the earlier case study is instructive), Nigeria's industry is plagued with reports of excessive time and cost overruns, low-quality construction, abandoned projects and suspicions of widespread corruption. The Construction and Civil Engineering Senior Staff Association has also

¹ Source: Fernz and others (2013).

criticized what it says is a huge outstanding debt owed to construction companies by the Nigerian Government – close to 100 billion naira (\$620 million). Other problems affecting the industry include the need to import most construction materials, particularly steel and a good deal of the cement used. Other locally-produced materials, equipment and components are expensive and often unable to compete with cheaper imports, probably because Nigeria's erratic power supply has increased local manufacturing costs.

The draft bill, "The Local Content in Building and Construction Industry," is currently being considered by the National Assembly. Industry groups are urging swift passage of the bill because "the influx of expatriates into the construction industry is still a common occurrence and still unabated" (Pinsent, 2014). The National Executive Council meeting of the Construction and Civil Engineering Senior Staff Association in April 2014 issued a statement saying that Nigeria's construction industry "cannot move forward" until the bill becomes law (Ibid.).

But the pressure to get this legislation passed quickly may have led to a draft bill that will cause more problems than it will solve if it is passed. An extensive analysis of the bill was undertaken in 2013 at the request of the Government by the international professional group, Engineers against Poverty (funded by the United Kingdom's Department for International Development) (Fernz and others, 2013). The report is a virtual textbook of what to consider when drafting such legislation, and includes a number of examples from legislation and policies adopted in South Africa and Queensland, Australia. Among other things, the key findings of the report include the following:

- The bill's objectives are defined in terms of the number of Nigerian firms that will benefit. It does not use the more widely recommended "value-added" definition of local content, which frames objectives in terms of benefits for the whole local construction supply chain, including consultants, suppliers and workers, as well as firms.
- The bill lacks clear and practical definitions that are needed to help achieve its objectives. For example, it does not define what constitutes a "Nigerian firm," or what it means to give "first consideration" to Nigerian firms in the "award of a general contract".
- The bill is based on the Nigerian Oil and Gas Industry Content Development Act and, as a consequence, does not reflect the characteristics of the construction industry.
- Unlike the Nigerian Oil and Gas Industry Content Development Act, the bill does not include quantifiable targets for Nigerian content.
- The requirement for the Nigerian Content Construction Industry Monitoring Board to approve a local content plan for every construction project is highly impractical, particularly as it covers both public and private sector projects. This is likely to involve thousands of projects annually.
- Various provisions of the bill appear to conflict with the Government's Public Procurement Act (2007), with no procedures for reconciling the differences and
- The bill does not require the collection of data needed to assess the potential impacts of the legislation on employment generation and income improvement.

The authors of the report conclude by cautioning that if local content provisions are introduced in a way that does not enable Nigerian firms to achieve international competitiveness, then the most likely outcome is the unintended negative effect of entrenching an uncompetitive domestic industry with significant production inefficiencies.

V. Conclusion

There are many conclusions that can be drawn from this paper. First, African Governments are beginning to think about how to use industrial policy to promote domestic businesses and that there is a substantial body of guidance available to help with this. The advent of the 2008 global financial crisis exposed the acute fragility of African economies following these externally-driven policy reversals, and the consequent inability of these countries to compete with emerging markets in faster-growing regions. Therefore, policymakers had little alternative but to search for new approaches, leading them back to State-led interventionism and specifically to “localization strategies” inclusive of the import substitution policies of the past, to resuscitate and stimulate domestic productivity.

“Modern” industrial policy involves a more balanced combination of supply- and demand-side interventionist measures, some of which are referred to here as “high-powered” measures. Supply-side measures include government-supported research and development, capacity-building and access to innovative funding instruments. Demand-side measures, including localization requirements, tend to more aggressively protect domestic industries from foreign competition.

Bearing in mind this rebirth in industrial strategy, the main thrust of the paper has been to apply this resurgence in thinking to the African context. The paper, therefore, explores how modern industrial policy prescriptions can help domestic private companies compete effectively in two related African business sectors: the construction industry and conventional power generation, transmission and distribution.

