MOBILISING FINANCE FOR INFRASTRUCTURE IN SUB-SAHARAN AFRICA & SOUTH ASIA

LITERATURE REVIEW

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ORIGINAL

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CEPA

CONTENTS

LIST OF ACRONYMS

ADB	Asian Development Bank
AFC	Africa Finance Corporation
AfDB	African Development Bank
AICD	Africa Infrastructure Country Diagnostic
AU	African Union
BIS	Bank for International Settlements
BCG	Boston Consulting Group
Bn	Billions
BPOPF	Botswana Public Officers Pension Fund
CDC	The UK's Development Finance Institution
CEPA	Cambridge Economic Policy Associates
DBSA	Development Bank of Southern Africa
DFID	Department for International Development
DFI	Development Finance Institution
EAIF	Emerging Africa Infrastructure Fund Advisory Facility
EBRD	European Bank for Reconstruction & Development
EDPCM	European Centre for Development Policy Management
EIB	European Investment Bank
EIU	Economist Intelligence Unit
FMO	The Dutch Development Finance Institution
G20	The Group of Twenty
GEPF	Government Employees Pension Fund
GIF	Global Infrastructure Facility
IAIDA	Institutional Architecture for Infrastructure Development in Africa
ICA	Infrastructure Consortium for Africa
ICT	Information & Communications Technology
IDA	International Development Association
IDFC	Indian Development Finance Company
IFC	International Finance Corporation
IIFCL	India Infrastructure Finance Company Ltd
IMF	International Monetary Fund
IPP	Independent Power Producer
LIC	Lower Income Country
LDC	Least Developed Countries
M	Millions
MDB	Multi-lateral Development Bank
MIC	Middle Income Countries
MIGA	Multilateral Investment Guarantee Agency
NEPAD	New Partnership for Africa's Development
NAPSA	National Pension Scheme Authority
NSSF	National Social Security Fund
ODI	Overseas Development Institute
OECD	Organisations for Economic Co-operation & Development
PIDA	Programme for Infrastructure Development in Africa
PIDG	Private Infrastructure Development Group
PPA	Project Preparation Advance
PPF	Project Preparation Facility
PPIAF	Public-Private Infrastructure
PPP	Public Private Partnership
PPI	Private Participation in Infrastructure
PSP	Private Sector Participation
REC	Regional Economic Community
SSA	Sub Saharan Africa
SA	South Asia
SADC	Southern African Development Community
SNTA	Sub-National Technical Assistance Programme
SPV	Special Purpose Vehicle
SSNIT	Social Security & National Insurance Trust
SWF	Sovereign Wealth Fund
TAF	Technical Assistance Facility
ToR	Terms of Reference
UN	United Nations
UNCTAD	United Nations Conference on Trade & Development
UN-HABITAT	United Nations Human Settlement Programme
WBG	World Bank Group
WEF	World Economic Forum

EXECUTIVE SUMMARY

E.1 Introduction

This review of the barriers to increasing private finance in infrastructure investment in Sub Saharan Africa (SSA) and South Asia (SA) was commissioned by the UK Department for International Development (DFID). The research questions concerned the constraints in the supply of projects able to attract private finance and the barriers in the financial markets preventing projects from acquiring private finance. Two hundred and ninety two documents were reviewed. A significant proportion of the documents were produced by, or in association with, international development agencies, multilateral development banks (MDBs), and development finance institutions (DFIs).

The research questions can be summarised as follows:

- **Project supply constraints to attracting private finance.** What are the factors restricting the supply of projects able to attract private finance?

  Upstream constraints and downstream constraints are examined. Upstream constraints include the enabling environment, political and regulatory risk, and economic/ financial issues such as the macroeconomic conditions. Downstream constraints comprise issues related to project development capacity. The policy recommendations to address the barriers identified are then assessed.

- **Financial market constraints to attracting private finance.** What are the constraints in the financial markets preventing projects from attracting private finance?

  The sources of private finance available to projects are identified and the policy and regulatory barriers preventing the scale up of these financial instruments are examined. The policy recommendations to address the barriers identified are then assessed.

- **Regional infrastructure.** How do the responses to the above questions differ with reference to regional infrastructure?

