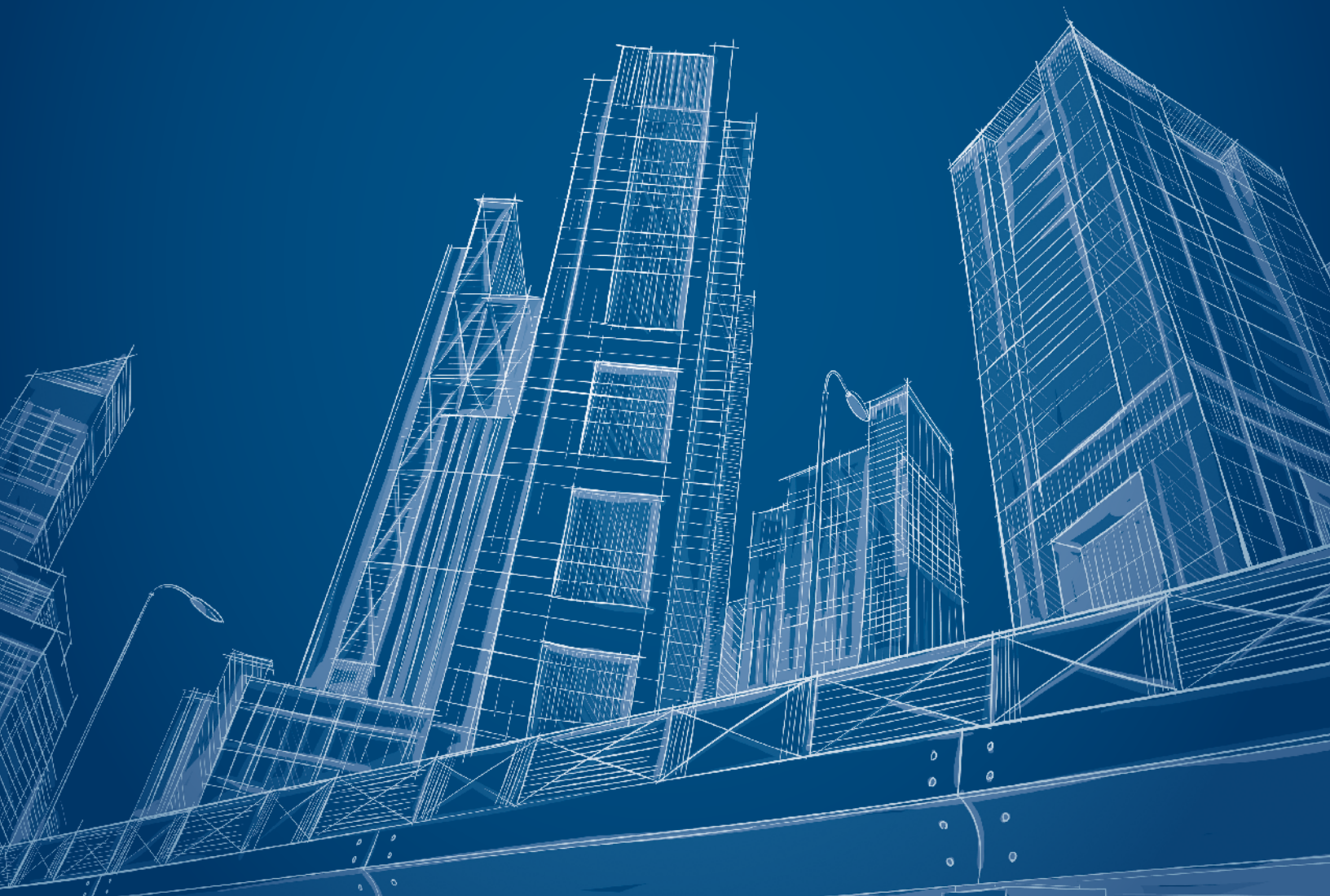


LEVERAGING AFRICAN PENSION FUNDS FOR FINANCING INFRASTRUCTURE DEVELOPMENT



March 2017

This paper builds on an earlier background paper prepared in consultation with the U.N. Office of the Special Adviser on Africa for the Third United Nations Conference on Financing for Development, July 13-16, 2015, Addis Ababa, Ethiopia.

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Author

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FOREWORD

Infrastructure holds a transformative power in our societies and economies. Through the construction of electricity, transportation, and telecommunications networks, we are able to power our homes and businesses, connect our producers to markets, and share information rapidly, boosting our trade, competitiveness, economic opportunities, and quality of life. So crucial is infrastructure to promoting our shared prosperity that it is featured in Goal 9 of the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda—“Build resilient infrastructure, promote sustainable industrialization and foster innovation”—adopted at the historic September 2015 U.N. Sustainable Development Summit and Aspiration 2 of Agenda 2063, the African Union’s vision for Africa’s transformation over the next five decades. Regional institutions, including the African Development Bank (AfDB), the New Partnership for Africa’s Development (NEPAD), and the U.N. Economic Commission for Africa are actively supporting infrastructure development in the continent.

Yet, meeting this goal will require decisive action as Africa’s infrastructure needs remain immense: Only 30 percent of Africa’s population has access to electricity, 34 percent has access to roads, and internet penetration rate is wobbly low, a mere 6 percent compared to 70-90 percent for other developing countries. In sub-Saharan Africa, the infrastructure deficit is particularly acute, with the poorest countries in Africa falling far below other low-income countries on all infrastructure-related indicators.

To address these infrastructure gaps and fully achieve Goal 9 of the SDGs and Aspiration 2 of Agenda 2063, governments will need to accelerate and intensify efforts to mobilize domestic and external financing resources for infrastructure development. Sub-Saharan African countries alone spent nearly \$60 billion from their national budgets on infrastructure development in 2012. Although significant, this sum falls short of the estimated \$93 billion needed to close the region’s infrastructure gap completely, and explains the continuing bottlenecks in the region. So where can African governments find the necessary funding to carry out these projects? What untapped and innovative sources can be leveraged toward Africa’s infrastructure?

Domestic public investments constitute the bulk of resources allocated toward infrastructure projects in sub-Saharan Africa, with tax revenues making up a large portion of these funds. At the Third United Nations International Conference on Financing for Development held in July 2016 in Addis Ababa, Ethiopia, world leaders called for greater domestic resource mobilization—focusing primarily on strengthening tax collection mechanisms and broadening tax bases—to support infrastructure projects. However, other domestic mechanisms for financing infrastructure do exist. For example, pension funds are able to set aside assets for investment, including in infrastructure, but these schemes are currently underutilized on the African continent. While some experts argue that pension funds are too risk averse to invest in risky, decades-long infrastructure projects, others contend that with the right governance, regulation, and instruments to assess and manage the risks associated with long-term investment in infrastructure, pension funds could take on a greater role in transforming the continent’s infrastructure landscape.

This report explores the key issues surrounding pension funds as a source of financing for African infrastructure and makes a compelling case for reforming the continent's pension schemes so they can serve as an integral component of the global approach to meet Goal 9 of the SDGs and Aspiration 2 of Agenda 2063. It begins by providing an overview of the gaps in African infrastructure, as well as the financial resources available to support infrastructure development. In the sections that follow, it illustrates pension funds' untapped potential in the continent, highlighting international experiences with pension funds and the lessons learned from these cases. Then it concludes with policy recommendations for reforming pension schemes and fully capitalizing on the continent's favorable demographic trends.

Yours sincerely,



MR. KEMAL DERVIŞ
Vice President & Director
Global Economy & Development
Brookings Institution



MR. MAGED ABDELAZIZ
Under-Secretary-General and
Special Adviser on Africa



DR. IBRAHIM ASSANE MAYAKI
Chief Executive Officer
NEPAD Agency

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I. INTRODUCTION

There is a consensus among African policymakers that the continent's economic growth and transformation is significantly constrained by its limited infrastructure. Inadequate infrastructure—including unreliable energy, an ineffective urban-rural road network, and inefficient ports—is one of the largest impediments to Africa's international competitiveness.

Infrastructure is not only one of the areas in which Africa lags behind the most, but it is also one where the divide between African countries is the largest.¹ The infrastructure deficit is particularly high for sub-Saharan African least developed countries (LDCs) even when compared to that of other low-income countries.

Improving African infrastructure can benefit the continent through a number of channels, including better performance in the agriculture sector and increased regional and global trade. Increasing investment in rural infrastructure such as irrigation, roads, and energy can help reduce Africa's dependence on rain-fed agriculture, improve access to markets for agricultural produce, and increase resilience to climate change. Through better and more affordable information and communication technologies (ICT) infrastructure, farmers can register their land and have access to credit, use land and water more efficiently, obtain weather, crop, and market information, and trace food and animals.

For instance, better ICT cuts across sectors by allowing the rapid and free flow of information. Similarly, more reliable electricity provision can significantly reduce the cost of doing business for all sectors, in particular the manufacturing sector.² Well-connected infrastructure networks can benefit a broad range of sectors by enabling entrepreneurs to get their goods and services to markets in a secure and timely manner as well as by facilitating the movement of workers. They can also help increase intra-African trade (which currently hovers around 12 percent of total trade) and participation in regional and global value chains.

African policymakers are well aware of the potential for infrastructure to support the continent's accelerated integration and growth, technological transformation, trade, and development. The continent's long-term vision as articulated in Agenda 2063 is that, in about 50 years, African infrastructure will include high-speed railway networks, roads, shipping lines, sea and air transport, as well as well-developed ICT and a digital economy. The vision plans for a Pan-African High Speed Rail network that will connect all the major cities of the continent, with adjacent highways and pipelines for gas, oil, and water, as well as ICT broadband cables and other infrastructure. Infrastructure will be a catalyst for manufacturing, skills development, technology, research, innovation and development, integration and intra-African trade, investment, and tourism. According to Agenda 2063, building world-class infrastructure together with trade facilitation should see intra-African trade growing from less than 12 percent currently to about 50 percent by 2045 and the African share of global trade rising from 2 percent to 12 percent.³

¹ See Africa Competitiveness Index (2015).

² See Africa Competitiveness Index (2015).

³ African Union (2014). http://agenda2063.au.int/en/sites/default/files/agenda2063_popular_version_05092014_EN.pdf

Africa's focus on infrastructure is not surprising. Infrastructure is the cornerstone of a country's economic activity, and infrastructure bottlenecks stunt economic growth and increase poverty and inequality. Investing in infrastructure can have three important positive effects on an economy. In the short term, infrastructure spending provides a short-term demand stimulus to an economy and boosts output. In the longer term, infrastructure spending can raise the economy's productive capacity, thereby its trend growth rate. Moreover, when financed by debt, the return on investment a country gets from increasing infrastructure investment can be large enough for infrastructure projects to pay for themselves.

Attempts to quantify the macroeconomic effects of scaling up infrastructure investment find significant positive effects. Simulations show that in developing economies, increasing the public-investment-to-GDP ratio from 7.0 percent of GDP to 14.0 percent of GDP in about three years and stabilizing it at 9.0 percent of GDP afterwards can substantially increase output by 7.0 percent over the long term (IMF, 2014a).⁴ To put things in perspective, a recent World Bank forecast for sub-Saharan Africa (SSA) puts real GDP growth at 4.0 percent in 2015 (World Bank, 2015). However, accounting for the continent's 2.6 percent population growth results in a per capita income growth of only 1.4 percent. As a result, scaling up infrastructure investment in the region could help achieve much-needed higher growth.

More and better infrastructure can benefit the economy through a number of channels. Cheaper transport costs can help create new markets and realize the returns to agglomeration, which in turn fosters competition, spurs innovation, lowers prices, and raises productivity, leading to an increase in living standards (Henckel and McKibbin, 2010). Furthermore, transport infrastructure can have a direct effect on economic efficiency of an economy by reducing transport costs and an indirect effect by lowering inventories. As an economy moves up the global value chain, adapting its infrastructure can also help attract foreign investment and contribute to the knowledge transfer, leading to more trade with the rest of the world.

The potential benefits of infrastructure are even larger when network and cross-sectoral impacts and synergies are accounted for. World Bank (2014) stresses, for instance, that investments in a platform of urban services may produce economic returns greater than the sum of each individual investment as infrastructure investments may change land usage, productivity levels, settlement patterns, and property values. Similarly, the World Bank Infrastructure Action Plan FY 2012-2015 flags projects that seek to optimize co-benefits across infrastructure sectors, between infrastructure and environment (*green*), between infrastructure and social development (*inclusive*), and spatial benefits (*regional*) (World Bank, 2011). The Action Plan seeks to identify and prioritize three points of leverage that can unlock a country's growth and development potential: (i) *missing links*: infrastructure investments that interconnect two markets/areas such as a bridge within a region or a cross-border power interconnector, international road corridors, or fiber optic links in a region; (ii) *bottlenecks*: investments that unlock the volume, cost, and quality of economic activity such as a law on competition that unlocks the potential of

⁴ Methods using more available data show that for advanced economies, an increase in one percentage point of GDP in investment spending in advanced economies raises the level of GDP by about 0.4 percent in the same year and by 1.5 percent four years after the increase.

private sector investments, or a source of clean water that unlocks women's time to participate in economic activity; and (iii) *ripple effects* such as an ICT-application that generates data on sector performance with spillover effects in sector accountability and governance, a regional power project that has ripple effects beyond the host country, or a rural infrastructure package that boosts agricultural productivity with ripple effects on rural income and development.

For countries to reap the benefits of infrastructure investment, however, a number of conditions are needed. The IMF (2014a) finds that the short-term effect of increased investment is higher (i) during periods of economic slack and when interest rates are low; (ii) in countries with a high degree of public investment efficiency where new spending is not wasted and goes to projects with high rates of return; and (iii) when new investment is financed through debt rather than through higher taxes or lower spending.

Recent studies show, however, that public investment spending is particularly wasteful in LDCs. For example, IMF (2015) estimates that about 40 percent of the potential value of public investment is lost to inefficiencies in the investment process in LDCs. In contrast, the efficiency gap is 30 percent for an average of 134 countries and is lower for emerging markets (27 percent) and advanced economies (13 percent). Closing much of this efficiency gap could substantially increase the economic dividends for public investment. LDCs can do so by strengthening the institutions related to the funding, management, and monitoring of project implementation while all countries will benefit from stricter oversight of public-private partnerships and better integration between national strategic planning with capital budgeting. In addition to the efficiency of public investment, the effects of investment on developing economies depend also on the type of financing, the response of the private sector, and the ability of the authorities to implement fiscal adjustment and manage debt (IMF, 2014a).

The shared concern for the infrastructure deficit in Africa has led to a proliferation of initiatives. Among the various multilateral initiatives are the following:

- The New Partnership for Africa's Development (NEPAD),⁵ established in 2001 under the African Union (AU), supported the Programme for Infrastructure Development in Africa (PIDA)⁶ in 2011 as one of its flagship initiatives to identify and assess key cross-border infrastructure investments over the period 2012-2040. In the shorter term, PIDA focuses on its Priority Action Plan (PAP), which includes 51 regional and continental infrastructure projects to be implemented by 2020. These projects are designed to meet Africa's more immediate regional and continental infrastructure needs. To accelerate the implementation of PIDA, African leaders gave their political impetus to eight regional infrastructure projects under the Presidential Infrastructure Champions Initiative (PICI), which was adopted in 2012. In the same vein, African leaders adopted the Dakar Agenda for Action in June 2014 to leverage public-private partnerships and mobilize

⁵ For details of the New Partnership for Africa's Development (NEPAD) at the African Union (AU), see <http://www.nepad.org/about>.

⁶ For details of the Programme for Infrastructure Development in Africa (PIDA) of the African Development Bank, see <http://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/programme-for-infrastructure-development-in-africa-pida/>.

financing around 16 infrastructure projects to be realized by 2020.⁷ Concrete steps have also been taken by the NEPAD Agency to ensure acceleration of infrastructure projects on the continent. For instance the Africa Global Partnership Platform (AGPP), a dialogue platform that acts as an “umbrella” for Africa’s rapidly expanding international partnerships was endorsed by African countries at both the NEPAD Heads of State and Government Committee and the African Union Summit in 2014. The AGPP contributes to a greater coherence of Africa’s international partnerships and serves as a platform for feeding Africa’s interests and perspectives into wider global processes. The NEPAD Agency also established the Continental Business Network (CBN), which is an African Union Heads of State and Government response to facilitate private sector engagement and leadership in important continent-wide infrastructure projects, particularly the regional infrastructure projects under PIDA. The CBN aims to crowd in financing and support for infrastructure projects by creating a platform for collaboration between the public and private sectors. The second CBN High-Level Leader’s Dialogue hosted in May 2016 examined the role of the private sector in de-risking PIDA projects and paved the way for the subsequent launch of the “NEPAD Continental Business Network Report on De-Risking Infrastructure and PIDA Projects in Africa,” (hereafter, “2016 De-Risking Report”).⁸

- The Regional Infrastructure Development Master Plan (RIDMP) of the Southern Africa Development Community (SADC) of 2012 is anchored on the six pillars of energy, transport, ICT, meteorology, trans-boundary water resources, and tourism (trans-frontier conservation areas). Its Short-term Action Plan (STAP) 2013-2017 includes projects that are considered ready for implementation during the next five years as well as projects related to capacity building, and regulatory and institutional strengthening. The RIDMP is aligned with PIDA and with the COMESA-EAC-SADC (tripartite) Inter-regional Infrastructure Master Plan.⁹
- In September 2011, U.N. Secretary-General Ban Ki-moon launched the Sustainable Energy for All initiative to make sustainable energy for all a reality by 2030 by fostering partnerships between governments, business, and civil society. In 2014, the U.N. General Assembly declared the decade 2014-2024 the Decade of Sustainable Energy for All, underscoring the importance of energy issues for sustainable development.
- The World Bank, in partnership with the African Development Bank (AfDB), developed the Africa Infrastructure Country Diagnostic (AICD) that provides a detailed series of infrastructure investment needs by sub-region in 2011.¹⁰ In 2014 the World Bank launched the Global Infrastructure Fund (GIF) as a “platform” for identifying, preparing, and financing large complex infrastructure projects.¹¹ This facility will thus also cover infrastructure financing in Africa.