Second, although African Governments are beginning to think about how to use industrial policy, they can and should do more to help make domestic businesses compete effectively for construction contracts and public-private partnerships in infrastructure. The benefits in terms of

jobs and broader economic development seem beyond question. The techniques and tools for doing this are also clear and readily available. The experience of emerging economies in East Asia provides a host of lessons learned about how to do this effectively. Singapore’s hugely successful proactive development of its domestic construction industry has been well documented and widely copied. Why are not more African countries working harder to support domestic businesses? There are several reasons to explain this.

One reason is the persistent reluctance of many Governments to actively adopt interventionist industrial policies. This reluctance is not surprising given the decades of pressure to conform to World Bank/International Monetary Fund SAPs in exchange for funding of much-needed development programmes. More recently, these countries have been exposed to the resolute advocacy against such policies by WTO and other influential international development agencies, which have painted all forms of import substitution with the same critical brush. The subtleties of well-conceived industrial policy have been explained in Africa by ECA among others, and now the Inter-American Development Bank is promoting its own version of “productive development policy” in Latin America. But whatever it is called, modern industrial policy has still not gained traction in most developing countries in Africa and Latin America.

A second reason is perhaps the most important: Governments, like donors and multilateral development banks, tend to be biased in favour of large international firms that can manage complex projects involving the latest equipment and technology. Pursuing smaller projects or “slicing and packaging” large projects into smaller segments, with more use of local materials and simpler technologies, often seems like a second best solution to officials of these Governments who tend to equate size, complexity, cost and technological sophistication with “value for money.” Over-engi-

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neering of infrastructure assets in Africa is common. The AICD study found, for example, that 30 per cent of main road networks are over-engineered relative to observed traffic volumes (Foster and Briceño-Garmendia, 2010). The extra transaction costs associated with the need to administer unbundled projects of this nature do not seem to such officials to be worth the value of increasing local contractor participation.

The third reason is the importance of the interrelationship between construction activities, public-private partnerships and infrastructure. Several important dimensions of this interrelationship are mentioned in this paper.

In the first place, high quality construction is, of course, necessary for successful public-private partnerships, to build, maintain and (in the case of brownfield concessions) rehabilitate the assets needed to deliver the public-private partnerships services. Because private partners have to operate and maintain infrastructure assets over long periods of time, high quality construction services should also be available over such periods. A competent, competitive domestic construction industry increases the chance of infrastructure public-private partnerships being successful in any given country.

Another aspect of this relationship is the fact that, in many countries, construction firms often mature into private partners in public-private partnerships or play important supporting roles. A hypothesis of this paper, and a topic worthy of additional research, is the likelihood that strong government initiatives to develop domestic construction industries might also be useful in preparing domestic firms to participate in public-private partnerships. In addition to requiring that local firms participate in such partnerships, helping these local firms to become more competitive as construction companies could hugely increase their prospects of effectively participating in public-private partnerships.

A third dimension of the interdependent relationship between construction, public-private partnerships and infrastructure is suggested at the

beginning of Section 2. It was argued there that dissatisfaction with traditional approaches to construction led Governments to move away from separate contracts for architectural and engineering and construction, towards embracing design-build contracts, and eventually design-build-operate and other similar types of public-private partnerships contracts. The upshot of this argument is that improvements in the use by Governments of better qualified and experienced local private construction firms under standard construction contracts could have huge impacts in terms of improving infrastructure quality and, ultimately, reduce the pressure on Governments to make use of infrastructure public-private partnerships.