E.2 Observations on the studies reviewed

A total of 292 documents were reviewed. Most of the studies (137 out of 292) identified are general review papers. In many cases these review papers provide useful insights/ recommendations but they are typically not supported by robust evidence-based research.

This may be because the topic of infrastructure finance does not lend itself to socio-economic research due to the lack of up to date time series or cross sectional data available in the public-domain; or it could be because researchers have played insufficient attention to the topic. This is an important finding. It suggests that at present there is no real evidence-base to underpin existing interventions designed to address the constraints limiting the provision of private finance for infrastructure.

Given the lack of independent study on the research questions it is not possible to provide an overarching consensus based on the findings of the literature review. Instead, a summary of the main points of interest found on each question is provided, without drawing any conclusive inferences. The conclusion sets out the most pressing research gaps on each topic.

E.3 Project supply constraints to attracting private finance

Compared with the other issues covered in this Literature Review, academic studies are more prevalent on the topic of the upstream constraints to infrastructure investment. In total 92 academic and policy working papers were reviewed. Of these 57 provided some coverage of upstream constraints, while only 15 covered downstream constraints.

However as of yet the research in this area has not developed to a point at which a consensus exists on either what the specific constraints are, or which of the constraints are most important.

E.3.1 Upstream constraints

Evidence across the different academic studies suggests that factors such as: the country's level of political stability; the level of corruption; the quality of governance; the quality of the regulatory regime; the ability of consumers to pay for infrastructure services; and economic stability (stable exchange rates, low and stable inflation) are important determinants of the level of private sector investment in infrastructure.

The non-academic literature on upstream constraints also highlight these constraints within the enabling environment and within the economic and financial landscape.

Both the academic and non-academic studies, present a range of general policy recommendations to address the upstream constraints, including: improving the legal and regulatory frameworks; strengthening regulatory agencies; and addressing financial and political risk through the use of risk-mitigation instruments.

E.3.1 Downstream constraints

For downstream barriers, the focus was on non-academic literature. The analysis suggests that there is a lack of funding available to support project preparation activities in both SSA and SA, which is limiting the supply of projects that have the potential to attract finance.

In SSA, an additional issue is that the limited funds currently available have been fragmented across a large number of facilities undertaking similar activities. A lack of technical capacity to support project development is also highlighted as a particular constraint in SSA.

Policy recommendations put forward to address the downstream constraints include: addressing the fragmentation of Project Preparation Facilities (PPFs) in SSA; carrying out performance assessments of PPFs in more detail; improving the information on the resources available for project preparation activities; and increasing local capacity for carrying out project preparation.

Table E.1: Summary of project supply constraints and policy recommendations

Type	Barriers specified	Policy recommendations
Upstream barriers	• The country's level of political stability • The level of corruption • The quality of governance • The quality of the regulatory regime • The ability of consumers to pay for infrastructure services • The economic stability (stable	• Improving the legal and regulatory frameworks • Strengthening regulatory agencies • Addressing financial and political risk through the use of risk-mitigation instruments

Type	Barriers specified	Policy recommendations
	exchange rates, low and stable inflation)	
Downstream barriers	• A lack of funding available to support project preparation activities in both SSA and SA • The limited funds available have been fragmented across a large number of facilities undertaking similar activities (SSA specific) • A lack of technical capacity to support project development (SSA in particular)	• Addressing the fragmentation of PPFs in SSA • Carrying out performance assessments of PPFs in more detail; • Improving the information on the resources available for project preparation activities • Increasing local capacity for carrying out project preparation

E.4 Financial market constraints to attracting private investment

Although the current sources of finance used to support infrastructure projects is discussed within a number of studies, there are no studies which provide comprehensive information on sources of finance for infrastructure projects both across the focus regions or at an individual country level. This is because there is a lack of consistent data on the topic, with the exception of the World Bank PPI database.

There are a number of papers that use the case study approach to provide details on the different types of financial instruments that can and have been used to finance projects in different country and/ or country contexts. These are complemented by a number of studies carried out by international institutions, MDBs and consultancies.