⁷ The Dakar Agenda for Action: Moving forward Financing for Africa’s Infrastructure, June 2014. See http://www.nepad.org/sites/default/files/The%20DAKAR%20AGENDA%20FOR%20ACTION_0.pdf

⁸ <http://aiswpff.com/wp-content/uploads/2016/07/CBN-RISK-REPORT-THIRD-VERSION-DATED.pdf>

⁹ http://www.sadc.int/files/7513/5293/3530/Regional_Infrastructure_Development_Master_Plan_Executive_Summary.pdf

¹⁰ For details of Africa Infrastructure Country Diagnostic (AICD), see World Bank (2011).

¹¹ For details of GIF (World Bank), see <http://www.worldbank.org/en/topic/publicprivatepartnerships/brief/global-infrastructure-facility>.

- Africa50, a recent infrastructure investment platform promoted by the AfDB, aims at accelerating project preparation and financing on the continent. In particular, it seeks to shorten the time between project idea and financial close from a current average of seven years to at most three years. Africa50 held its Constitutive General Assembly in 2015 and 20 African countries, and the AfDB have subscribed for an initial amount of \$830 million in share capital.¹²
- More recently, the New Deal on Energy for Africa put forward by the AfDB seeks to achieve universal access to energy in Africa by 2025. The new deal will be implemented through the Transformative Partnership on Energy for Africa, which is designed to provide a platform to coordinate action among private and public partners and offer innovative financing solutions.¹³

In addition, traditional bilateral and multilateral development flows to African infrastructure have increased overall and there is a growing amount of traditional (such as from the U.S. Power Africa initiative¹⁴ and the EU-Africa Infrastructure Trust Fund¹⁵) and non-traditional bilateral flows (from China, Brazil, and India). Finally, there are substantial opportunities from the establishment of the BRICS' (Brazil, Russia, India, China, and South Africa) New Development Bank (BRICS Bank) and the Asian Infrastructure Investment Bank and the Silk Road Infrastructure Fund.

Building African infrastructure will, however, require substantial financing. A World Bank comprehensive study estimates that sub-Saharan Africa's infrastructure needs are around \$93 billion a year, and estimates are higher when financing needs for North Africa are considered.¹⁶ According to the NEPAD Agency, the PIDA Priority Action Plan projects require an estimated \$68 billion for implementation until 2020. An additional \$300 billion is needed for the rest of the projects until 2040.

This report discusses the particular role of pension funds in financing Africa's infrastructure. A key message of this report is that there is urgency to act now if the significant potential of African pensions to finance infrastructure development is to be leveraged. While sub-Saharan African countries are in a "demographic sweet spot" as dependency ratios are low, the labor force is rising rapidly, and the impact of aging has not yet hit their pension systems, policymakers need to address existing obstacles to pension funds investment in infrastructure. In North Africa, unsustainable pension schemes together with unfavorable demographic and labor trends also point to the need of reforming pension systems.

Apart from countries in southern Africa such as Botswana, Namibia, and South Africa, and a few others such as Kenya and Nigeria, pension assets as a share of GDP are low as pension funds are relatively small and dominated by often poorly performing pay-as-you-go (PAYG) schemes for public sector employees. Even when pension re-

¹² <http://www.africa50.com/>

¹³ http://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Brochure_New_Deal_2_red.pdf

¹⁴ <https://www.usaid.gov/powerafrica>

¹⁵ <http://www.eu-africa-infrastructure-tf.net/>

¹⁶ See Foster and Briceño-Garmendia (Eds.). (2009).

form has been implemented, as in Nigeria, and assets are available for investment, governance and regulatory obstacles as well as a dearth of adequate financial instruments limit pension funds' allocation to infrastructure.

This report suggests a number of policy recommendations to address the obstacles to pension funds investment in infrastructure. First, pension reform driven by strong political leadership and ownership by all stakeholders can help improve the performance of African pension systems and develop pension assets. However, pension reform should be carefully designed so as to learn from the lessons of the mixed results of earlier experiences in Latin America, notably in Chile, as well as in Central and Eastern European countries. Second, improvements to the governance, regulation, and supervision of pension funds can help pension funds invest in infrastructure in a manner consistent with their primary goal of ensuring old-age income security. Third, even when sufficient pension assets are available and asset allocation to infrastructure investments is made, African countries will still need to develop domestic financial and capital market instruments for infrastructure investment. Finally, given the large scale of infrastructure investment, African countries will need to consider the net benefits of complementing domestic pension assets with foreign and multilateral investments through co-financing and innovative policies.

The rest of the paper is organized as follows. Section II reviews the current sources of infrastructure finance in Africa (official development finance, private sector, new and emerging partners, such as China and other emerging development partners, and government finance). Section III reviews the international experience with pension funds investment in infrastructure and discusses the potential for leveraging African pension funds for infrastructure development. Section IV analyzes the obstacles to pension funds investment in infrastructure and some concrete steps taken by the NEPAD Agency while Section V concludes with policy recommendations for African pension fund managers and governments as well as multilateral institutions and bilateral partners.

II. SOURCES OF INFRASTRUCTURE FINANCE IN AFRICA

Domestic financing

Although data on government spending on infrastructure are not readily available, some recent estimates by the IMF (2014b) show that national budget spending by sub-Saharan African countries reached about \$59.4 billion or 72.9 percent of total funding for infrastructure in 2012.¹⁷ These figures include financing by international financial institutions (IFI) such as the World Bank and AfDB (that are part of official development finance (ODF)) of about \$8 billion. Excluding IFI contributions to national governments, spending on infrastructure projects amounts to \$51.4 billion (63 percent of total funding). Comparable estimates are also available from ICA (2014a).¹⁸

Domestic resources in sub-Saharan Africa have increased thanks to debt relief, increased revenue collection, gains from the commodity price boom, and, more generally, improved macroeconomic and institutional policies. The average tax-to-GDP ratio increased from 18 percent in 2000-2002 to 21 percent in 2011-2013.¹⁹ This increase was equivalent to half of 2013 aid receipts (Africa Progress Panel, 2014). However, increased tax mobilization has been driven by resource-rich countries and resource-related taxes. Tax mobilization remains low in spite of significant effort and recent reforms in non-resource-rich countries (Bhushan, Samy, and Medu, 2013). For instance, the ratio of general government tax revenues to GDP in 2013 ranged from 2.8 percent in the Democratic Republic of the Congo to 25 percent in South Africa (one of the highest among all developing countries). Thus, in spite of good progress in raising fiscal revenues, African countries need to raise more domestic finance to meet their infrastructure gap. African countries generate more than \$520 billion annually from domestic taxes and can mobilize more domestic revenues through improved tax administration and measures to widen the tax base (NEPAD and UNECA, 2014).

Given the wide disparity among countries of tax-to-GDP ratio, many African governments still need to raise their fiscal revenues to meet the infrastructure gap. However, increasing tax mobilization over a certain threshold does not necessarily lead to adequate spending on infrastructure and revenue, and spending reforms may be needed. For instance, Ahmad (2014) notes that although Brazil's tax-to-GDP ratio was relatively high at 24 percent in 2013, taxes are heavily earmarked, and, as a result, spending on infrastructure is just 1.5 percent of GDP (both public and private). African countries also need to complement fiscal revenues and diversify their source of domestic financing. African governments are increasingly accessing international capital markets. Before 2006, only South Africa had issued a foreign-currency denominated sovereign bond in sub-Saharan Africa. From 2006 to 2014, in

¹⁷ IMF (2014b) assumes that countries allocate 75 percent of total public investment to infrastructure. This assumption does not take into account infrastructure spending executed by public utilities and local governments.

¹⁸ Using survey data for 21 countries, ICA (2014a) estimates that national budgets accounted for \$46.7 billion in 2013, up from \$42.2 billion in 2012. ICA (2014a) data on budget allocations for infrastructure projects are collected from the national budgets of 21 African countries (Botswana, Cape Verde, Cameroon, Central African Republic, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Lesotho, Liberia, Mali, Morocco, Namibia, Rwanda, São Tomé and Príncipe, Sierra Leone, South Africa, South Sudan, Tanzania, Uganda, and Zimbabwe). The amounts allocated to budgets may differ from amounts actually spent.

¹⁹ In comparison, Ahmad (2014) notes that a rule of thumb for calculating the amount needed to meet the financing requirements for the 2014 MDGs was a tax-to-GDP ratio of around 18 percent, which would cover the provision of the MDGs as well as operations and maintenance spending, and new investment in infrastructure.

all, 13 SSA countries issued a total of \$15 billion in international sovereign bonds often with the intention to finance part of their infrastructure needs. In addition to attracting foreign savings to finance infrastructure, African countries are also targeting the savings of the African diaspora. In particular, Ethiopia issued diaspora bonds in 2011 to finance the Grand Ethiopian Renaissance Dam (GERD).²⁰

External financing

The composition of external financing for infrastructure is changing. For instance, Gutman, Sy, and Chattopadhyay (2015) find that financing from traditional partners and China for infrastructure in SSA tripled between 2004 and 2012.²¹ During this period, while the level of official development finance increased—especially from the World Bank and the AfDB—its dominance in infrastructure financing declined as private participation in infrastructure (PPI) surged to over 50 percent of external financing, and China became a major bilateral source. In particular, Gutman, Sy, and Chattopadhyay (2015) highlight the following three significant trends:

- All major sources of external financing have appreciably increased their annual commitments. From \$5 billion in 2003, commitments have risen to almost \$30 billion per year in 2012.
- Official development finance investments, though not as dominant a source of infrastructure financing in sub-Saharan Africa as in the 1990s, have grown appreciably since 2007 and represent 35 percent of external financing.
- PPI has been the largest financing source since 1999—accounting for more than 50 percent of all external financing. Its overall level has remained remarkably stable and unaffected by the recession in 2008.

In addition, official investments from China have increased from what was virtually insignificant to about 20 percent of these three main sources of external finance.²² The increase in Chinese financing is mirrored by the rise of other non-traditional partners. The United Nations Office of the Special Adviser on Africa (OSAA) (2014) finds that new and emerging partners (NEPs) in Africa are increasingly investing in the continent's infrastructure. These countries include Brazil, China, India, Korea, Malaysia, Russia, and Turkey—the so-called NEP7 economies. These countries were involved in 239 infrastructure projects in Africa during 2000-2010, of which 41 percent were not linked to Chinese stakeholders. In particular, Brazil and Korea accounted for about 15.9 percent and 8.8 percent of the number of projects, while India and Turkey were involved in 6.3 percent and 5.9 percent of total, respectively.²³

But are the efforts above sufficient to fill the continent's infrastructure spending needs, which stand at about \$93 billion per year with about 40 percent of spending needs associated with the power sector? Using their fiscal re-

²⁰ See Kayode-Anglade and Spio-Garbrah (2012) for a discussion of African diaspora bonds.

²¹ Traditional partners include the private sector as well as official development financing (ODF) sources from aid donors and multilateral development banks such as the World Bank and the African Development Bank.

²² PPI and China commitment estimates in this paper differ substantially from those by ICA. ICA estimates are much higher for China and much lower for PPI.

²³ See United Nations Office of the Special Adviser on Africa (2014) for a detailed study of non-traditional infrastructure finance.

sources, African governments spend about \$45 billion—about one-third of which is contributed by donors and the private sector—per year on infrastructure. Two-thirds of the public sector money is used to operate and maintain existing infrastructure, and one-third is to finance new projects. This leaves a financing gap of \$48 billion and begs the question of how to finance it. A more efficient use of existing infrastructure can reduce this gap by \$17 billion by reducing inefficiencies through measures such as rehabilitating existing infrastructure, better targeting subsidies, and improving budget execution. Should the inefficiencies be addressed, the remaining infrastructure funding gap would then be \$31 billion a year, mostly in the power sector.²⁴

Given the relatively large size of the remaining infrastructure financing gap, efforts to mobilize domestic revenues should also focus on tapping the international and local institutional investor base, including pension funds, for infrastructure financing. Indeed, institutional investors can play an important role in infrastructure finance, which involves long-term and large-scale projects. First, they typically seek long-term investment opportunities in order to match their long-term liabilities. Second, institutional investors have the scale needed for infrastructure finance. Indeed, institutional investors in OECD countries held about \$92.6 trillion in mostly assets in 2013 (more than twice the \$43.7 billion GDP of these countries).

Finally, institutional investors can add to other types of finance as new regulation (such as Basel III for banks) in the aftermath of the 2008 financial crisis may have reduced the appetite for long-term investment from traditional financial intermediaries such as banks. Finally, through their investments, institutional investors can play a role in encouraging sustainable finance, for instance by applying environment, social, and governance (ESG) criteria. The following section reviews the international evidence with pension funds investment in infrastructure and discusses the potential for African pension funds to contribute to infrastructure development.

²⁴ See Foster, Vivien, and Cecilia Briceno-Garmendia (2009) for detailed estimates.

III. PENSION FUNDS DIRECT INVESTMENT IN INFRASTRUCTURE

International experience

At 36.6 percent of GDP, assets of the pension funds in OECD countries are relatively large. As of end-2013, pension-fund assets were even in excess of 100 percent in countries such as the Netherlands, Iceland, Switzerland, Australia, and the United Kingdom (Figure 1). In absolute terms, pension funds in OECD countries held \$10.4 trillion of assets.²⁵ While large pension funds (LPFs) held about \$3.9 trillion of assets, assets in public and private sector and public pension reserves (PPRFs) stood at \$6.5 trillion.²⁶

Individual pension funds can be relatively large in some countries such as the Netherlands (ABP at \$445.3 billion and PFZW at \$189.0 billion) and the U.S. (CalPERS at \$238.5 billion, CalSTRS at \$166.3 billion, and the New York City Combined Retirement System at \$150.9 billion). Similarly, PPRFs are relatively large in the U.S. (United States Social Security Trust Fund at \$2.8 trillion) and Japan (Government Pension Investment Fund at \$1.2 trillion). Among emerging markets, South Africa (Government Employees Pension Fund (GEPF) at \$133.4 billion) and Brazil (Previ at \$72 billion) have the largest funds in Africa and Latin America, respectively.

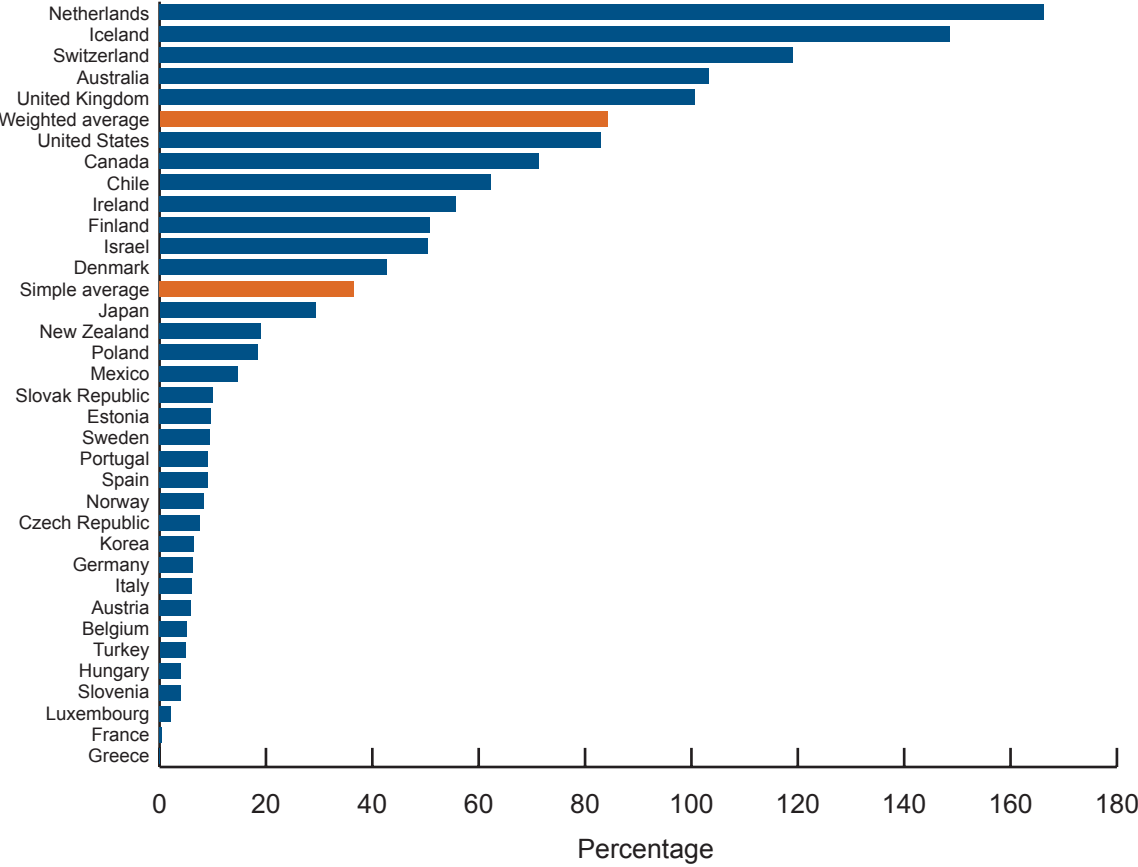
Pension funds can dedicate a share of their assets specifically to infrastructure. Such direct investment in infrastructure is implemented through equity investment in unlisted infrastructure projects (through direct investment in the project or through a private equity fund). Such investment can also take the form of debt investment in project and infrastructure bonds or asset-backed security. In contrast, pension funds can allocate a share of their funds indirectly to infrastructure through investment in market-traded equity and bonds. Listed equity investment can take the form of shares issued by corporations and infrastructure project funds while debt investment is often in the form of corporate market-traded bonds.