Several key facts generated by the AICD study support this argument. First, Governments in Africa invest over four times as much in infrastructure construction and maintenance as do private sector firms via public-private partnerships and PPI arrangements. This means that Governments, using publicly procured and managed construction, will continue to carry most of the burden of infrastructure design, construction, operations and maintenance for the foreseeable future. Current private investment in capital construction of public infrastructure is about 11 per cent (excluding ICT investment generally, and micro-investments in household water connections). As a percentage of public sector investment, this is already higher than private investment shares in 16 of 20 (mostly OECD) countries surveyed for the Organisation for Economic Co-operation and Development's network of senior public-private partnerships officials (Burger and Hawkesworth, 2011). Of course, the overall investment total is much too low in Africa, but the point is that even with substantial increases in investment, the private sector is not likely to account for much more of the total than it is investing at present. This will leave Governments responsible for most of the investment in public infrastructure for a considerable length of time.

If this is the case, then policymakers, government officials and their development partners ought to be considering whether it would not be as valu-

able to focus on the many problems associated with government's poor infrastructure construction planning and management, as it would be to focus on infrastructure public-private partnerships. Government weaknesses in construction management have been cogently documented by AICD and others. First, African Governments are only executing about two thirds of their budgets allocated to public investment in infrastructure; second, on average, about 30 per cent of infrastructure assets in African countries need rehabilitation; lastly, in sectors such as water and transport, over-engineered project designs add as much as 30 per cent to construction costs (Foster and Briceño-Garmendia, 2010).

Improvements in addressing these variances could include ensuring effective competition for contracts, achieving a better understanding of the underlying construction costs and cost trends, reducing the over-engineering of projects to keep costs down, experimenting with innovative, low-cost technologies (including local products and techniques), and strengthening the capacity of government agencies to plan, procure and manage projects.

In effect, this view implies that in addition to making private contractors responsible for "whole-life" costs of projects via public-private partnerships contracts for the limited number of projects that are likely to be viable as public-private partnerships, Governments could actually have a much bigger impact on infrastructure quality by improving their own internal capacity to understand and manage those costs. It is critically important to develop commercially viable public-private partnerships in sectors such as energy in Africa, but the need to improve the ability of Governments to manage construction and rehabilitation of infrastructure is arguably more urgent and a bigger challenge.

Suggestions for further work

A number of topics touched on in this paper deserve much more in-depth attention. A partial list of these topics follows below:

- Better construction data: better data on construction activity in Africa needs to be collected and analysed on an ongoing basis. Lack of data severely restricts our understanding of key policy issues and potential responses. No one knows for certain how much construction activity is locally based and how much is done by foreign firms. The data presented in this paper suggests a breakdown of local-foreign activity, which is alarming. But the data is incomplete. Better, more comprehensive data is needed to fully understand the problems in this sector.
- Better data on energy sector public-private partnerships: lack of reliable, comprehensive data on energy sector public-private partnerships is also a problem. Most of the public-private partnerships data used in this paper came from the World Bank's PPI Project Database. But budget cuts, staffing shortages and organizational restructuring have led to gaps in this data that are apparent when it is compared with the results of specialized surveys conducted by independent experts in the field like Eberhard and Gratwick (2010).
- Easier access to finance: action should be taken to find ways of making financial support available to local enterprises, given the many obstacles they face in competing for projects. For example, countries such as Rwanda and Uganda have followed and implemented key policy recommendations to enhance the competitiveness of local firms, but still face problems because these firms lack access to finance. In the United Republic of Tanzania, rather than relying solely on the Government, the private sector has been proactive in seeking ways to raise capital. There is need to identify the main barriers to financing and find innovative solutions.
- Incentivizing private sector ownership: African Governments need to do more to enhance the competitiveness of domestic firms, but no Government can do this alone. The local private sector needs to be proactive in building the capacity of local firms and

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advocating for policy changes to increase the involvement of local firms in projects. This may mean establishing industry associations to set industry-wide standards; calling for greater technical vocational training (as a career investment); improving the capacity of local firms to plan, budget and manage projects, etc. Governments need to find ways of incentivizing local private sector ownership and action in these areas.

- Understanding “high-powered” policy measures: African Governments need help in understanding how and when to use the so-called “high-powered demand-side” measures to strengthen the role of domestic firms in local construction projects and energy sector public-private partnerships. This is a complex and controversial topic that is not understood well in the developing world. Emerging economies need intellectual ammunition to

use in responding to free-trade critics of these measures. There is certainly an important role to be played here by regional organizations in Africa.