These papers indicate that a different mix of financial instruments is required at each stage of the project life cycle, given the distinct risk and return profile and incentive problems inherent in the different stages. Initially, there is a reliance on equity and debt financing, largely through commercial banks, during the planning and construction phases. Once the project is operational, debt from the initial phase is typically refinanced through commercial bank loans or government funds, although refinancing through bonds would also be suitable.

The key sources of finance for infrastructure projects highlighted in the literature are: DFIs; institutional investors; public sector sources of finance (e.g. Sovereign Wealth Funds, resource-backed infrastructure financing, and government infrastructure bonds); local sources of finance for infrastructure (e.g. local commercial banks and local capital markets); and international private sources of finance for infrastructure (e.g. international commercial banks, private infrastructure funds and international capital markets).

With regard to the barriers for scaling up infrastructure finance, one of the issues identified concerns a potential fall in the supply of loans, due to the increasing cost of long-term lending to commercial banks. Other constraints include underdeveloped bond and equity markets, as well as the relatively disappointing performance of infrastructure funds thus far. In addition, a number of barriers are identified as impeding institutional financing for infrastructure, including the lack of high-quality data; limited risk-management expertise; regulatory deficiencies; and risk aversion on the part of institutional investors.

Policy recommendations for scaling up the use of the different sources of financing centre on the increased provision of risk mitigation instruments (e.g. political risk insurance and currency hedges) and encouraging the re-financing of projects, with the objective of increasing liquidity for investment in new projects.

Table E.2: Summary of financial market constraints and policy recommendations

Type	Barriers specified	Policy recommendations
Barriers to scale up	• Underdeveloped bond and equity markets • A relatively disappointing performance of infrastructure funds to date	• Increased provision of risk mitigation instruments (e.g. political risk insurance and currency hedges • Encouraging the re-financing of projects, with the objective of increasing liquidity for investment in new projects.
Barriers to institutional investment	• A lack of high-quality data • Limited risk-management expertise • Regulatory deficiencies • Risk aversion on the part of institutional investors	

E.5 Regional infrastructure

The review of regional infrastructure also had to focus on non-academic literature. As with the downstream constraints, this is an area that is critically underserved by detailed technical studies.

The studies that are available, suggest that the key upstream constraints specific to regional projects include: a lack of institutional coordination; different legal, regulatory and policy frameworks; and a lack of political leadership to prevent regional projects from stalling.

With regard to upstream financial constraints, issues around ensuring an equitable allocation of the risks and rewards around different projects, as well as the difficulty in designing projects so as to establish reliable cash flows to provide potential investors more confidence in their ability to recover their investments, are cited as constraints.

The literature points to the following key downstream barriers specific to regional infrastructure: the higher project preparation costs associated with regional projects; the lack of dedicated resources available to prepare regional projects; the lack of capacity within regional bodies; and a lack of private sector firms with the financial and technical capacity necessary to take on the challenge of developing regional projects.

The available studies also state that the use of traditional financing methods may not be readily available for regional projects in SSA. Financing is noted to be a key challenge in SA as well, as sub-regional institutions typically lack financing facilities, while there is also an absence of dedicated instruments or concessional resources for financing regional projects.

Table E.3: Summary of regional infrastructure financing constraints

Type	Project supply	Financial markets
Upstream barriers	• Lack of institutional coordination • Different legal, regulatory and policy frameworks • A lack of political leadership to prevent regional projects from stalling	• Ensuring an equitable allocation of the risks and rewards around different projects • Difficulty in designing projects so as to establish reliable cash flows
Downstream barriers	• Higher project preparation costs associated with regional projects • The lack of dedicated resources available to prepare regional	• Use of traditional financing methods may not be readily available for regional projects (SSA specific) • Sub-regional institutions typically lack

Type	Project supply	Financial markets
	projects • The lack of capacity within regional bodies • A lack of private sector firms with the financial and technical capacity necessary to take on the challenge of developing regional projects	financing facilities (SA specific) • An absence of dedicated instruments or concessional resources for financing regional projects (SA specific)

E.6 Gaps in the literature

While the majority of the areas mentioned above are extensively discussed in the literature, several gaps remain. Given the narrow evidence base across each of the research questions, there are a number of important areas in which there would be some value-add by completing additional research summarised in the table below.