In spite of their large size, pension funds in OECD countries allocate a relatively small share of their assets specifically to infrastructure investments. Instead, pension funds allocate most of their assets to liquid long-term instruments such as stocks and bonds in order to match their long-term liabilities and meet their obligations. OECD pension funds invest more than half of their assets in fixed income and cash (52.1 percent and 55.3 percent for

²⁵ Survey data cover both large pension funds (LPFs), which support funded pension plans in both the public and private sector and public pension reserves (PPRFs), which are reserves or buffers that support pay-as-you-go (PAYG) financed public pension systems. The survey includes PPRFs in the broader category of sovereign and public pension reserve funds (SPFs). SPFs are also defined as funds set up by governments or social security institutions with the objective of contributing to finance the relevant PAYG pension plans. However, OECD (2014) distinguishes two types of SPFs depending on their funding sources, investment strategies, and payout phases. The first type of SPF is part of the overall social security system and is financed mainly from surpluses of employees and/or employer contributions over current payouts as well as top-up contributions from the government via fiscal transfers and other sources. Examples include Japan's Government Pension Investment Fund and the U.S. Social Security Trust Fund. The second type of SPF refers to funds established directly by the government and completely separated from the social security system. Such funds are financed from direct fiscal transfers from the governments and are set up to meet future deficits of the social security system. Some are not allowed to make any payouts for decades and are under autonomous management. Examples include the Australia Future Fund, the New Zealand Superannuation Fund, the Norwegian Government Pension Fund, and the French "Fonds de Réserve pour les Retraites." These funds are sometimes classified as sovereign wealth funds (SWFs). See OECD (2014a).

²⁶ Data are from the largest institutional investors in each region or country covered, (OECD, 2014a).

Figure 1. Importance of pension funds relative to the size of the economy in OECD countries, 2013 (in percent of GDP)



Source: OECD Global Pension Statistics.

LPFs and PPRFs, respectively) and a little less than a third in listed equity (31.5 percent for LPFs and 30 percent for PPRFs) with the remainder going to “alternative and other investments,” which include private equity, real estate, unlisted infrastructure, and hedge funds.

On average, pension funds in OECD countries invest only about 1 percent of their assets directly in infrastructure in the form of unlisted equity and debt (about \$80 billion in 2013 for 70 funds with \$7.8 trillion of assets).²⁷ This low investment in infrastructure has been, on average, stable over time.

²⁷ OECD (2014a) cautions that these figures may be understated because most pension funds do not report the details of their fixed-income investments. In addition, investment in unlisted infrastructure equity is often included in “other asset classes.” Furthermore, some funds report their allocation to infrastructure through listed equity such as infrastructure corporates, which the OECD considers as indirect exposure.

However, some individual pension funds have relatively large direct exposure to infrastructure and have been increasing their allocation with target allocations ranging from 1 percent to over 20 percent of total assets. Canadian pension funds are particularly active in the sector. Canada's Ontario Municipal Employees Retirement System (OMERS) had allocation to unlisted infrastructure of 14.9 percent as of end-2013 with a target allocation of 21.5 percent while the Pension Plan Investment Board (CPPIB), Ontario Teachers' Pension Plan (OTPP), and Quebec Pension Plan had allocation of 5.5 percent, 8.4 percent, and 4 percent, respectively. In the U.S., CalPERS is considering increasing its target allocation to direct infrastructure from 0.4 percent to 2.3 percent of plan assets by 2018. The Australia Future Fund's allocation to infrastructure increased by 3.9 percentage points from 2010 to 2013. Several LPFs including France's ERAFP (Établissement de retraite additionnelle de la fonction publique), Spain's Bankia, Endesa, and Fonditel, and Mexico's Banamex also plan to establish new target allocations to infrastructure in coming years (OECD, 2014a).

A number of developments have contributed to the modest shift in direct investment in unlisted infrastructure. OECD (2014a) notes that investment managers are making adjustments to the fees and the terms and conditions of unlisted infrastructure funds. Indeed, such costs had discouraged investment in the sector, especially in greenfield projects in emerging and developing economies. Some pension funds are also strengthening their in-house expertise to invest directly or pool resources into co-investment platforms (as illustrated by the U.K.'s Pension Investment Platform (PIP), Canada-based Global Strategic Investment Alliance (GSIA), and Canada's CPPIB). In addition, some governments or development institutions are helping set up infrastructure funds, including through seed funding. OECD (2014a) notes that equity funds formed as partnerships of public and private institutions have the potential to become important sources of finance and at the same time provide organizational capacity and expertise to support infrastructure projects. In Africa, the African Infrastructure Development Fund (Africa50 Fund) promoted by the AfDB is an example of such a strategy. Other examples include the Philippine Investment Alliance for Infrastructure fund and the Marguerite Fund in Europe.

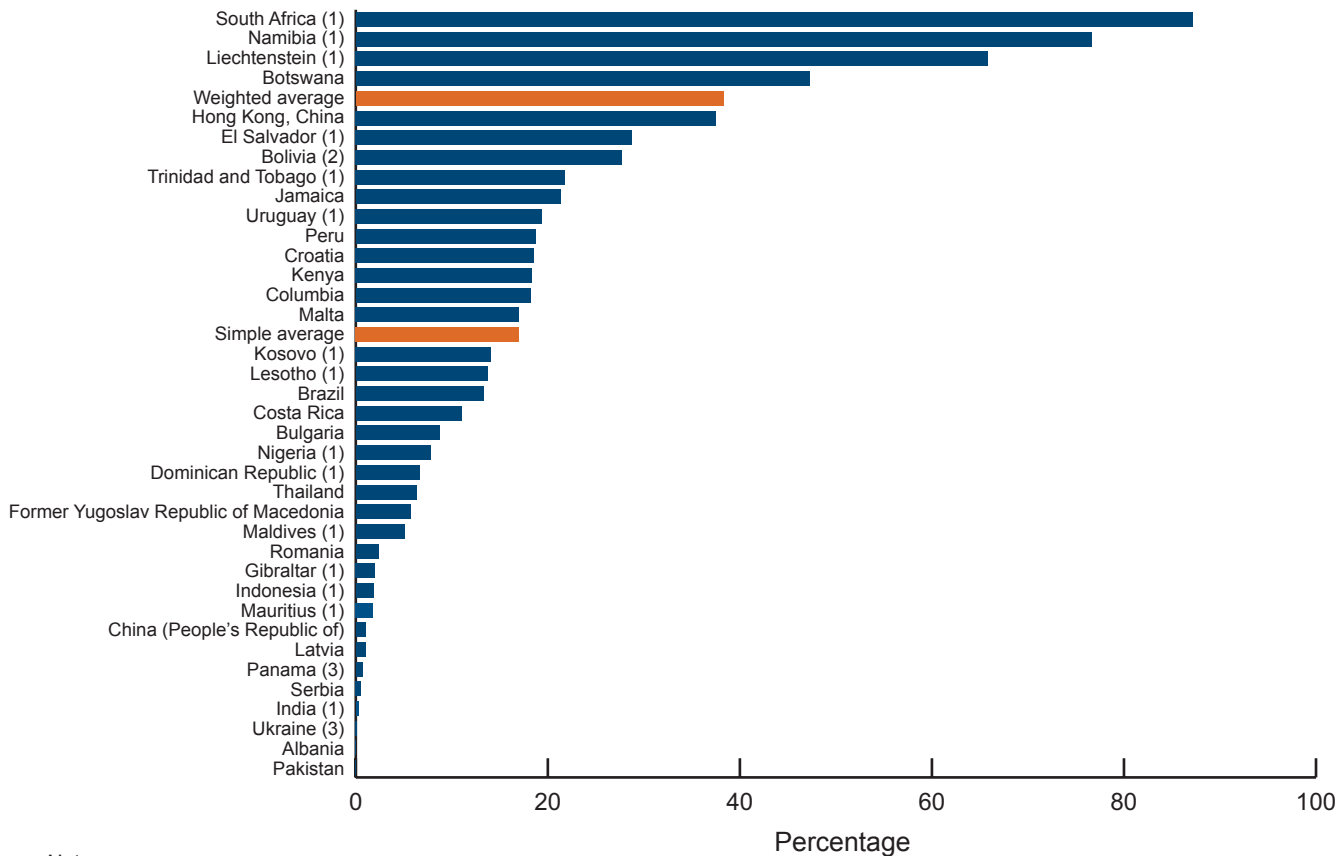
Another development in support of investment in infrastructure is the increased activity in loans and bonds such as senior and mezzanine loans and bonds, including "green bonds." For instance, Argentina's Sustainability Guarantee Fund reported that it allocated 13.6 percent of its assets to infrastructure loans and bonds in 2013. The fund is required by statute to invest up to 20 percent of its portfolio in domestic infrastructure projects. Such a mandate to invest in infrastructure is in line with other PPRFs that have the mandate to contribute to economic development in addition to helping fund social security benefits. Australia's Future Fund invests in critical infrastructure such as transportation, communications, energy, and water. As part of its Developmental Investments mandate, South Africa's GEPF invests in infrastructure assets and is the largest investor in the Pan-African Infrastructure Development Fund (PAIDF), which invests directly and indirectly in infrastructure including in transportation, telecommunications, energy, water, and sanitation.

The next section contrasts the international evidence discussed above to the experience of African pension funds.

African pension funds infrastructure investment

Available data indicate that a few pension funds in Africa are relatively large. When ranked by their assets as a share of GDP, pension funds in South Africa (87.1 percent), Namibia (76.6 percent), and Botswana (47.3 percent) rank among the four largest in a sample of 38 emerging economies. Kenya (18.3 percent), which has the fourth-

Figure 2. Importance of pension funds relative to the size of the economy in selected non-OECD countries, 2013 (in percent of GDP)



- Notes:
1. Data refer to 2012.
 2. Data refer to 2010.
 3. Data refer to 2011.

Source: OECD Global Pension Statistics.

largest African pension system compares well with the average sample size of 17.0 percent of GDP. The relatively small size of Nigerian pension assets (7.8 percent) compares favorably to pension assets in a number of emerging markets such as India (0.3 percent).²⁸ In absolute terms, latest available data from African pension funds in 10 countries indicate that their assets under management stood at \$380 billion as of 2013 (Figure 2).²⁹

²⁸ See Pension Markets in Focus No. 11, OECD (2014c).

²⁹ See “Pension Funds and Private Equity: Unlocking Africa’s Potential,” Ashiagor, D, N. Satyamurthy, M. Casey, and J. Asare, Commonwealth Secretariat, 2014.

The relatively large size of pension funds together with their long-term investment horizon and focus on domestic assets are increasingly attracting the attention of policymakers to leverage pension assets for financing infrastructure. The OECD survey of large pension funds (OECD, 2013) shows that 33 pension funds in developed and emerging economies invested an average of 3.0 percent of their assets in unlisted infrastructure equity with a maximum of 14.9 percent (Canada's OMERS), and some funds not investing at all in unlisted equity. When other types of instruments are considered, including listed equity and debt, the average allocation to infrastructure is 5.3 percent of total assets with a maximum of 20.3 percent (Spain's Endesa) and a minimum of 0.1 percent (Spain's Fonditel). The only African fund that was included in the OECD (2014a) survey, the South African GEPF, invested 1.2 percent of total assets in infrastructure (including in the road network and the power sector).³⁰

Data from Inderst and Stewart (2014) indicate that pension funds in some African countries like Kenya, South Africa, Cape Verde, Tanzania, Uganda, and Swaziland are investing in infrastructure but comparable data on African pension funds investment in infrastructure are difficult to obtain. Instead, we use a simple simulation to assess the potential for African pension funds to invest in infrastructure.

In particular, we assume as a baseline scenario, that African pension funds use an allocation similar to that of the South African GEPF and that their assets grows by at least 1.2 percent per year. In this case, the exercise finds that they could allocate about \$4.6 billion per year to infrastructure. However, the data mask important disparities among countries, as South Africa alone accounts for 85 percent of the total assets under management for the 10 countries considered and more than 12 times the size of Nigerian pension funds. Excluding South Africa, pension assets would amount to \$57.7 billion resulting in less than \$1 billion per year available for infrastructure (Tables 1 and 2).

In a pessimistic scenario, we assume that African pension funds use the minimum allocation in the sample of 33 pension funds surveyed in OECD (2013), which would be equivalent to 0.1 percent of total assets. In such a case, African pension funds, excluding South Africa, would invest a total \$380 million in infrastructure and only \$58 million per year.

In contrast, in an optimistic scenario we assume that African pension funds would invest the maximum allocation in the sample of 33 pension funds or 20.3 percent of total assets per year. In this case, African pension funds would allocate a total of \$77 billion in infrastructure and \$11.7 billion per year, excluding South Africa.

Finally, if African countries were able to invest the same amount as the average pension funds or 5.3 percent of their assets per year, then they would invest a total of \$20.1 billion in infrastructure or \$3 billion, excluding South Africa.

The data above suggest that there are wide disparities in the current and potential investments of African pension funds in infrastructure, which may in part be explained by the differences in the type of pension schemes in different countries. For instance, in countries with pay-as-you-go systems, pension funds have a strong prefer-

³⁰ We use OECD (2013) for GEPF as we could not reconcile the figures in OECD (2014a) which show that GEPF's allocation to infrastructure is 0.1 percent of total assets in 2012 compared to 1.2 percent in 2013. We, however, include both figures in the simulation (baseline vs. pessimistic scenarios).

Table 1. African pension funds: Potential assets available for infrastructure

Country	Total assets (in USD million)	Allocation to infrastructure (in USD million)			
		Baseline (South Africa)	Pessimistic	Optimistic	Average
Botswana	6,000	72	6	1,218	318
Ghana	2,600	31	3	528	138
Kenya	7,280	87	7	1,478	386
Namibia	9,960	120	10	2,022	528
Nigeria	25,000	300	25	5,075	1,327
Rwanda	482	6	0	98	26
South Africa	322,000	3,864	322	65,366	17,086
Tanzania	3,100	37	3	629	164
Uganda	1,500	18	2	305	80
Zambia	1,800	22	2	365	96
Total	379,722	4,557	380	77,084	20,148
Total ex-South Africa	57,722	693	58	11,718	3,063

Source: MFW4A and author's estimates.

ence for liquid investments such as bank term deposits rather than relatively illiquid investments in infrastructure such as unlisted equity.

The potential for African pension funds to invest in infrastructure does not, however, translate automatically into actual investments. The case of Nigerian pension funds, which have not invested in infrastructure, offers a useful illustration. Indeed, OECD (2014a) reports that perceptions about a lack of stability in government policy and regulation as a barrier, along with sourcing suitably structured and bankable infrastructure projects have contributed to the reported lack of investment in infrastructure in Nigeria. One should also note that the Nigeria's Pension Reform Act, which repealed earlier pension laws and paved the way for pension assets to be invested in infrastructure, was only enacted in July 2014.

Another constraint for African pension funds is the scarcity of appropriate vehicles through which they can invest in infrastructure. However, the growing interest of private equity funds for African investments, including in infrastructure, may help reduce this constraint.³¹

The following section looks at the possible obstacles to pension funds investment in infrastructure (Appendix A offers an overview of African pension systems).

³¹ See, for instance, *Wall Street Journal* (2014). <http://www.wsj.com/articles/african-pensions-funds-invest-in-infrastructure-projects-1430985433>) and the African Private Equity & Venture Capital Association. <http://www.avca-africa.org/>

Table 2. Pension funds: Infrastructure investment in percent of total assets (2012)

Country	Name of the fund or institution	Assets in 2012 (USD million)	Infrastructure investment (% of total assets)			
			Unlisted equity	Listed equity	Debt	Total
Netherlands	ABP	412,433.90	1.7	...	...	1.7
United States	CalPERS	248,775.00	1.3	...	...	1.3
Canada	Canada Pension Plan Investment Board	173,586.90	5.9	0.1	...	6.0
Netherlands	PFZW	171,003.50	1.6	...	...	1.6
South Africa	GEPP	143,690.10	1.2	...	0.0	1.2
Canada	OTPP	127,876.80	6.1	...	...	6.1
Australia	Future Fund	85,726.80	6.4	...	0.0	6.4
Brazil	Previ	81,375.70	1.4	11.1	...	12.5
Netherlands	PMT	61,993.30	0.7	...	...	0.7
Canada	OMERS	61,763.50	14.8	...	...	14.8
United Kingdom	BT Pension Scheme	58,575.40	2.3	0.0	0.0	2.3
United Kingdom	USS	55,458.80	2.5	...	0.3	2.8
Australia	AustralianSuper	54,563.00	10.3	...	...	10.3
Denmark	PFA Pension	51,723.80	0.8	...	0.0	0.8
Argentina	Sustainability Guarantee Fund	49,979.30	...	...	13.0	13.0
Chile	AFP Provida	45,843.60	0.3	...	1.2	1.5
Canada	Quebec Pension Plan	39,258.70	3.1	...	...	3.1
Finland	Ilmarinen	38,949.00	0.2	...	...	0.2
Sweden	AP3	35,814.00	3.0	0.4	...	3.4
Sweden	AP4	35,303.60	0.0	7.2	...	7.2
Brazil	FUNCEF	24,463.80	5.9	...	...	5.9
Australia	Sunsuper	22,512.30	4.3	...	0.3	4.6
Mexico	Afore XXI Banorte	18,946.00	0.0	0.8	0.8	1.6
New Zealand	New Zealand Superannuation Fund	17,158.00	3.4	4.4	0.0	7.8
Israel	Menora-Mivtachim	12,352.50	4.1	...	...	4.1
Peru	AFP Horizonte Peru	8,974.80	0.3	...	...	0.3
Turkey	OYAK	8,785.80	5.1	...	...	5.1
Chile	Pension Reserve Fund	5,883.30	0.0	3.7	5.1	8.8
Spain	Fonditel	4,501.50	0.1	0.0	...	0.1
Brazil	FAPES	4,309.90	...	5.4	5.1	10.5
Portugal	CGD Pensões	2,052.30	...	1.7	0.0	1.7
Spain	Endesa	1,758.70	0.0	13.1	7.2	20.3
Portugal Banco	BPI Pension Fund	1,225.30	...	7.4	...	7.4
Average		65,655.1	3.0	4.3	2.4	5.3
Maximum		412,433.9	14.8	13.1	13.0	20.3
Minimum		1,225.3	0.0	0.0	0.0	0.1

Source: OECD (2013).