- Facilitating regional energy projects: for reasons explained in the paper, the most urgently needed form of energy sector public-private partnerships in Africa is the regional hydro-power project. These are difficult to execute because they require substantial involvement by more than one Government. As a result, they are very rare. More work needs to be done to understand how to organize and develop such projects, including how to pay for preparation of these projects, which can be hugely expensive. A key part of this work would be to understand how regional organizations like power pools and regional economic communities could make productive contributions to the development of such projects.

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Annex

Challenges associated with private project types used in Africa's energy sector

The investment performance of the various public-private partnerships and PPI project types used in Africa's energy sector is quite modest, particularly when compared with other regions. Each project type has particular challenges that need to be addressed if private participation is going to play a more productive role in the sector. This annex reviews the main project types, their traditional shortcomings, as well as some potential solutions.

Generation: between 1995 and 2012, electricity generation accounted for most of Africa's private investment activity (including investment in projects initiated before 2000). Most of these were greenfield projects, but 24 were power plant rental contracts entered into to secure short-term, expensive generating capacity needed to cope with power emergencies.

Africa's limited ability to use private investment to keep power-generating capacity growth in line with GDP growth is one of the reasons why the region's energy sector is so different in size from those of other developing regions. Private investment levels and numbers of projects have fallen far behind those of other regions that were

at roughly similar stages of development 30 years ago. Africa's generating capacity per million people was roughly at the same level as South Asia in 1980, but the gap has widened significantly, particularly since South Asia began using public-private partnerships and other PPI mechanisms in the early 1990s (see table A.1).

IPPs: over 70 generation projects that reached financial close in Africa between 1995 and 2012 are, by and large, classified as IPP projects. Like public-private partnerships generally, there is no single, universal definition of "independent power producer". Usually, the term refers to a privately-sponsored power generating facility that sells electricity through a national power grid, pursuant to a long-term contract (PPA). The facilities are usually "project financed," meaning that they are heavily financed with debt, with most of the financing coming via limited-recourse loans to special purpose project vehicles. PPAs are highly technical documents that typically serve to confirm for lenders that power will be purchased at specified prices under a variety of circumstances. PPAs are often supported by government payment guarantees and credit enhancements like letters of credit, escrow accounts, liquidity facilities,

Table A.1: Africa versus South Asia: public-private partnerships and PPI energy sector projects, 1995-2012

	PPPs:						Other PPI:						Totals	
	Brownfield Concessions		Greenfield Concessions		Rental Contracts		Mgmt/Lease Contracts		Divestiture (full/partial)		Merchant Projects		US\$ mil-lions	No.
	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.	US\$ mil-lions	No.
SSA	1989	17	13821	79	158	24	5	12	1310	8	-	1	17284	141
S. Asia	22	1	132977	407	994	31	144	1	11139	21	6012	20	151288	481

Source: World Bank and PPIAF, PPI Project Database.

tax exemptions, etc. However, the confidentiality and severe risk engineering of most of these PPAs (shifting the responsibility for managing many key risks to Governments) has created controversy in connection with some African energy projects.

In most developing countries, the purchaser (or off-taker) of the power is a State-owned electricity utility that carries out retail power distribution to customers. In cases where the domestic power market has been liberalized, the so-called “single buyer” market may no longer exist and IPPs may be able to sell power to competing distribution companies and/or large private users. The definition of IPP is usually limited to ‘greenfield’ projects, although privatized (or concessioned) ‘brownfield’ generating facilities can also operate in this fashion.

The use of IPPs has been promoted for decades by development institutions like the World Bank, which see these projects as essential elements of reform programmes designed to move vertically-integrated power utilities toward competition. But as some earlier sections of this paper indicate, IPPs, as a rule, entail large risks and are difficult to structure in ways that ensure the reliable, long-term, cost-effective generation of affordable power. Risks can include: opposition from local and international civil society groups, geological or weather problems (in the case of hydro projects, water flows may be less than anticipated), natural disasters, bureaucratic delays (including delays in arranging financing from private sources or DFIs), escalating construction costs, overly optimistic estimates of economic growth and power demand, abrupt changes in government policies, laws or regulations affecting the energy sector, unfair competition from existing State-owned electricity utilities, failure to meet operating standards required by lenders, negative environmental impacts, fuel supply or pricing problems (in the case of thermal plants), and changing business strategies on the part of investors and operators.