IV. OBSTACLES TO PENSION FUNDS INVESTMENT IN INFRASTRUCTURE

The extent to which pension funds can invest in infrastructure depends on the availability of assets in the pension system. Asset availability, in turn, is driven by a number of factors including the pension system's environment, design, and performance. Even in a well-performing pension system with ample assets available for investments, the governance, regulation, and supervision of pension funds can restrict those funds' ability to actually invest in infrastructure. If such constraints are lifted, then pension funds need to consider the risks of infrastructure projects and demand a fair, transparent, clear, and predictable policy framework to invest in infrastructure assets. Once this hurdle is overcome, pension funds will need adequate financial and capital market instruments to implement their investment decisions.

Practical Steps Taken By NEPAD to Address Obstacles to Investment in Infrastructure

Some practical steps taken by the NEPAD Agency to address some of these obstacles:

In 2016, the NEPAD Continental Business Network's focus has been on mobilizing the private sectors and demonstrating the critical role they need to play in de-risking infrastructure development projects identified under PIDA. The CBN held three high-level forums to discuss de-risking PIDA infrastructure projects:

CBN High-Level Leaders' Dialogue on De-Risking PIDA Infrastructure Projects

The CBN held a High-Level Leaders' Dialogue in May 2016 on the sidelines of the African Development Bank Annual Meetings in Lusaka, Zambia. The Leaders' Dialogue examined the role of the private sector in de-risking PIDA projects. The event hosted over 100 industry leaders, CEOs, and senior executives in the business sector, high-level government officials, and representatives of development and multilateral organizations.

Overall, the meeting highlighted the need to strike the right balance between social and commercial considerations and highlighted a lack of suitably structured investment vehicles and risk-return profiles as fundamental to the issue of de-risking of the PIDA projects. Some challenges resulting in project failure were also highlighted, including investment and technology failure, and structural weakness of projects. The meeting outcomes and recommendations of this meeting included: simplifying the project preparation and implementation process; incentivizing global investment flows from the world to Africa to complement the much needed funds for PIDA implementation; and creating an expedient and transparent procurement framework that incentivizes project developers to invest in the project development phase and institutional investors to participate. In particular, there was a consensus to:

- Champion the improvement of the enabling environment and employment of capital markets as a vehicle for infrastructure investing.
- Establish a collaborative work process that can mitigate risks in PIDA and regional projects, focused on identifying project viability gaps to achieve *investability*.

- Encourage the use of project finance structures, working with the wide array of public and private sector leaders and development partners, to overcome project viability gaps and support the de-risking and financial close of PIDA and large infrastructure projects.
- Champion the scaling up and utilization of existing and innovative risk mitigation instruments to incentivize investment in infrastructure, working closely with finance experts and risk mitigation labs made up of public and private sector leaders.
- Champion a platform and process to better understand the private sector project development ecosystem and investment criteria, and invest in the required increased effectiveness and efficiency of the project development cycle.

The public sector worldwide expects private capital, especially institutional investors, to provide significant funding for infrastructure projects. The match is—in theory—aligned: Institutional investors are faced with a low interest rate environment and infrastructure projects provide them with a predictable, inflation-adjusted cash flow that has a low correlation with existing investment returns.

Pension and sovereign wealth fund capital mobilization for PIDA projects

In September 2016, the CBN, in partnership with the AfDB, the United Nations Economic Commission for Africa (UNECA) and Africa investor (Ai) held a Breakfast Dialogue on Pension and Sovereign Wealth Fund Capital Mobilization for PIDA Projects at NASDAQ in New York. The dialogue followed the successful CBN High-Level Leaders' Dialogue in Lusaka. It built on one of the recommendations emanating from the 2016 De-Risking Report on the need to mobilize Africa's institutional infrastructure investment community, including African pension and sovereign wealth fund capital, as the key to meeting the financing gap that is currently hindering Africa's infrastructure development.

The CBN high-level panel convened leaders to discuss practical initiatives and opportunities to mobilize institutional asset owners to invest in African infrastructure. The key message was the need for Africa to have quality institutions and strategies that have to be disseminated across the various sectors and to the country leadership.

The meeting discussed innovative co-investment models needed to drive investment, sustain growth, and mitigate risk. Sovereign wealth fund leaders discussed and assessed domestic and regional investment opportunities, including investment laws, governance, and portfolio and political risk considerations to optimize infrastructure investments and allocations. It explored potential funding of the 16 PIDA projects (lending, soft loans, grants, etc.) and strategic ways to mobilize sovereign wealth and pension fund capital.

Africa needs to move away from the narrow focus on individual African countries and domestic markets and instead consider a regional approach to infrastructure financing. Key recommendations from the meeting included:

- Mobilize domestic resources, central bank reserves, pension systems, and sovereign wealth assets for the continent to take the lead in the African infrastructure space.
- Improve bankability and project packaging in order to have increased access to capital.
- Segment mega projects into smaller chunks or phases, with shorter timelines to make them more manageable and easier to finance and implement.
- Facilitate and unlock greater participation of Africa’s private sector and sovereign wealth funds in infrastructure development to reduce the funding gap and the current dominance of the public sector in infrastructure.
- Craft new ways to support strategic infrastructure that promotes growth, trade, and development and redresses the poor state of physical trade facilitation infrastructure facilities across Africa.

NEPAD-Africa Week

Furthermore, during the NEPAD Africa Week organized by the Office of the Special Adviser on Africa in collaboration with the African Union Observer Mission to the United Nations from October 10–14, 2016, the NEPAD Agency convened the NEPAD CBN High-Level Dialogue on “de-risking” Africa.

This side event served as an opportunity to leverage support by the strategic partnerships that the NEPAD Agency has developed with financial institutions and was hosted by the NEPAD Agency with the context of its Regional Infrastructure and Trade Programme. Presentation of the 2016 De-Risking Report at this forum, in addition to the momentum gained from other meetings, aimed at creating confidence and appetite for special investment vehicles for remittance funds to be invested in Africa’s infrastructure.

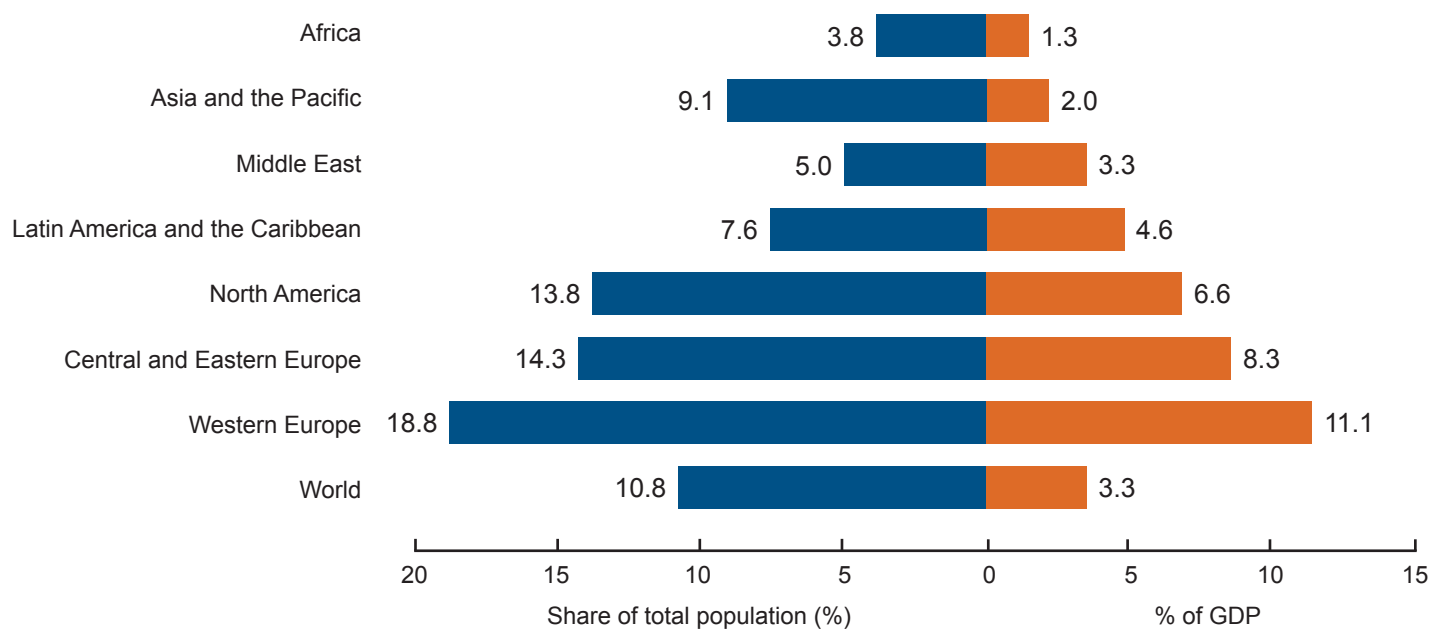
The NEPAD Agency took advantage of the meeting to share the findings and recommendations of the CBN 2016 De-Risking Report. The report made 10 major recommendations aimed at prompting the changes in risk mitigation and overall development interventions needed to accelerate the development and finance of Africa’s national and regional infrastructure projects.

A. Pension systems’ environment, design, and performance

Environment

Pension systems are mainly designed to provide income security in old age, and sub-Saharan African countries are in a “demographic sweet spot” as the region’s old-age dependency ratio—the proportion of the population that is elderly over the working-age population—is low and the impact of aging has not yet hit their pension systems. As a result, they have considerable scope to develop their pension systems (Stewart and Yermo, 2009). Africa has one of the youngest populations in the world, and the share of older persons in the total population is the lowest at about 3.8 percent. Africa also spends the least for social protection for older persons at 1.3 percent of GDP (Figure 3). In contrast, the world average for the share of older persons is 10.8 percent of the total population, and expenditures on their social protection cost about 3.3 percent of GDP (ILO, 2014).

Figure 3. Non-health public social protection expenditure on pensions and other benefits for older persons, and share of older population (65 and above) in total population, 2010-2011



■ Non-health public social protection expenditure for older persons

■ Share of persons aged 65 and above in total population

Source: *World Social Protection Report 2014-2015*, ILO (2014).

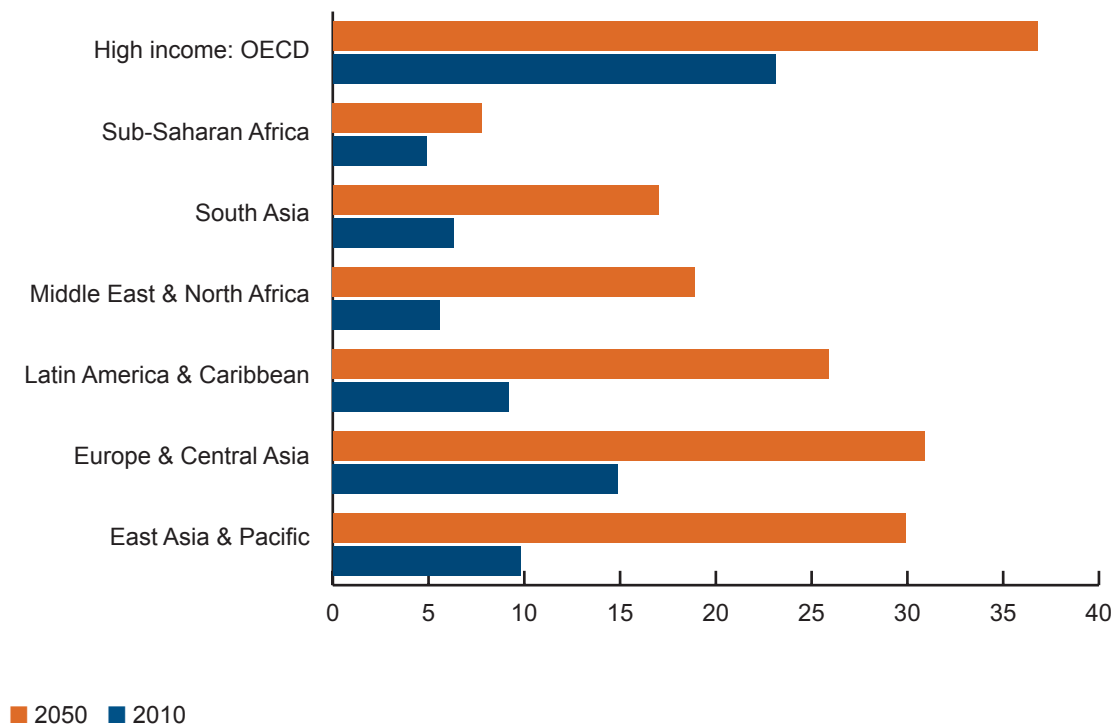
The population of the elderly in SSA is set to increase, albeit at a lower rate than other regions, following demographic trends. The dependency ratio is projected to increase from 4.9 percent to about 7.8 percent in 2050 (Figure 4). The evolution of the dependency rate in SSA is the result of fertility and life expectancy trends. For instance, SSA has the lowest life expectancy of adults and the highest fertility rate in the world, although its growth will gradually decrease in the future.

However, the high share of the informal sector limits the level of pension coverage in SSA to the public sector. SSA economies are heavily dependent on informal sector workers such as farmers, the self-employed, and other informal sector workers who typically do not contribute to formal pension systems. In such an environment, contributions to the pension system are predominantly from public sector employees. Countries such as South Africa have sought to expand coverage by including domestic workers who were previously excluded from the pension system.

In contrast to sub-Saharan Africa, demographic trends in North Africa are less favorable. Indeed, North Africa will experience the most rapid increase in the dependency ratio from 5.6 percent to 18.9 percent in 2050, mainly because of the aging of its population. Also, North Africa will continue to have the highest average life expectancy in Africa. In addition, labor market indicators show that North Africa has a relatively lower base of contributors to its pension system.

Labor market indicators show that SSA has a large potential base of contributors to its pension system. The labor participation rate, which measures the proportion of a country's working-age population actively engaged in the

Figure 4. Old-age dependency ratio (ages 65+/15-64), 2010-2050



Source: World Bank Statistics.

labor market (either by working or looking for work) is high in SSA and could increase further if the participation of women increases and the rapid urbanization trend in the region continues (Figure 5). Indeed, in many African countries, women are more likely to be employed in rural, relatively poorly paid, and informal work as men have moved to better-paying jobs in urban areas.

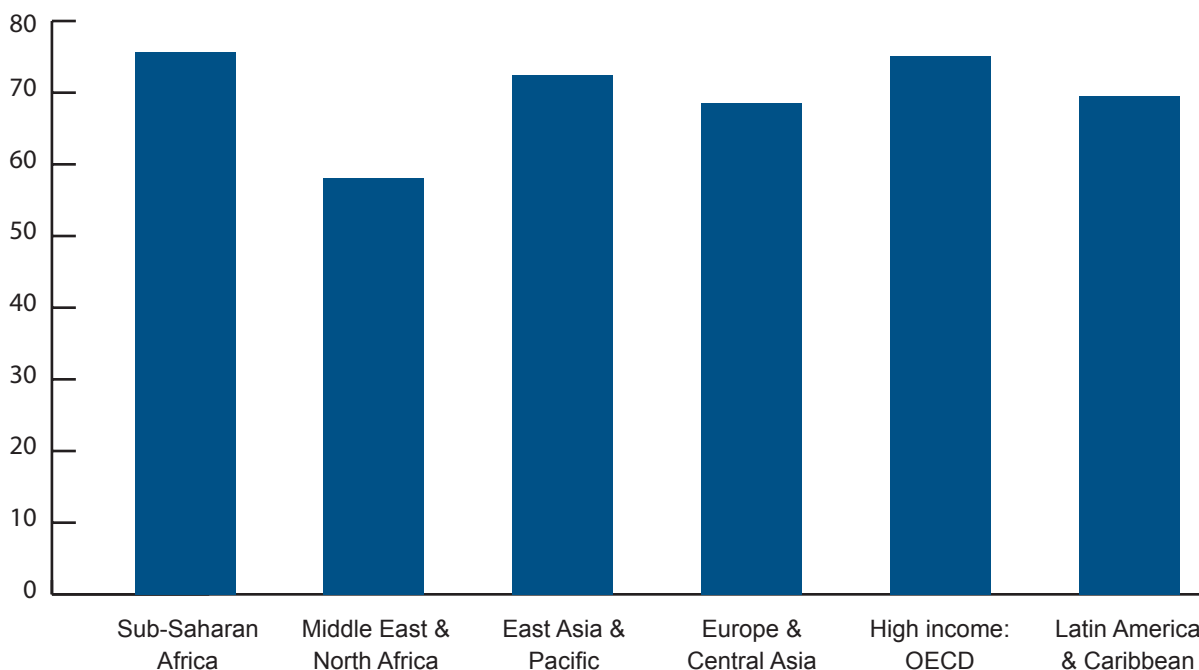
Pension system design

The design of pension systems can have important effects on fiscal sustainability and more generally on the performance of pension funds, which in turn determine the level of assets available for investment. The World Bank classification of pension systems includes three main pillars:³²

- i. A non-contributory “zero pillar,” which includes schemes that provide benefits regardless of contribution history in the form of cash transfers targeted to the elderly. These schemes are sometimes called “social

³² In addition, the World Bank classification considers voluntary arrangements that are not formally integrated in most mandatory social security systems: a complementary voluntary “third pillar” and a non-financial “fourth pillar,” which includes access to informal support, other formal social programs such as health and housing, and other individual financial and non-financial assets such as home ownership and reverse mortgages. See Pallares-Miralles, Romero, and Whitehouse (2012).