A major source of concern regarding IPPs in many low-income countries is the fact that, typically, neither the host Government nor the utility off-

taker is particularly creditworthy, so their pledges to make good on PPA commitments tend to have little credibility with project financiers. No African government or power utility is classified by international rating agencies as “investment grade,” and some are virtually bankrupt. This does not necessarily mean that once an IPP reaches financial closure it cannot be sustained; in fact, empirical studies of “successful” IPPs do not find correlations between success in achieving project objectives and the creditworthiness of off-takers. But lack of such creditworthiness makes project financing more expensive, requires more support arrangements on the part of host governments, and probably means that a substantial number of potential power-generating projects in poorer regions like Africa are not even considered for development as IPPs. Lack of off-taker creditworthiness often results from retail electricity tariffs that do not cover substantial portions of operating costs, poorly-targeted subsidies, and electricity regulators that do not promote the use of cost-reflective tariffs in a transparent, consistent manner.

Since the early 1990s, many of the IPPs reaching financial closure were smaller than 40 MW. In other words, the track record of Africa’s IPPs has been modest. They have added small but much needed amounts of generating capacity, and most of the projects have survived distress and renegotiations to prove themselves sustainable. But many of these projects have not been well structured, and some do not produce reliable, cost-effective power. In effect, most of these IPPs have been pilot projects as most African countries have not fully committed to private power generation, due to difficult experiences completing and maintaining IPPs as well as the desire to continue supporting State-owned utilities. Overall, independent power production remains a marginal feature of Africa’s energy sector. One result of this is the widespread use by State-owned power utilities of highly expensive emergency rental power-generating facilities to meet generation needs on an ad hoc basis. The use of these rentals is much higher in Africa than in other regions – Africa accounts for 53 per cent of all such contracts world-wide.

Hydropower IPPs: these projects represent a type of IPP that is desperately needed in Africa, where 93 per cent of the continent's economically feasible hydropower potential (about 10 per cent of the world's total) remains untapped (Foster and Briceño-Garmendia, 2010). The aforementioned AICD study suggests that regional hydro projects are one of the few ways of scaling up energy development in Africa so that projects become economically and financially viable. And hydropower projects of any significant size cannot be done without mixed public-private involvement. But if traditional thermal IPPs are difficult to execute, hydropower projects are even more challenging, as are any kind of regional or multi-country projects, despite large amounts of concessional financing available for such projects from donors and multilateral development banks. The World Bank has done only one national-level hydro IPP in the last decade – Bujagali – which took 15 years to complete at even greater cost than originally budgeted. The Bank currently has two dozen hydropower projects in its development pipeline, but expects none of them to be completed in the near to medium term. Only a few other national-level hydropower IPPs have reached financial closure in Africa.⁸

Distribution and transmission: public-private partnerships and PPI projects, other than generation, have also played a small role in this sector since 1995. A few projects over this period involved electricity distribution and integrated utilities; several natural gas transmission and distribution projects were completed since 1995. The performance of these kinds of projects has also been generally disappointing. Projects representing a third of this total have since been cancelled or are currently in distress. Perhaps because of these performance issues, investment in electricity distribution and transmission relative to generation is much less in Africa (4 per cent) than in the entire developing world (14 per cent). Problems with transmission projects in Africa include a scarcity of land for

greenfield projects, as well as the fact that existing grids are often unable to accommodate greatly expanded generating capacity without substantial capital investment, something that the private sector is generally unwilling to provide. One result of this situation is a growing interest in off-grid power, particularly renewable energy options.