Figure 5. Labor force participation rate (% total population 15-56), 2000-2010



Source: World Bank Statistics.

pensions” given their social-policy goal of offering a safety-net minimum in the form of poverty-alleviating income in old age. Benefits are publicly provided and are typically financed out of general government revenues. Programs can be targeted to pay benefits only to the poor elderly. They can also be universal and pay a flat-rate benefit to all older people meeting certain age and citizenship eligibility criteria.

- ii. A mandatory earnings-based “first pillar,” which has the objective of replacing earnings of covered members. The schemes are typically financed on a pure PAYG where contributions from today’s workers pay the benefits for today’s retirees. They can also be partially funded when the schemes accumulate assets, which will be later used to pay for some portion of the benefits.
- iii. A mandatory savings-based “second pillar,” which includes specialized and privately managed pension saving schemes rather than general contractual savings vehicles such as bank accounts, mutual funds, and life insurance policies that may also be used for retirement-related savings. Such schemes are typically fully funded and privately provided defined contribution (DC) arrangements.

Table 3. Pension system architecture by region

Region	Number of countries	Modality of pillars			National scheme and civil servants scheme		
		Pillar Zero	Pillar 1	Pillar 2	Separated	Integrated	Partially integrated
East Asia & Pacific	28	11	17	1	9	7	2
Eastern Europe & Central Asia	30	17	30	14	1	29	0
Latin America & Caribbean	37	19	29	10	3	22	5
Middle East & North Africa	20	2	18	1	7	8	3
South Asia	8	4	4	1	6	1	0
Sub-Saharan Africa	46	8	33	2	24	11	1
High-income OECD	24	20	20	3	10	11	2
World	193	81	151	32	60	89	13

Source: *International Patterns of Pension Provision II*. World Bank (2014).

Pillar Zero and in particular Pillar 1 schemes are the most common in Africa. Out of 46 sub-Saharan African countries where data are available, eight have adopted a Pillar Zero scheme while 33 use a Pillar 1 scheme (Table 3 and Appendix Table B.1.). Given the importance of the informal sector and for historical reasons (as most systems were inherited from colonial regimes), pension schemes for civil servants and other public sector employees (such as in the military, the education sector, and publicly owned enterprises) are separate from other schemes.

Pallares-Miralles, Romero, and Whitehouse (2012) stress the trade-offs inherent in the design of pension systems. Higher pensions from zero- or first-pillar schemes would improve the adequacy of retirement benefits but typically impose challenges in regard to maintaining fiscal sustainability and economic efficiency if tax financed. In contrast, there can be synergies between the criteria. For example, extending coverage of pensions for current workers should also improve the adequacy of future retirement benefits for today's workers.

Pension system performance

The better the performance of a pension system, the greater its ability to finance infrastructure. Conversely, poor-performing or unsustainable pension systems will have limited or no scope to invest in infrastructure. The ultimate measure against which any pension system should be evaluated is the ability to effectively deliver the promised benefits (provide income replacement and alleviate old-age poverty) in an efficient and secure

manner over multiple generations. For instance, the World Bank identifies six criteria to measure the performance of pension systems:

- i. Coverage of the pension system by both mandatory and voluntary schemes.
- ii. Adequacy of retirement benefits.
- iii. Financial sustainability and affordability of pensions to taxpayers and contributors.
- iv. Economic efficiency by minimizing the distortions of the retirement-income system on individuals' economic behavior, such as labor supply and savings outside of pension plans.
- v. Administrative efficiency by keeping the cost of collecting contributions, paying benefits, and (where necessary) managing investments as low as possible.
- vi. Security of benefits in the face of different risks and uncertainties.

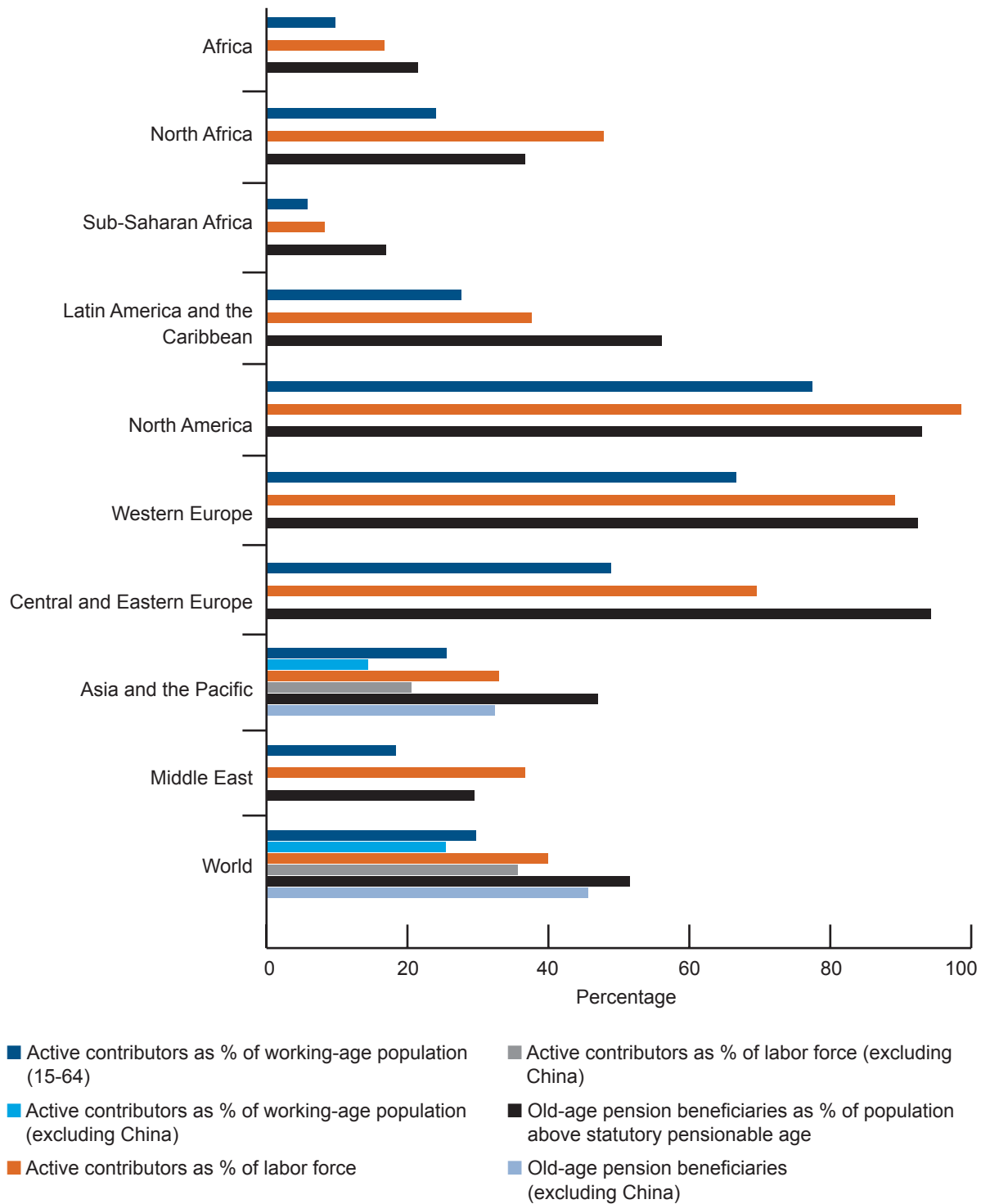
The low level of pension coverage in Africa, in part due to the relatively large share of the informal economy, limits the size of pension funds. In sub-Saharan Africa, only 8.4 percent of the labor force contributes to pension insurance and earns rights to a contributory pension compared to 47.4 percent in North Africa (Figure 6).³³ As in most low-income countries, the low level of contributor coverage ratio can be explained by the small share of wage and salary earners with formal employment contracts and the pervasiveness of informality, evasion, and inadequate enforcement of laws.

Indicators of effective (rather than legal) coverage show that Africa, and in particular sub-Saharan Africa, is lagging behind other regions when it comes to pension coverage.³⁴ Effective coverage ratios range from 5.9 percent of the working-age population in SSA to 77.5 percent in North America (Figure 6). In sub-Saharan Africa, less than one in five older persons (16.9 percent) receives an old-age pension compared to 36.7 percent in North Africa, 47.0 percent in Asia and the Pacific, and 90 percent in North America and Europe.

³³ ILO (2014) considers two main types of old-age pension schemes based on the type of periodic payments (called pensions or life annuities): (i) old-age pensions from contributory schemes of mandatory public social insurance and/or voluntary occupational or other private pension schemes; and (ii) old-age pensions from public non-contributory schemes. The "beneficiary coverage ratio" shows the percentage of older persons above statutory pensionable age receiving contributory or non-contributory pensions. The "contributory coverage ratio" shows the percentage of, respectively, those who are economically active ("contributor/labor force coverage ratio") and those of working age ("contributor/population coverage ratio") who contribute to existing contributory schemes.

³⁴ ILO (2014) defines legal coverage as the proportion of working-age population or the labor force covered by law with schemes providing periodic cash benefits once statutory pensionable age or other eligible age is reached. Legal coverage for old age ranges from about 30 percent in Asia and the Pacific and 32.8 percent in Africa to 76.4 percent in North America and over 80 percent in both Western and Central and Eastern Europe.

Figure 6. Effective pension coverage, by region, latest available year (%)



Source: World Social Protection Report 2014-2015, ILO (2014).

Some African countries have, nonetheless, made great progress in increasing pension coverage. ILO (2014) notes, for instance, that Lesotho's old-age pension scheme launched in 2004 now provides a pension to all people above the age of 70, compared to only 8.4 percent of older persons in 2000. The introduction of the Old Age Grant in Swaziland in 2005 expanded coverage among people aged 60 and older from 1.8 percent in 2000 to 96.3 percent in 2010. Tunisia improved pension coverage for the self-employed, domestic workers, farmers, fishers, and other low-income groups in 2002, increasing the proportion of pension beneficiaries among people aged 60 and over from 33.9 percent in 2000 to 68.8 percent in 2006.

ILO (2014) notes that broader pension coverage was the result of (i) the establishment or extension of non-contributory pension schemes that provide at least a basic level of protection for many older persons and/or (ii) the expansion of contributory schemes to previously uncovered groups of the population with other measures.

For instance, the design of the pension system can have an impact on its sustainability. Given the predominance of schemes covering public sector employees in Africa, the growth in civil service retirees entitled to benefits is creating a growing fiscal strain, especially in some countries where spending on the pensions of civil servants doubled during the 1990s. In addition to financial imbalances and low coverage in the region, other concerns include weak administrative systems that lead to an inefficient management of the pension plans (Pallares-Miralles, Romero, and Whitehouse (2012)).

The sustainability of different types of pension schemes has different implications for the financing of infrastructure. Pillar 1 PAYG scheme pensions can accumulate reserve funds when the government is able to collect more money than it pays out. Such reserves could then be allocated to infrastructure if the allocation is consistent with the pension's investment policy and allowed by the regulator. However, a PAYG system can become financially unsustainable if it accumulates deficits and its role in infrastructure finance is drastically limited. Pension systems in developing economies typically consist of PAYG social security systems. Moreover, given the relatively large size of the public and quasi-public sector, most pension funds in Africa fall in the PAYG scheme for government employees, the military, and workers in state-owned enterprises. Moreover, there is a very high concentration of pension assets in one or more large public pension reserve funds or social security reserve funds, in developing countries. Assets in one single institution can go up to 82 percent in Namibia (GIPF) and 95 percent in Uganda (NSSF).

In contrast, in Pillar 2-funded schemes, pensions are prefunded from regular contributions made by employers and/or employees during a working career. These funds are invested to provide a regular pension payment during retirement. For instance, South Africa and Botswana have large funded pension plans. Funded pension funds can consider investing in infrastructure if it is consistent with their investment policy and pension fund regulation.

Unsustainable PAYG schemes limit the role of the pension system in the financing of public investment and, in particular infrastructure, in at least two ways. First, when reserves are low or negative, the pension system does not have assets to invest in infrastructure. Second, when the system is not sustainable, it crowds out infrastructure investment by the government by putting further strain on public spending and diverts public resources that could

have gone to finance infrastructure towards public spending on pensions. Furthermore, as noted by Stewart and Yermo (2009), since pension coverage is typically restricted to civil servants (or a minority of relatively highly paid workers in formal sector employment), unsustainable schemes are highly regressive as they rely on indirect taxes such as the value-added tax to cross-subsidize pension payments which exceed contributions.

For instance, OECD (2015a) calls for an increase in public investment in physical infrastructure in Tunisia. However, the domestic pension system will play at best a very limited role in infrastructure investment because its financial sustainability is deteriorating. A key parameter of the financial sustainability of PAYG pension systems is the ratio of workers contributing to the pension system to recipients of retirement pensions. This ratio has declined in a few countries in Tunisia (and in other North African countries) leading to increases in public spending on pensions. Life expectancy in Tunisia increased to 75.6 years in 2013 from 70.3 years in 1990 and the legal age of retirement has remained set at 60. In addition, the ratio of gross pension in retirements to pre-retirement earnings (the gross replacement rate) is relatively high when compared to that in OECD countries. Under the PAYG system in Tunisia, population aging and the maturation of the pension system have contributed to public spending on pensions increasing to 3.3 percent of GDP in 2013 up from 2.3 percent in 2006. This is unsustainable and, therefore, calls for the reform of the pension system to ensure its financial sustainability. In Morocco, World Bank (2014a) notes that pension funds would, to varying degrees, soon have to sell reserves to pay retirees and other beneficiaries. As a result, pension reform in Morocco is needed to meet the authorities' objective of sustaining local capital markets.

Pension reform

In many countries, pension reform leading to a well-performing pension system would not only strengthen old-age income security and reduce poverty among the elderly, but also increase the assets available for investments, including infrastructure investment. In addition, as noted by Stewart and Yermo (2009), pension reform can help reduce the fiscal cost of existing pension schemes, which is crowding out spending on infrastructure. Not surprisingly, there is often a push to reform pension funds towards Pillar 2 pension schemes.

However, the mixed results of earlier pension reforms provide some useful lessons to African countries. Indeed, following the 1981 Chilean reform, a number of countries in Latin America and Central and Eastern Europe decided in the 1990s and early 2000s to channel social security contributions (up to one-third in some countries) into mandatory, privately managed individual accounts. However, these changes did not improve coverage and compliance as expected, but rather led to an increase in administrative costs. As a result, these countries initiated a number of "re-reforms" and "unprivatization" of their systems starting in Chile in 2008. The main objective of the Chilean re-reform was to build a floor of protection to guarantee a minimum old-age income by introducing non-contributory schemes. To do so, the existing mandatory, privately managed, fully funded scheme was complemented by two new public schemes and a new public pension fund was considered. In addition, in order to reduce the administrative costs of the private pension tier, public supervision was strengthened and greater competition among pension fund administrators was encouraged.

In Central and Eastern Europe, re-reform sought to reduce fiscal costs since privatization of social security pensions in Poland, Hungary, and Slovakia increased fiscal deficits by about 1.5 percent of GDP per year. As a result, government contributions to the funded tier in Poland were reduced from 7.3 percent to 2.9 percent of wages and participation was made voluntary. Furthermore, in 2014, the Polish government transferred all assets kept in government bonds to a social insurance institution banning any further investment by the remaining tier. This measure was aimed at breaking the circular flow whereby private pension funds invested most of their assets in bonds issued by the governments to cover the deficits caused by channeling contributions to private pension funds (see ILO, 2014).

Recent pension reform in Nigeria sought to address the challenges from an unfunded defined benefit pension scheme in the public sector and the absence of adequate schemes in the private sector. Prior to its reform, the Nigerian pension system was challenged by large backlogs in payment of public pension, inadequate data on beneficiaries, and the lack of standardization of private schemes.³⁵ In Egypt, the new pension system seeks to achieve long-term sustainability and fiscal neutrality. Reform in Egypt was prompted by the inefficient investment of reserves that led to an increasing actuarial deficit of the pension system.

However, governance considerations are critical to the reform of pension systems. ILO (2014) notes that the electoral cycle is a key impediment to reform as politicians make short-term decisions while decisions on pension systems have a longer-term horizon and affect both current and future generations. Furthermore, politicians are also tempted to use pension fund reserves both public and private as a “piggy bank” for purposes other than financing current and future pensions. At the pension fund level, addressing governance failures leading to weak administrative systems, inefficient management, evasion, and inadequate enforcement of existing laws are preconditions for any pension fund to function effectively.

B. Governance, regulation, and supervision of pension funds

Even when reform is successful and pension assets are available for investment, their allocation to infrastructure depends (in principle) on the governance of the pension funds, and their regulation and supervision. Pension trustees have a fiduciary duty toward their members, and their primary objective is to pay the pensions owed to the pensioners. ILO social security standards provide guidelines for different dimensions of benefit adequacy (age of eligibility and other entitlement conditions, benefit level, and protection of purchasing power) and at the same time require careful monitoring of the long-term financial position of pension schemes through actuarial valuations undertaken both regularly and whenever any important parameters of the scheme change. Policy decisions to adjust and reform schemes and systems are, however, left to governments and their social partners.

³⁵ See “Pension Funds and Private Equity: Unlocking Africa’s Potential,” Ashiagor. D, N. Satyamurthy, M. Casey, and J. Asare, Commonwealth Secretariat, 2014.

Investment in development goals such as infrastructure is typically a secondary objective and has to be consistent with the pensions' investment policy (which includes a number of constraints in terms of prudential investment, liquidity, and diversification). Given the specialized skills required to exercise their fiduciary duties, it is also important to build the capacity of pension trustees and fund managers.

For instance, infrastructure investments have a number of characteristics that could discourage potential investors. High upfront costs, lack of liquidity, and a lengthy investment horizon of the projects require significant scale and dedicated resources both to understand the risks involved and to manage them, resources that many investors are lacking. OECD (2014a) stresses that more expertise at the level of pension board members will be required, perhaps including specialists that have appropriate asset and risk management skills. Arezki and Sy (2015) note three main challenges for institutional investors contemplating investing in infrastructure assets. First, institutional investors typically lack in-house expertise to invest directly in infrastructure. At times, it is even crucial to possess the adequate expertise at the sectoral level (for instance, transportation, energy, information and communication technology, water). Second, there are inherent risks to such investment in infrastructure. That is, infrastructure investment entails different types of risk compared to other asset classes. For example, the construction risks inherent in large-scale infrastructure can deter long-term investors whose propensity to take risks is rather low considering their main objective, which is to preserve wealth. Third, the lack of standardization of underlying infrastructure projects is an important impediment to the scaling up of investment into infrastructure-based assets. Large physical infrastructure projects are indeed complex and can differ widely from one country to the next.

For those reasons, banks, and in particular development banks, which have expertise in infrastructure and flexibility in terms of investment horizon and contract renegotiation, may play a key role in paving the way for a viable engagement of institutional investors. Mbeng Mezui and Hundal (2013) also note that pension funds in all markets are reluctant to assume construction risk and give the example of the European Investment Bank (EIB), which has launched an initiative to encourage institutional investor participation in infrastructure.

Different types of pension funds have different objectives, motivations, investment requirements, and guidelines. For example, the investment strategy of defined benefit scheme pension funds (under which pension payments are linked to a person's latest earnings prior to retirement) such as Tanzania's NSSF is driven by "asset liability matching" as it has to make sure that it can generate enough returns to meet the benefits of its pensioners. In contrast, defined contribution pension funds (under which pensions are paid out of the contributions and investment returns accumulated during working life) often need to hold more liquid investments to accommodate easy withdrawal or switching options for their members. The liability profile of pension funds determines the maturity of their investment. For instance, mature pension funds with higher shorter-term obligations favor short-term and liquid assets and have a reduced appetite for longer-term infrastructure investment.

Investment in infrastructure has also to comply with regulatory and supervisory requirements, including funding and solvency regimes, and accounting rules. For instance, a regulatory requirement for daily pricing of pension fund portfolios will discourage investment in illiquid instruments. In fact, unfavorable and rigid regulatory regimes are often

identified as major obstacles to pension funds investment in infrastructure. Quantitative and qualitative restrictions on investments in infrastructure include limits on infrastructure assets (typically 5 percent); requirements to maintain statutory reserve fund(s); and liquidity limits. In addition, limited securities issued in African capital and financial markets, and limited instruments that can enable easy investment exit strategies were also identified as constraining pension funds investment in infrastructure. There are differences across countries. For example, South Africa's Regulation 28 was revised in 2011 to introduce new investment categories for pension funds, including "private equity" and "hedge fund." Pension funds in South Africa are allowed to invest up to 15 percent of their assets in hedge funds and private equity funds, whether local or foreign, and socially responsible investments are encouraged.³⁶

OECD (2014a) recommends that regulatory and accounting frameworks that are conducive to a long-term approach to investment should balance the need for stability and transparency with the goal of ensuring that institutional investors can hold long-term assets on their balance sheets. In particular, evaluating how regulatory requirements such as the need for mark-to-market accounting, and how such requirements affect institutional investors' ability to deliver long-term success is a critical step in the process.

Among international efforts to leverage pension funds for infrastructure and other long-term investment, the G-20-OECD High-Level Principles of Long-Term Investment Financing by Institutional Investors aim at facilitating and promoting long-term investment by institutional investors, including pension funds.³⁷ In particular, the Principles seek to help policymakers design a policy and regulatory framework that encourages institutional investors to invest in long-term assets in a manner consistent with their investment horizon and risk-return objectives.

C. Policy framework for investment in infrastructure

Pension funds—just like other investors, domestic and foreign—need a fair, transparent, clear, and predictable policy framework to invest in infrastructure and other assets. This is important as infrastructure assets have a number of characteristics that increase investors' perception of risk. First, infrastructure projects typically involve economies of scale and often lead to natural monopolies with high social benefits and, at times, lower private returns. As a result, infrastructure projects may require heavy government involvement. Second, infrastructure projects are often large and long-lived with a significant initial investment but with cash flows that accrue over a long horizon.

In this regard, improving the policy framework for investment can be useful to countries seeking to develop the investor base for infrastructure.³⁸ For instance, the OECD's Policy Framework for Investment (PFI) uses self-assessments and/or an external assessment by the OECD to help a country elaborate policies for capacity building and private sector development strategies, and inform the regional dialogue (OECD, 2015b). The PFI's investment policy refers not only to domestic laws, regulations, and policies relating to investment but also goals and expectations concerning the contribution of investment to sustainable development, such as infrastructure.³⁹ In particular,

³⁶ <http://www.treasury.gov.za/public%20comments/Explanatory%20memorandum%20to%20draft%20regulation%2028.pdf>

³⁷ <http://www.oecd.org/daf/fin/private-pensions/G20-OECD-Principles-LTI-Financing.pdf>

³⁸ Tanzania took part in a voluntary investment policy review using the PFI, funded by the U.S. government.

³⁹ OECD (2015b). <http://www.oecd.org/investment/pfi.htm>

the PFI looks at the key elements of 12 different policy areas affecting investment so as to ensure policy coherence: investment policy, investment promotion and facilitation, competition, trade, taxation, corporate governance, finance, infrastructure, developing human resources, policies to promote responsible business conduct, investment in support of green growth, and broader issues of public governance.

The recent OECD policy guidance for investment in clean energy, which is based on the PFI illustrates how policymakers can identify ways to mobilize private investment in infrastructure (OECD, 2015c). The policy guidance focuses on electricity generation from renewable energy sources and improved energy efficiency in the electricity sector, and provides a list of issues and questions on five areas of the PFI (investment policy, investment promotion and facilitation, competition policy, financial market policy, and public governance).

The policy guidance recognizes the challenges that clean energy infrastructure developers have in accessing affordable long-term finance given the shallowness and illiquidity of many financial markets, the difficulty in accessing international capital markets, the insufficient knowledge of local markets, and the higher technology risk. More importantly for institutional investors, the guidance specifically asks what steps the government is taking to attract institutional investors in clean energy infrastructure investment and to develop and strengthen domestic financial markets. The report stresses the importance of country context in determining the role of pension funds in infrastructure finance. For instance, it notes that in Brazil, the national development bank (BNDES), plays such a major role in the provision of long-term debt and equity financing that pension (and capital market) financing of infrastructure is more limited.

The report also highlights the importance of policy coherence and notes that leveraging institutional investment into clean energy infrastructure requires enhancement of the business climate as well as targeted reforms of the laws and regulations that apply to institutional investors. It stresses that in much of SSA, institutional investors face limits in asset class and geographical exposure and, in a context of illiquid and narrow financial markets, this often forces them to invest in short-term government securities, which leads to maturity mismatches.

D. Infrastructure financing instruments available to pension funds

Even in well-performing pension systems where the governance, regulation, and supervision of pension funds are conducive to investment in infrastructure and there is a sound policy framework for investment, there is still a need for adequate instruments to channel pension fund assets into the infrastructure sector. Pension funds can use a number of channels to invest in infrastructure. Direct exposure is gained mainly through the unlisted equity instruments (direct investment in projects and infrastructure funds) and project bonds, while indirect exposure is normally associated with listed equity and corporate debt. More specifically, pension funds can rely on a number of options such as:⁴⁰

- Listed infrastructure companies: investment in equity of companies that are exposed to infrastructure.
- Infrastructure funds: investment in publicly listed equity funds trading on a stock exchange or in unlisted equity funds that focus on infrastructure investments.

⁴⁰ See OECD (2014b).

- Direct investment (or co-investment along infrastructure funds): investment in equity of a single-asset project company or a portfolio of infrastructure assets that provide diversification among geographies and sectors.
- Debt financing: lending to the owner or operators of the infrastructure, for instance through project bonds or general obligation bonds.

Pension fund investment in Africa has taken a number of different routes. South Africa has the largest variety of instruments available to institutional investors, and pension funds have invested in infrastructure using project finance loans for toll roads, municipal bonds, and jointly owned infrastructure funds. Pension funds in other countries have favored instruments such as corporate bonds (Cape Verde, Uganda, Mozambique) and government bonds earmarked for infrastructure financing (Kenya, Senegal, Ghana) as well as state bonds and government-sponsored infrastructure funds (Nigeria), regional funds (Ghana's SSNIT), and infrastructure funds (Nigeria Infrastructure Fund) (see Appendix A below and Appendix Table C.1.). In addition, the listing of an infrastructure bond on the domestic stock exchange is under consideration in Namibia.

Mbeng Mezui and Hundal (2013) also note the issuance of bonds to invest in infrastructure with limited exposure to project risk by the central government in Kenya (with tax incentives to investors); parastatals in South Africa, Kenya, and Namibia; and sub-sovereign issuers in Nigeria and South Africa. In contrast, corporate infrastructure issuers are mainly from the telecommunication sector. Pension funds have directly participated in infrastructure investment through loans and private placements in South Africa and in the East African Community.

Interestingly, project bonds that are well-suited to finance the infrastructure sector and have been used in Asia and Latin America have seldom been used to attract African (and foreign) institutional investors. Unlike bonds issued by African governments, which have a promise (but not an obligation) to invest in infrastructure and are paid out of fiscal revenues, infrastructure project bonds are repaid from cash generated by a specific project (such as a toll road).

Mbeng Mezui and Hundal (2013) identify a number of lessons from countries such as Chile and Malaysia that have successfully financed their infrastructure using infrastructure project bonds. They note that governments in these countries have played an active role in creating an enabling environment for infrastructure investment and capital markets development. In particular, the following features were essential in developing infrastructure project bonds: (i) political and economic stability leading to falling inflation and interest rates; (ii) a broadening of the domestic investor base through pension fund reform; and (iii) capital market development through suitable regulation and issuance of long-dated government and parastatal bonds; and (iv) a restructuring of key infrastructure sectors and parastatals together with a suitable regulatory environment suitable for private participation (including risk mitigation instruments). These pre-conditions for infrastructure bonds are also very relevant for other types of infrastructure financing instruments whether their repayment is specifically tied to an infrastructure project or repaid for fiscal revenues.

In Africa, Mbeng Mezui and Hundal (2013) stress that a weak enabling environment is one of the key barriers to infrastructure finance. A number of parastatals such as utilities have financial and governance problems, the regulatory and tariff framework in many sectors is incomplete, and although many countries have established public-private partnership (PPP) laws, they often lack resources and the capacity to prepare bankable projects for investors. Parastatals, rather than the government, are often the sponsors of infrastructure projects, and this setup limits investors' interest in infrastructure projects in many countries.

Beyond domestic options, instruments are also being developed at the regional level. The proposed African Infrastructure Development Fund (the Africa50 Fund) seeks to leverage co-financing from pension funds as well as from a wide range of investors, including the African Development Bank, other regional banks, private equity funds, sovereign wealth funds, private sector investors, and international investors (NEPAD and UNECA, 2014). Other initiatives to spur regional infrastructure have also been developed by multilateral institutions such as the East African Development Bank (EADB). At the global level, the World Bank Group, including the International Finance Corporation (IFC), is also supportive of infrastructure investment. Going forward, arrangements, including co-financing by domestic pension funds and multilateral institutions as well as private and bilateral investors, could provide an efficient pooling of resources.

At the global level, the OECD (2014a) indicates that pension funds are taking different approaches to infrastructure investing. Of the 35 surveyed funds that specifically indicated investment in infrastructure assets, 28 reported exposure to unlisted infrastructure assets, while 14 had dedicated target allocations to the asset category. Of the total \$70.3 billion allocated to unlisted infrastructure, a subset of funds broke down their allocation into direct investments and managed funds. In this sample, unlisted infrastructure funds accounted for 29 percent of the total, direct and co-direct investments 68 percent, and other unlisted investments, 3 percent. Direct investment remained the most common method for funds to gain exposure to infrastructure, especially among large funds that have the size and expertise for direct investments. Debt exposure to infrastructure was \$9.7 billion or 0.4 percent of total assets in 2013. The debt category may contain publicly traded debt instruments or direct project loans, senior and mezzanine loans and bonds.

V. CONCLUSIONS AND POLICY RECOMMENDATIONS

African countries face a large infrastructure deficit that is constraining their growth and sustainable development. Though financing for African infrastructure has increased in the last decade through domestic and external sources, a large financing gap persists. Therefore, the potential role of African pension funds to help complement existing fiscal resources for infrastructure should be included in the current debate about increasing domestic resource mobilization to finance the continent's development.

A key message of this report is that there is urgency to act now if the potential of African pensions to finance infrastructure development is to be leveraged. While sub-Saharan African countries are in a “demographic sweet spot” as dependency ratios are low, the labor force is growing rapidly, and the impact of aging has not yet hit their pension systems, they need to address a number of obstacles to pension funds investment in infrastructure. In North Africa, unsustainable pension schemes together with unfavorable demographic and labor trends point to the need for reforming pension systems.

To leverage the potential of African pension funds to invest in infrastructure, pension reform will be needed to improve the performance of unsustainable pension schemes. Well-tailored pension reform will not only help achieve the primary goal of ensuring old-age income security, but also make pension assets available for investments, including in infrastructure. Even when assets are made available, African policymakers will need to improve the governance and regulatory framework for investments and strengthen their capacity to implement it so that pension funds can assess and manage the risk associated with long-term investment in infrastructure. Policymakers will also need to ensure that adequate financial and capital markets instruments are available for pension funds to implement their decisions to allocate assets to infrastructure. Finally, given the large scale of infrastructure investment, initiatives will be needed to complement domestic resources with international and multilateral financing through co-investment and innovative instruments.

Policy recommendations to leverage African pension funds for infrastructure finance include:

At the national level:

1. **Leveraging political leadership:** Leveraging domestic pension funds for financing infrastructure development is only one element of the broader agenda of economic transformation. Economic transformation will generate its own “winners” and “losers” due to reforms in a number of sectors. Pension reforms often require trade-offs such as increasing retirement ages, cutting pension benefits, and/or increasing competition in the fund management industry, which can be politically costly in the short term, but ensure the long-term viability of the pension system and the accumulation of resources that can be used to finance infrastructure needs. At the same time, the governance and quality of public investment needs to be improved so as to avoid pension funds making losses in their infrastructure investment, which could undermine the benefits of pension reform and trust in the pension system. A minimum of political will and

the ability to engage all stakeholders will therefore be necessary to achieve pension reform and reduce the identified obstacles to pension funds investment in infrastructure.

2. **Ensuring a supportive economic environment:** Policymakers will also need to formulate and implement adequate policies to improve the environment for pension funds. Policies that lead to increased formal employment and increase the share of women in formal economic activities can help improve the performance of the pension system. Developing the private sector will help African countries reduce their reliance on social security and civil pension funds and tap the potential offered by its large labor force to effectively contribute to the pension system. At the macroeconomic level, appropriate monetary policy can help avoid high and volatile interest rates and price levels that would complicate the management of pension funds. Adequate fiscal policy will be necessary to address unsustainable pensions systems (often linked to civil servants), set up public pension reserve funds, and free up resources for both government and pension funds investment in infrastructure.
3. **Reforming unsustainable pension systems:** The sustainability of domestic pension systems is a precondition for pension funds to finance infrastructure development. In some African countries, defined benefit pension systems are constrained by unsustainable structural deficits. Pension funds have accumulated deficits due to inadequate returns on investment, demographic changes, and/or mismanagement. In such cases, pension reform can pave the way toward a funded pension system with larger assets under management and broader coverage. Given the relatively large size of the informal sector in Africa, micro-pension schemes for self-employed workers can increase coverage further. Political will is, however, instrumental for maintaining a commitment to the reform of pension systems. Reforming pension schemes will also require strengthening the legal, regulatory, and supervisory environment. Unintended consequences of regulation that could limit infrastructure investment will need to be carefully weighed so as not to compromise the primary objective of pension funds to meet their liabilities.
4. **Strengthening the management of pension funds:** It will also be important to build the capacity of pension fund trustees and managers so that they exercise their fiduciary duty adequately. Investment in infrastructure should be consistent with pension funds investment policy as established within a good governance framework. Pension fund managers should assess on a risk-adjusted basis the benefits of different types of infrastructure financing instruments, which range from listed infrastructure companies and infrastructure funds to direct equity investment and debt financing. Pension funds should strengthen their in-house expertise of the sectors in which they plan to invest, especially in the case of direct participation. Beyond financial obligations, pension funds should consider social, environmental, and governance issues when considering investing in infrastructure.
5. **Developing domestic financial and capital markets instruments for infrastructure investment:** For pension funds to play a meaningful role in infrastructure development, it will be necessary to develop financial and capital market instruments to channel pension assets into infrastructure invest-

ment. Governments will need to ensure an appropriate fiscal policy as well as adequate cash and debt management in order to build a reliable long-dated domestic yield curve. Taking measures to ensure the liquidity of capital markets is a difficult task but is essential in order to attract institutional investors. Transparency and appropriate information to ensure adequate pricing of benchmark government instruments is a first step towards deeper capital markets. Adequate market infrastructure, including trading platforms for government bonds, are also necessary to help ensure liquidity. In order to develop instruments such as project bonds, governments will also need to restructure the infrastructure sector and remove existing bottlenecks in infrastructure finance, including those stemming from the poor governance and financial sustainability of utilities and other parastatals.