Distribution concessions: brownfield concessions involving electricity distribution are rare in Africa, with only about a dozen projects reaching financial closure between 1995-2012, and of these, only two involving distribution alone. Such projects have proved to be extremely risky, particularly in poor countries. Concessionaires must rehabilitate and extend distribution networks, then recoup their investments via the retail sale of power to thousands of customers under price regimes that are normally determined by regulators. Although "independent" regulation has become the norm in Africa, this does not prevent price setting from being influenced by highly contentious political circumstances; neither does it allow cost recovery by the concessionaire through appropriate pricing. Globally, since the Asian crisis, distribution projects have been more likely to experience cancellations, major disputes or non-renewal after scheduled contract termination, than any other projects in the energy sector. The incidences of these types of problems are higher in Africa than in any other region. Distribution concessions that are likely to be viewed as successful by both public and private stakeholders will require cost-reflective tariffs, enforceable rights to disconnect non-paying customers, connection subsidies for the poor (including some form of cross-subsidization of tariffs), visible improvements in the quality and quantity of service, and some degree of protection for existing employees. Structuring concessions to deal with all these issues requires a host of complex and, sometimes, expensive risk mitigation features.

In addition, the fundamental problem with all sorts of brownfield concessions, i.e., the reluctance of private partners to make large investments in long-term assets, must be addressed effectively in the energy sector. Essentially, private sector firms do not trust government partners and suspect an

⁸ Several relatively small regional hydropower projects are planned in Africa, including the 145MW Ruzizi project and the 80MW Rusumo Falls project. Each of these projects involves multiple country off-takers and may help refine contracting models that can be used on larger projects of this kind.

unwillingness or inability, on their part, to ensure full compensation for such investments over the life-time of the concession contract. This problem is particularly evident in poor countries because of the unusually high ratio of rehabilitation/extension investment costs to operating revenues over the life-time of the contract. Public partners regularly promise to set tariffs at cost-reflective levels to compensate for investments, and usually mechanisms are included in the concession contracts to compensate operators for unamortized investments at the end of the contract period. But most private operators suspect that they will not be fully compensated after 20-30 years of operation. Experiments in the rail sector with World Bank partial risk guarantees have shown some promise for solving this problem. Something similar might be feasible to support brownfield concessions in the energy sector.

Management contracts: from 1995-2012, only 12 management contracts were concluded in Africa's energy sector. These arrangements involve the provision of expertise by private operators pursuant to performance contracts that shift some risk to the contractor. If performance does not meet specified targets, compensation is reduced. Because these arrangements involve little or no investment, they considerably reduce the usual public-private partnerships risks faced by private partners. However, despite the potential that these contracts offer in Africa for reducing the operating inefficiencies in power systems, as

well as the risks for private partners, these types of PPPs present something of a paradox. While they seem to do well in achieving targeted performance objectives, that success has had little to do with how the contracts and contractors have been viewed by host country Governments.⁹

Divestiture and merchant projects: Perhaps the most dramatic difference between Africa and the rest of the developing world involves the use of PPI projects; examples include merchant power projects and the divestiture of power companies. From 2000-2009, this class of projects accounted for about 30 per cent of private investment in power in all developing countries, but only 6 per cent in Africa. Globally, since the Asian crisis, the use of such arrangements across all sectors has outstripped that of traditional public-private partnerships because, typically, they involve lower risks for private partners than public-private partnerships, while achieving the same results. Partial divestiture, for example, has been the most widely used form of infrastructure privatization, largely because it allows a continuing public-private relationship in the management of a facility without some of the risks associated with brownfield concession contracts. But while such arrangements can be attractive alternatives to public-private partnerships, they depend heavily on concepts such as liberalized power markets (for merchant plants), and capital markets that can facilitate the privatization of power companies via share sales. Neither of these features is prevalent in Africa.

⁹ Governments often expect these kinds of contracts to fix sector-wide problems, but such problems usually result from poor policies and lack of investment, things over which management contractors typically have no control. When conditions in the sector do not improve, management contractors are sometimes blamed and the contracts prematurely terminated as a result.