6. **Taking innovative measures:** In addition, African policymakers will need to consider innovative measures to strengthen the role of domestic pension funds in infrastructure finance. For instance, pension reform can be facilitated through the use of technology such as mobile phones for a unique identification process. Informal sector participation in African pension funds can be increased by including domestic workers in the pension system (as in South Africa).

At the regional level:

In addition to supporting government and pension funds in implementing the above reforms, regional institutions could focus on the following issues:

7. **Regional financing:** Regional development banks should take the lead when it comes to regional infrastructure projects, especially with regards to their construction phase, and help finance and catalyze national projects, including through risk mitigation instruments. In addition to conventional financing from regional development banks and other partners, financing tools could consider a blend of multilateral finance (grants, long maturity), developmental aspects and social considerations, and private financing (private return). To manage the reluctance of fund managers and trustees to invest in long-term projects because of liquidity constraints, schemes in which governments (supported by development banks) would finance greenfield investments and pension funds would invest in brownfield investments (e.g., once the revenues from the greenfield investments are generated) could be considered. Regional development banks are also uniquely placed to coordinate regional projects given their expertise in their regions of interest.
8. **Regional capital markets and financial integration:** Supporting the establishment of regionally integrated financial and capital markets, improving market infrastructure and the payments system, and allowing cross-border investments from pension funds can help broaden the investor base for infrastructure investment. The regional work of the African Financial Markets Initiative (AFMI) could be strengthened to help countries develop their local capital markets and integrate them regionally. Regional efforts should

also include capacity building for pension fund managers, for instance in collaboration with the Africa Pension Funds Network (APFN).

At the international level:

9. **Strengthening capacity:** Regional technical assistance from multilateral institutions is increasingly addressing the challenges specific to Africa. In addition to existing programs on macroeconomic policy and debt management, it will be useful to develop programs tailored to African capital markets development, pension fund reform, and pension fund supervision and management. In addition, timely data on African infrastructure and pension funds are difficult to obtain and multilateral institutions should include these in their effort to support the Data Revolution. More generally, countries' investment climates should be improved through adequate policies with respect to openness to investors, transparency, predictability, rule of law, and respect for contracts. The Policy Framework for Investment (PFI), a voluntary process guided by the OECD, can help countries improve issues such as the coherence of the investment framework, risk mitigation, pricing, financing, inclusiveness, and responsible conduct.

10. **Complementing domestic pension investment through co-financing and innovative policies:** Co-investment with international investors can be a useful tool for alleviating international investors' fear of policy reversal. Partnership with local funds that have higher stakes (and need to earn more than the inflation rate) can help attract foreign financing. The issuance and listing of "infrastructure bonds" in some countries can be replicated in the rest of the continent, and domestic pension funds can co-finance with their own government and with other institutions that are investing in African infrastructure. Indeed, regional and international investors, including pension funds from more developed economies (including South Africa), infrastructure funds (often backed by multilaterals), and multilateral and national development banks are increasingly investing in African infrastructure.

Finally, a holistic approach will be important to leverage African pension funds for infrastructure development. The potential of African pension funds to finance infrastructure will be exploited fully only with the support of all stakeholders in identifying bottlenecks and in elaborating solutions.

APPENDIX A: OVERVIEW OF PENSION SYSTEMS IN SELECTED COUNTRIES

Information and data are difficult to obtain for African pension funds and their investment strategies. The following section gives an overview of selected African pension systems, which are at different stages of development. South Africa has the largest and most advanced pension system in terms of infrastructure finance. Botswana and Namibia also have large pension systems but invest less in infrastructure, in part because of more constraining regulations. Nigeria has enacted in 2014 a new pension regulator and is in the early stages of implementing pension reform. Finally, Egypt is at the early stages of its transition to a new pension system.

Botswana

Economic reforms over the next decade are focusing on diversifying the economy away from diamonds, which will require a scaling-up of public investment. Sound economic management and supportive demographic trends have helped make the defined contribution pension system in Botswana one of the largest in Africa. Although Botswana can rely on a number of financing sources, the pension system has the potential to contribute significantly to infrastructure development.

Background

With a GNI per capita of \$7,240 in nominal terms, Botswana is one of the wealthiest countries in Africa and is classified as an upper-middle-income country by the World Bank.⁴¹ In 2014, its GDP was about \$15.8 billion for a population of about 2.2 million inhabitants. The economic growth rate slowed significantly from 9 percent in 2013 to 4.0 percent in 2014.⁴² The African Economic Outlook Report on Botswana for 2015 predicts that primary sources of growth in 2015-2016 will be the non-mining sectors such as trade and tourism, which grew by 4.7 percent in 2014.⁴³

Botswana's population growth rate at 2 percent was lower than the GDP growth rate in 2014. The infant mortality rate was 36 children per 1,000 live births. As of 2013, the total fertility rate was 3 births per woman. The average life expectancy for males was 48 while the average life expectancy for females was 47. The employment-to-population ratio for males was 69 percent while that for females was 56 percent.⁴⁴

⁴¹ The World Bank classifies countries with a GNI above \$4,126 and below \$12,735 as upper-middle-income economies.

⁴² <http://databank.worldbank.org/data/reports.aspx?source=2&country=BWA&series=&period=#>

⁴³ http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2015/CN_data/CN_Long_EN/Botswana_GB_2015.pdf p.2-4

⁴⁴ <http://databank.worldbank.org/data/reports.aspx?source=2&country=BWA&series=&period=#>

Pension system

The main regulatory body of pensions in Botswana is the Non-Bank Financial Institutions Regulatory Authority (NBFIRA), which was established in 2008 under the NBFIRA Act. The main legal documents put forth by the NBFIRA pertaining to pension funds are the Pension and Provident Funds Act (1987) and the Income Tax Act (1995).⁴⁵

Pension plans cover both private and public sector employees. Some pension plans prescribe retirement ages based on gender. However, such discriminatory policies have begun to decrease.⁴⁶

Botswana's main pension scheme is the Botswana Public Officers Pension Fund (BPOPF). The BPOPF was registered in 2001 following the government's decision to change its arrangement from a defined benefit pension scheme to a defined contribution pension scheme. Under the BPOPF, employers are required to contribute 15 percent while employee members are required to contribute 5 percent. Members also have the option of voluntarily contributing an additional 10 percent of their salary.⁴⁷

Employee members of the BPOPF are permitted to retire as early as age 45. Upon retirement, members receive one-third of their fund in an untaxed lump sum. The rest of the money is used to purchase annuity from any certified insurance company in Botswana. Members who purchase annuity receive a monthly pension according to the terms of their contracts. Members who leave or are dismissed before reaching the age of 45 may receive a taxed lump sum equal to one third their fund. The rest of their fund can only be accessed at or beyond the age of 45.

Investments

The BPOPF manages about \$4.5 billion.⁴⁸ According to its rules, the BPOPF has the power to delegate investment of assets to a committee, a financial institution (as defined in the Banking Act), or an individual approved by the Stock Exchange Act.⁴⁹

Although the BPOPF does not specify rules and regulations for asset allocation for investments, its 2011-2012 annual report does feature a breakdown of how the fund chose to invest its assets.⁵⁰ In particular, the BPOPF allocated about 67 percent of its assets to equity and 25 percent to bonds and cash, with the remaining going to alternative investments. The allocation does not specify any particular allocation to infrastructure but BPOPF recently announced in its 2015–2016 strategy its objective to invest in private equity and infrastructure projects.

⁴⁵ <http://www.nbfira.org.bw/compliance>

⁴⁶ <http://www.iopsweb.org/researchandworkingpapers/46896420.pdf> p.2

⁴⁷ <http://www.bpopf.co.bw/employer-information>

⁴⁸ <http://www.fsdafrica.org/knowledge-hub/documents/pension-funds-and-private-equity-unlocking-africas-potential/>

⁴⁹ <http://www.bpopf.co.bw/sites/default/files/rules.pdf> p.58

⁵⁰ http://www.bpopf.co.bw/sites/default/files/bpopf_trustee_report_2011_2012.pdf p.15

The total amount of assets under management is \$6 billion.⁵¹ Botswana is unique in that pension funds have the option of investing up to 70 percent of their assets outside of the country. In 2013 offshore investments total 53 percent of assets under management. However, NBFIRA aims to reduce offshore investing to 30 percent by 2050.

Egypt

The Egyptian social insurance and pension system is one of the oldest, most comprehensive, and most expensive systems in Africa and the Middle East. Started more than 50 years ago, the system covers old-age, disability, and survivors' pensions as well as other benefits such as work injury, unemployment, sickness, maternity benefits, and cash transfers.

The Egyptian pension system is currently in a transition. Years of inefficient investment have led to a sustainable system that has increasingly required fiscal support from the government. According to the IMF, the Egyptian government plans to balance fiscal consolidation with increased spending on social programs and infrastructure investment.⁵²

Background

Egypt is one of the largest and most populous economies in Africa with a GDP of \$286.5 billion and a population of about 89.6 million in 2014. It is classified as lower-middle-income by the World Bank with a GNI per capita of \$3,050.⁵³ Egypt's GDP growth rate was 2 percent in 2014, about the same as the population growth rate.⁵⁴ According to the African Development Bank, the projected growth rate for 2015 is 3.8 percent.

In 2013, the total fertility rate was 3 births per woman while the infant mortality rate was 22 deaths per 1,000 live births. Average life expectancy at birth was 71 years in 2013. The male employment-to-population ratio was 69 percent and the same ratio for female employment was at an incomparable 17 percent.⁵⁵ In the coming decades, improvements in life expectancy (from 71 years in 2010 to 78 years in 2050) and declining fertility rates (from 3 children per woman in 2010 to 1.92 in 2050) are expected to increase the share of the population aged 65 or older from 4.6 percent in 2010 to 13.1 percent in 2050. Such an increase would place significant stress on the current pension system.

⁵¹ <http://www.fsdafrica.org/knowledge-hub/documents/pension-funds-and-private-equity-unlocking-africas-potential/> p.39

⁵² <http://www.imf.org/external/np/sec/pr/2015/pr15422.htm>

⁵³ The World Bank classifies countries with a GNI per capita between \$1,064 and \$4,125 as lower-middle-income economies.

⁵⁴ <http://databank.worldbank.org/data/reports.aspx?source=2&country=EGY&series=&period=>

⁵⁵ *Ibid.*

Pension system⁵⁶

The National Organization for Social Insurance (NOSI) administers the system, which includes two funds:

- the Government Social Insurance Fund (GSIF), which covers government workers including civil servants, the armed forces, and security personnel; and
- the Public and Private Social Insurance Fund (PSIF), which covers public and private workers, self-employed workers, and casual workers. Non-resident Egyptian workers can also be covered by the PSIF on a voluntary basis.

The current defined benefit system is also generous with a replacement target of 80 percent of the average salary over the last two years of work for government and public sector employees. The target is the average over the last five years of work for private sector employees with 36 years of contribution.

The system covers about 90 percent of active workers, including part-time workers, and contribution rates reach 41 percent of payroll with employers paying 26 percent of the total, and employees and the government contributing 14 percent and one percent, respectively. However, there is a high level of contribution evasion. In 2009, the government contributed to about 35 percent of total pensions.

Inefficient investment of reserves leading to low or negative returns and inadequate parameters of the defined benefit pension scheme led to an increasing actuarial deficit, which prompted the authorities to reform the system. In 2013, the Parliament of Egypt passed a law to reform its system. In addition to long-term sustainability and fiscal neutrality, the main goals of the new system are increasing stability in addition to increasing incentives to save for retirement.⁵⁷

Under the reformed pension system, the retirement age will increase gradually from age 60 at present to 65 by 2027. Furthermore, from the age of 65 onwards, Egyptian citizens are entitled to a minimum pension at the value of 15 percent the national wage average. The current pension system covers 80 percent of Egyptian employees.⁵⁸ Employees are required to contribute 16.5 percent of earnings while employers are required to contribute 10 percent of earnings. Employers are also permitted to offer voluntary contributions if they so wish.⁵⁹

Investments

Pension reserves are typically invested in government debt as well as in National Investment Bank (NIB) debt. Compared to some of the other MENA countries, Egypt's pension portfolio is very heavily concentrated in fixed

⁵⁶ See also Maait and Demarco (2012).

⁵⁷ <http://www.pensiondevelopment.org/393/egypt.htm>

⁵⁸ Ibid.

⁵⁹ <http://www.pensiondevelopment.org/393/egypt.htm>

income. Historically, returns have not been sufficient to ensure the sustainability of the system, and as a result of the erosion of pension reserves, the system is comparable to a pay-as-you-go system. The reform of the pension system includes plans for a new investment board that would include specialized advisers and portfolio managers to administer and invest a share of pension assets.

As of 2015 a total of 500 billion Egyptian pounds (about \$70 billion) were available for investment by the Egyptian social insurance and pension system of which two percent were invested in the stock market.

Namibia

Just like Botswana, Namibia has benefited from strong macroeconomic fundamentals and supportive demographic trends, and has built sizeable pension assets. The pension system has the potential to participate in the financing of infrastructure. However, investment regulation would need to be revised in order for Namibia to leverage this potential.

Background

Just like Botswana, Namibia is one of the wealthiest economies in Africa. With a GNI per capita of \$5,630, it is classified by the World Bank as an upper-middle-income country. In 2014, Namibia had GDP of about \$13 billion. The country has attracted a solid amount of foreign investment because of its political stability, sound fiscal policies, and abundant natural resources such as diamonds and uranium. Namibia has achieved a growth rate of 4.7 percent in 2000-2010 and above 5 percent since 2011. Policy reforms focus on the education system to rectify the skills mismatch of prospective employees, and promote spatial inclusion as well as diversification of the economy away from the mineral sector.⁶⁰

As of 2014, Namibia had a small population of about 2.4 million and a population growth rate of 2 percent, which is below the GDP growth rate. In 2014 the total fertility rate was 3 births per woman while the infant mortality rate was 34 deaths per 1,000 live births. Life expectancy at birth was 64 years in 2014. The employment-to-population ratio for men was 54 percent and that for women was 45 percent.⁶¹

Pension system

The major regulatory body for Namibia is the Namibia Financial Institutions Supervisory Authority (NAMFISA). The purpose of NAMFISA is to regulate the non-banking financial sector. Its main piece of legislation related to pension funds is the Pension Funds Act.

⁶⁰ http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2015/CN_data/CN_Long_EN/Namibia_GB_2015.pdf

⁶¹ <http://databank.worldbank.org/data/reports.aspx?source=2&country=BWA&series=&period=#>

About 15,000 workers receive coverage from pension schemes. Pension funds are often the result of a collective bargaining agreement in which case membership is mandatory for employees. However, an alternative option to a pension fund is a provident fund. Provident funds are established by employers and organized on a trust basis in which 50 percent of the board members are elected by fund members.⁶²

The main pension scheme in Namibia is the Government Institutions Pension Fund (GIPF). Under the GIPF pension scheme, members are required to contribute 7 percent of their monthly salary. Employers are required to contribute 16 percent.⁶³ For GIPF pensioners, the retirement age is 60 years old. After retirement, members receive a tax-free lump sum of one-third the total pension. Members also receive a tax-free monthly income. The early retirement age is 55 years old. After early retirement, the same conditions apply except the pension is reduced for every month the employee falls short of the normal retirement age (60 years old).⁶⁴ GIPF board of trustees has recently approved a 6.5 percent increase in pensions for the 2015/2016 financial year. The increase will be backdated to April 2015.⁶⁵

Investments

According to the Bank of Namibia, infrastructure financing needs amount to about \$23.0 billion of which \$7.3 billion can be filled by the Namibian government, leaving a financing gap of \$15.7 billion. Given its relatively large size, the Namibian pension system has the potential to help reduce this gap. The total amount of assets under management in Namibia's pension fund system is \$11 billion, which represents over 75 percent of GDP.⁶⁶ GIPF currently manages \$6.79 billion in assets.⁶⁷

In an effort to increase pension funds investment in infrastructure and other domestic investments, the Namibian government has introduced a number of measures. In particular, the Domestic Asset Requirement rules now require that institutional investors allocate a minimum of 35 percent of their assets to local investments. This is in addition to the 2010 regulatory amendments that require institutional investors to invest a minimum of 5 percent of the domestic asset requirements in local unlisted investments. Furthermore, the listing of an infrastructure bond on the Namibian Stock Exchange is under consideration. These measures are against the background of an effort by the government to fast track the development of infrastructure projects under the national PPP framework and to improve the regulatory environment to increase private participation in the infrastructure sector.⁶⁸

⁶² <http://www.iopsweb.org/researchandworkingpapers/41536875.pdf> p. 2

⁶³ <http://www.gipf.com.na/members/Pages/membership.aspx>

⁶⁴ <http://www.gipf.com.na/members/Pages/pension.aspx>

⁶⁵ <http://www.gipf.com.na/>

⁶⁶ <http://www.fsdafrica.org/knowledge-hub/documents/pension-funds-and-private-equity-unlocking-africas-potential/> p.42

⁶⁷ Ibid.

⁶⁸ See Opening Remarks by Hon. Netumbo Nandi-Ndaitwah, Deputy Prime Minister and Minister of International Relations and Cooperation of Namibia at the High-Level side event on leveraging pension funds for financing infrastructure development at the Third International Conference on Financing for Development, 15 July 2015, Addis Ababa.

Nigeria

With the enactment of the Pension Reform Act in July 2014, which replaces the social security pension system established in 2004, the Nigerian pension system is moving to a new phase. With broader eligibility and higher contribution rates, the Nigerian pension system should grow faster in the future. Regulation on investment would need to be reviewed for the pension system to be more supportive of the new government's objective to scale up investment in infrastructure.

Background

Nigeria is Africa's largest economy and most populous country. With a GNI per capita of \$2,970, Nigeria is classified as a lower-middle-income economy by the World Bank. Its 2014 GDP reached about \$568.5 billion in 2014. Over the past decade, Nigeria has maintained a relatively stable economic growth rate of about 7 percent on average. The economy is being diversified as shown by the evidence that the non-oil sector, and in particular the services sector, is the main contributor towards GDP growth with a share of 57 percent. It is important to note the major role of the informal sector in Nigeria's economy. According to Ogbuabor and Malaolu (2013), since 1970, the size of the informal economy ranged from 53.6 percent to 77.2 percent of its GDP, and the average size of the informal economy is about 64.6 percent of GDP.⁶⁹ The World Bank expects Nigeria to endure an economic contraction in 2016 due to the sharp decline in oil prices. The 2016 budget includes the establishment of an infrastructure fund, which would be publicly and privately funded.

In terms of demographics, Nigeria's population totals at 177.5 million people according to the World Bank. As of 2013, Nigeria's population growth rate was 2.8 percent. The total fertility rate was 6 children per woman. The infant mortality rate was 69 per 1,000 live births. The average life expectancy was 52 years in 2013. The employment-to-population ratio for females was 45 percent while the employment-to-population ratio for males was 59 percent.⁷⁰

Pension system

The National Pension Commission (PenCom) is Nigeria's regulatory and supervisory body. PenCom was designated the independent and national regulator of pensions in Nigeria following the Pension Reform Act of 2004.

Nigeria is transitioning from a pay-as-you-go system to a contributory pension scheme (CPS). In terms of coverage, employers in the public sector are required to act as members of the contributory pension scheme. This is also true of private sector employers with 15 or more employees. Previously, the threshold for the private sector was five or more employees, while employees of state and local governments were excluded from participation. Each employee under the CPS now possesses a retirement savings account.

⁶⁹ <http://iiste.org/Journals/index.php/JEDS/article/viewFile/4100/4128>

⁷⁰ <http://databank.worldbank.org/data/reports.aspx?source=2&country=NGA&series=&period=#>

Both public sector and private sector employees must pay at least 8 percent while employers must pay at least 10 percent of their monthly earnings (an increase from the previous total contribution rate of 15 percent).⁷¹ In some companies, the employers opt to take full responsibility for contributions. If the employer chooses to do so, he or she must pay a minimum of 20 percent.⁷² Military personnel must pay at least 2.5 percent, while their employers must pay at least 12.5 percent. Upon notification of PenCom, voluntary contributions are acceptable as well.⁷³

At the time of retirement, members may choose to receive their benefits in one of three ways: 1) monthly withdrawals based on life expectancy, 2) annuity for life, or 3) a lump sum. If an employee chooses to retire before the age of 50, he or she can receive no more than 25 percent of retirement savings in the form of a lump sum.⁷⁴

Two of the major pension schemes currently active in Nigeria are AIICO Pension Managers Limited and Apt Pension Fund Managers Limited. These are both private schemes managing assets of \$6.9 million and \$72.5 million, respectively, as of 2012.⁷⁵ It is worth noting that PenCom is considering micro pensions to increase the number of employees covered by CPS from 6.5 million in 2015 to 20 million in 2019.⁷⁶

Investments

As of 2013 the total number of assets under management in the Nigerian pension fund system is \$25 billion.⁷⁷ In 2010, PenCom established the Regulation on Investment of Pension Fund Assets.⁷⁸ The limit for federal government securities is 80 percent. The limit for corporate bonds is 35 percent. In comparison, supranational bonds can receive an allocation of up to 20 percent. Money market instruments (such as certificates of deposits and banker's acceptances for example), may receive an allocation of up to 35 percent. Ordinary shares may be allocated up to 25 percent. Hybrid funds, such as real estate investment trusts (REITs) and exchange-traded funds (ETFs), may be allocated up to 20 percent. Finally, private equity funds may be allocated up to 5 percent.⁷⁹

The PenCom regulation of 2012 allows for a 5 percent maximum on investment in *infrastructure funds* and 15 percent maximum in *infrastructure bonds*.⁸⁰ Most recently, the 2014 Pension Reform Act expanded the mandate of investment. However, both *infrastructure bonds* and *infrastructure funds* are subject to the same rigorous requirements. The infrastructure project in question must be worth at least 5 billion naira. *Infrastructure funds* must

⁷¹ <http://www.pencom.gov.ng/download/Pension%20Laws/Pension%20Reform%20Act%202014.pdf>

⁷² Ibid.

⁷³ <http://www.iopsweb.org/researchandworkingpapers/44873757.pdf>

⁷⁴ Ibid.

⁷⁵ Ibid.

⁷⁶ <http://sunnewsonline.com/new/pencom-advocates-pension-fund-investment-in-aus-agenda-2063/>

⁷⁷ <http://www.fsdafrica.org/knowledge-hub/documents/pension-funds-and-private-equity-unlocking-africas-potential/> p.43

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ http://www.pencom.gov.ng/download/regulation/Regulation_on_Investment_of_Pension_Assets_2012.pdf

undergo audits by chartered accountants and have predetermined exit routes. Comparatively, *infrastructure bonds* must have credit enhancement and federal government guarantees.⁸¹

In terms of local investment versus international investment, the structure of the pension system is such that it leans more towards local companies and projects. However, PenCom does have the ability to send its recommendations on foreign investment to the president of Nigeria.⁸²

South Africa

Given its size and experience, the South African pension system is uniquely placed in Africa to contribute to infrastructure investment. The South African pension system is by far the largest in Africa with assets of about \$322 billion in 2014. The Government Employees Pension Fund (GEPF)—the main pension scheme in South Africa—invests directly in the infrastructure sector, and institutional investors have access to a number of instruments through which they can allocate funds to infrastructure. Regulation now allows a fraction of South African pension assets to be invested outside the country in Africa.

Background

South Africa is an upper-middle-income country and the second-largest economy on the continent. Its GDP reached \$350.1 billion, and its GNI per capita reached \$6,800 in 2014. South Africa's annual GDP growth fell to 1.5 percent in 2014 but is set to rebound to 2.9 percent in 2015. One of the major goals of the South African government is spatial development at both the national and the regional level. There have been initiatives to improve service delivery and create decentralization policies. Improvements are forthcoming, but slow and imbalanced. Another major challenge in South Africa is the unemployment rate. The general unemployment rate was 24.3 percent at end-2014. Meanwhile, the youth unemployment rate reached 49 percent. The South African government has chosen to focus on industrialization as a means of creating employment but with limited success so far. In 2014, the manufacturing sector grew by 6.8 percent, down from 10 percent in 2013.

As of 2014, South Africa's population was 54 million, and the population growth rate was at 2 percent. As of 2013, the child mortality rate was 34 deaths per 1,000 live births. As of 2013 the total fertility rate was 2 births per woman. The average life expectancy for females was 59 and the average life expectancy for males was 55. The employment-to-population ratio for females was 32 percent and that for males was 47 percent.⁸³

⁸¹ <http://dailyindependentnig.com/2015/04/pencom-gives-fresh-regulation-investment-pension-fund/>

⁸² <http://www.fsdafrica.org/knowledge-hub/documents/pension-funds-and-private-equity-unlocking-africas-potential/> p.43

⁸³ <http://databank.worldbank.org/data/reports.aspx?source=2&country=ZAF&series=&period=>

Pension system

The main regulatory body for South Africa's pensions is the Financial Services Board (FSB). GEPF is not officially regulated by the FSB but voluntarily elects to follow FSB rules and regulations. One major highlight of Regulation 28 in 2011 (the latest regulation put forth by the FSB) is that it requires retirement funds to take environmental, social, and governance concerns into special consideration in order to maintain long term sustainability of assets.⁸⁴ According to a survey conducted by the World Wildlife Federation, 93 percent of South African investors believe Regulation 28 played a major role in shifting emphasis towards environmental, social, and governance principles.⁸⁵ As of 2014, the Investing for Impact Barometer states that 36 percent of asset management funds in South Africa contain built-in strategy and criteria on responsible investment.⁸⁶

Although voluntary, South Africa's pension system is de facto quasi mandatory. Employers decide to set up a fund and what type of employees are eligible. However, all eligible employees must join.⁸⁷ Every member of the scheme contributes at least 7.5 percent of his or her earnings every month. The amount that the employer contributes is determined by a case-by-case consultation with the board and the minister of GEPF.⁸⁸

The normal retirement age for GEPF is 60 years. An employee who retires before 10 years of pensionable years worked is eligible to receive a cash lump sum equal to their actuarial interest in the fund. Members with 10 years or more years of service receive a lump sum and an annuity paid monthly.

Investments

The three major pension schemes in South Africa are public schemes which include the following: 1) Government Employees Pension Fund; 2) Telkom Pension Fund; and 3) Eskom Pension and Provident Fund (EPPF) with assets of \$124 billion (2012), \$36.6 million (2012), and \$48.5 billion (2013), respectively.

According to Regulation 28, which was established in 2011 by the Pension Funds Act, a maximum of 75 percent can be allocated to investment in equities. A maximum of 25 percent can be allocated to investment in property. Furthermore, no more than 90 percent can be invested in a combination of equities and properties. The limit for investing in any individual bank is 20 percent. Finally, a maximum of 2.5 percent may be invested in "other assets." However, the types of investments that fall under this category are not specified.⁸⁹ The limit for making any offshore investments is 15 percent. In addition, for the first time ever, Regulation 28 has provided for allocation of 5 percent investment in African countries outside of South Africa.⁹⁰

⁸⁴ <http://www.fsdafrica.org/knowledge-hub/documents/pension-funds-and-private-equity-unlocking-africas-potential/> p.45

⁸⁵ http://www.wwf.org.za/media_room/publications/?8340/Responsible-Investment-for-Pension-Fund-Trustees

⁸⁶ http://www.gsb.uct.ac.za/files/African_IFI_Barometer_2014.pdf

⁸⁷ <http://www.iopsweb.org/researchandworkingpapers/44874959.pdf> p.3

⁸⁸ <http://www.gepf.gov.za/uploads/GEPFlawandrules.pdf> p.35

⁸⁹ <http://www.libertycorporate.co.za/legal-matters/Documents/reg-28/explanatory-memorandum-on-the-final-regulation-28.pdf> p.25

⁹⁰ <http://www.fsdafrica.org/knowledge-hub/documents/pension-funds-and-private-equity-unlocking-africas-potential/> p.45

The 2014 OECD survey of large pension funds, indicates that GEPF—the only African pension fund to report such information—allocated 1.2 percent of its total assets directly to infrastructure. However, GEPF invests in infrastructure assets indirectly. It is the largest investor in the Pan-African Infrastructure Development Fund (PAIDF), a jointly owned fund that invests directly and indirectly in transportation, telecommunications, energy, water, and sanitation (see Appendix Table C.1.).

More generally, South African institutional investors have a long experience in infrastructure investment. Inderst and Stewart (2014) identify a number of infrastructure investment instruments used in South Africa, including project loans based on revenues from toll roads, municipal bonds, jointly owned infrastructure funds (such as PAIDF and the Isibaya Fund, which invest in economic and social infrastructure, and regional infrastructure funds (such as the South African Infrastructure Fund (SAIF)) (see Appendix Table C.1.). In addition, some of the largest unlisted emerging market and Africa-focused infrastructure funds are managed from South Africa, such as \$650 million Pan-African Infrastructure Development II and the \$500 million African Infrastructure Investment Fund II, respectively managed by Harith and the African Infrastructure Investment Managers.

APPENDIX B: AFRICAN PENSION SYSTEMS

Table B.1. Sub-Saharan Africa: Modality of pillars by country

Country	Modality of pillars		
	Pillar 0	Pillar 1	Pillar 2
Angola	..	..	..
Benin	-	DB	-
Botswana	U	-	-
Burkina Faso	-	DB	-
Burundi	-	DB	-
Cameroon	-	DB	-
Cape Verde	-	DB	-
Central African Republic	-	DB	-
Chad	-	DB	-
Comoros	..	..	..
Congo, Dem. Rep.	-	DB	-
Congo, Rep.	-	DB	-
Côte d'Ivoire	-	DB	-
Equatorial Guinea	-	DB	-
Eritrea	..	..	..
Ethiopia	..	..	..
Gabon	-	DB	-
Gambia, The	-	PF	-
Ghana	-	DB	DC Op
Guinea	-	DB	-
Guinea-Bissau	..	..	..
Kenya	-	PF	-
Lesotho	B	-	-
Liberia	T	DB	-
Madagascar	-	DB	-
Malawi	..	..	..
Mali	-	DB	-
Mauritania	-	DB	-
Mauritius	U	DB	-
Mozambique	..	..	..
Namibia	U	-	-
Niger	-	DB	-

Table B.1. Sub-Saharan Africa: Modality of pillars by country (continued)

Country	Modality of pillars		
	Pillar 0	Pillar 1	Pillar 2
Nigeria	-	-	DC
Rwanda	-	DB	-
São Tomé and Príncipe	-	DB	-
Senegal	-	DB	-
Seychelles	B	DB	-
Sierra Leone	-	DB	-
Somalia	..	..	..
South Africa	T	-	-
Sudan	-	DB	-
Swaziland	T	PF	-
Tanzania	-	DB	-
Togo	-	DB	-
Uganda	-	PF	-
Zambia	-	DB	-
Zimbabwe	-	DB	-

Notes:

Not available: ..

Not applicable: –

Pillar 0: 1) Targeted programs (T), 2) Basic pensions (B) 3) Universal (U)

Pillar 1: Mandatory publicly managed schemes. 1) Defined benefit schemes (DB) 2) Notional defined contribution schemes (NDC), and 3) Provident Funds/Publicly managed defined contribution schemes (PF),

Pillar 2: Mandatory privately managed schemes either fully-funded (DC) or defined benefit (DB).

Source: World Bank HDNSP Pensions Database.

APPENDIX C: INSTITUTIONAL INVESTMENT IN AFRICAN INFRASTRUCTURE

Table C.1. Examples of institutional investor involvement in African infrastructure

Instrument	Country	Start year	Description	Examples
PROJECT LOANS				
Project finance loan	South Africa	1998	Several toll roads with institutional investor loans.	N3 toll road; N4 Maputo road between South Africa and Mozambique.
CORPORATE BONDS				
			Used in many countries . Some examples:	
	Kenya		Local pension funds invest in bonds of infrastructure companies. Tax concessions.	Kengon (electricity) and Safaricom (telecommunications).
	Cape Verde		Electricity bond.	
	Uganda		Bonds of telecommunications and EADB.	
	Mozambique		Bonds of telecommunications.	
GOVERNMENT BONDS				
Government bonds	Kenya	2009	Earmarked for infrastructure. Some tax concessions.	
	Senegal	2007	To finance road and rail transport infrastructure.	
	Ghana	2008	Eurobond on LSE. Earmarked for infrastructure financing.	
SUB-SOVEREIGN BONDS				
State bonds	Nigeria	1986	Some states issue bonds for infrastructure investments.	
Municipal bonds	South Africa		Municipal bonds. Some provinces issue bonds for infrastructure investments.	
JOINTLY OWNED FUNDS				
Infrastructure fund	South Africa	2007	Pan-African Infrastructure Development Fund (PAIDF): South Africa's Public Investment Commission (PIC) has created a multi-billion dollar, 25-year fund to mobilize local and international investment in infrastructure development in Africa. Investors in the fund include the Government Employees Pension Fund, as well as insurance companies involved in managing pension funds, and the Ghanaian Social Security and National Insurance Trust (SSNIT) Corporation.	
Isibaya Fund	South Africa		Managed by the PIC, invests in "development investments," including economic and social infrastructure.	

Table C.1. Examples of institutional investor involvement in African infrastructure (continued)

Instrument	Country	Start year	Description	Examples
Regional fund investment	Ghana		Diversified fund investment.	The Ghanaese Social Security Trust (SSNIT) invests in a range of regional funds, e.g., PAIDF, AIG Africa Infrastructure Fund, and Canadian Investment Fund for Africa.
GOVERNMENT-SPONSORED FUNDS				
Infrastructure fund	Nigeria		The Nigeria Infrastructure Fund (NIF) aims to invest in infrastructure projects in Nigeria that meet our targeted financial returns and contribute to the development of essential infrastructure in Nigeria.	
MDA-SPONSORED FUNDS				
	Developing countries		The ALAC Fund is a co-investment fund that invests alongside IFC in equity investments in sub-Saharan Africa, Latin America, and the Caribbean, providing growth capital for private enterprises in these regions. Other anchor investors in the fund are PGGM, the Dutch pension fund manager; Korea Investment Corporation; State Oil Fund of the Republic of Azerbaijan; and a fund investor from Saudi Arabia. The fund provides an opportunity for sovereign and pension fund investors to coinvest for the first time with IFC in growth equity investments in developing countries.	
	Regional		Emerging Africa Infrastructure Fund (EAIF), initiated by the Private Infrastructure Development Group, whose founding members include government institutions from the United Kingdom, Netherlands, Switzerland, and Sweden.	
COMMERCIAL FUNDS				
	Regional	1996	South Africa Infrastructure Fund (SAIF) targets equity investments in Sub-Saharan Africa.	
	Regional	2004	African Infrastructure Investment Facility (AIIF).	
REGIONAL				
	Regional		East African Development Bank (EADB).	
	Regional		African Development Bank (AfDB).	
GLOBAL				
Development bank	Global		World Bank Group, IFC.	

Source: Inderst and Stewart (2014).

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