Table E.4: Gaps in the literature by research question

Topic	Gaps
Upstream barriers	• Quantification of the impact of different constraints on the ability of projects to access finance. • Detailed road map outlining how stakeholders should sequence the removal of such barriers, enabling policy makers to determine the priority areas for intervention. • Evaluation of how low levels of technical and financial capacity have actively prevented potentially bankable projects from being realised.
Downstream barriers	• General lack of research relative to other topics. • Lack of understanding regarding the current role played by non-PPF sources of funds for project preparation activities.
Sources of project finance	• Little consistent and up to date quantitative information on actual financing through the project preparation cycle or the construction phase or operation. • Lack of evidence that particular types of projects and/ or financing approaches have been successful across a range of country/ sector contexts.
Institutional investors	• Limited up-to-date discussion of specific regulatory and policy barriers restricting infrastructure investment from this source. • Discussion on institutional investment in SA countries other than India limited.
Regional infrastructure	• Poor quality of information on different sources of infrastructure finance currently available or most suited to support regional infrastructure projects.

Source: CEPA analysis

1. INTRODUCTION

This review of the barriers to increasing private finance in infrastructure investment in SSA and SA was commissioned by DFID. It forms part of a larger research project being carried out by CEPA to study the issue of mobilising private finance to support the implementation of infrastructure projects in SSA and SA and to identify gaps in the literature and help determine priority areas for research for the wider study. Two hundred and ninety two documents were reviewed. A significant proportion of the documents were produced by, or in association with, international development agencies, MDBs, and DFIs.

1.1. Research questions

The ToR contain a number of questions and sub-questions relating to the topic of infrastructure finance, these are:

- To what extent is the main blockage to increased infrastructure investment (including by private investors) in SSA and SA attributable to the lack of a pipeline of bankable projects and/or a lack of available finance on the terms / tenors required?

With regards to project supply constraints:

- What are the main blockages to developing a pipeline of bankable infrastructure projects in sub-Saharan Africa and Southern Asia?
    a. To what extent are the principal barriers upstream (e.g. enabling environment including political risk, exchange rate risk, regulatory and other risks; non-cost recovery tariffs)
    b. To what extent are the principal barriers downstream (e.g. bankable projects exist but there is insufficient funding and capacity to carry out the processes needed to get them to bankable stage)?
    c. What are the principal policy interventions required to overcome the blockages to developing a pipeline of bankable projects identified above, and what are the roles of donors and development banks in implementing these?

With regards to financial market constraints:

- Where there are theoretically bankable projects that have not yet been financed:
    a. What type of financing are they seeking in order to reach financial close?
    b. What institutions / organisations are able to provide the types of finance required at different stages? (OECD and domestic institutional investors, commercial banks, development banks....)
    c. What are the principal barriers to OECD and domestic / regional institutional investors scaling up their infrastructure investment and providing the types of finance required for infrastructure projects?
    d. Where institutional investors are unable to invest due to risk levels, capacity, regulatory barriers etc., to what extent are commercial banks (international and national) a viable alternative?
    e. What is the current scale of commercial bank financing for infrastructure in these regions and what are the principal barriers to scaling up this source of finance?

f. To what extent and in what ways could public subsidies2 support greater mobilisation of investment for infrastructure from institutional investors and commercial banks?

With regards to regional infrastructure:

- How do the responses to the above questions differ with reference to regional infrastructure designed to increase cross-border trade?

1.2. Report structure

The Literature Review is structured as follows:

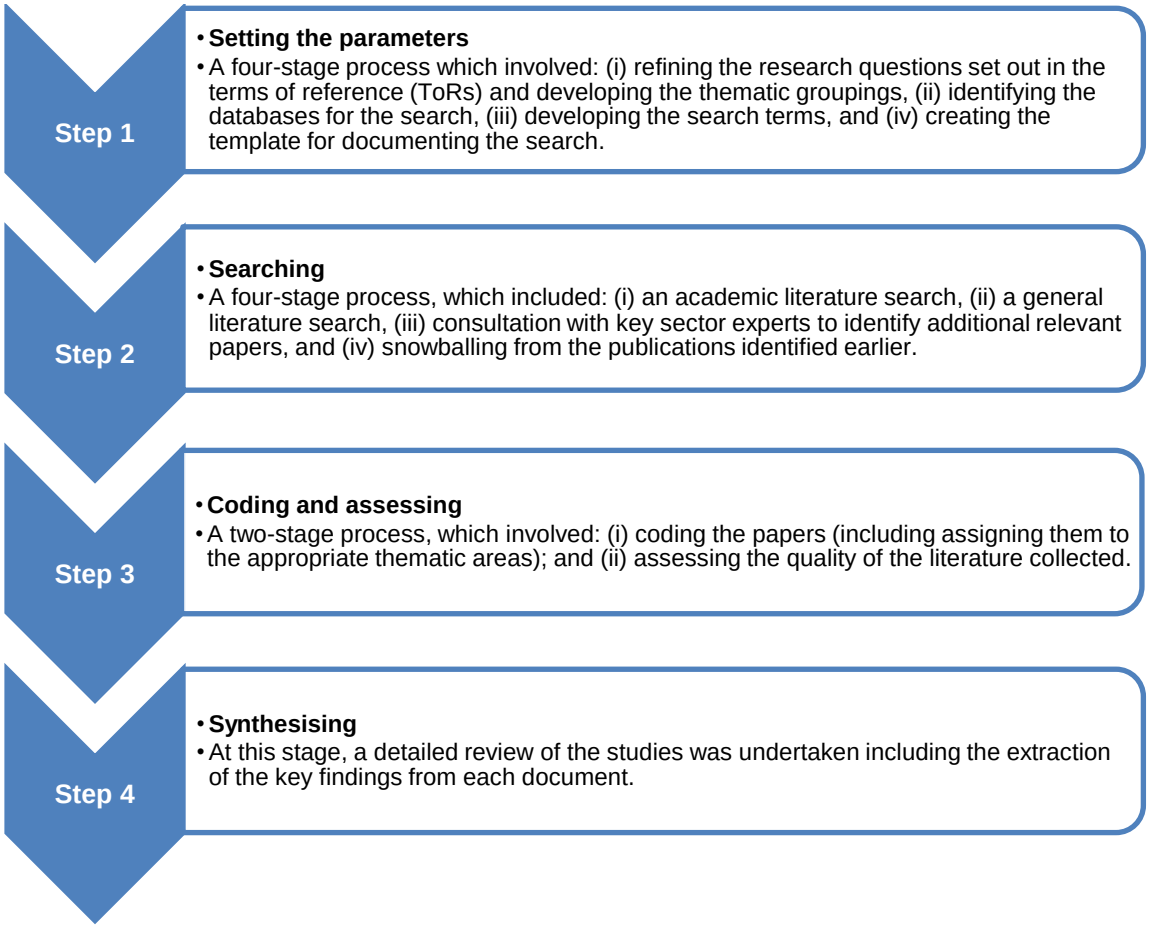
- Section 2. Research methodology
- Section 3. Overview of the studies reviewed
- Section 4. Constraints to the development of infrastructure projects preventing project from attracting private finance
- Section 5. Constraints in financial markets preventing projects from attracting private finance
- Section 6. Regional infrastructure
- Section 7. Conclusions
- Section 8: Bibliography

2. RESEARCH METHODOLOGY

2.1. Approach to the search

The literature review was conducted systematically and involved the steps outlined in Figure 2.1. Further detail on the methodology is provided in the sections below.

Figure 2.1 - Literature review methodology



2.2. Sources

Both 'general' and academic sources were used to carry out the search. The 'general' search used Google. The academic search used JSTOR and Google Scholar. JSTOR provides full-text searches of almost 2,000 journals and it is estimated that Google Scholar includes approximately 160 million documents. The bibliographies of individual studies were also used to identify additional reports. The search was limited to documents published in English from 2000 onwards. In addition, infrastructure finance specialists were contacted from the organisations listed below. They were asked to help identify relevant papers.

- InfraCo Africa;
- AgDevCo;
- University of Oxford;
- The World Bank; and
- Lion's Head Global Partners.

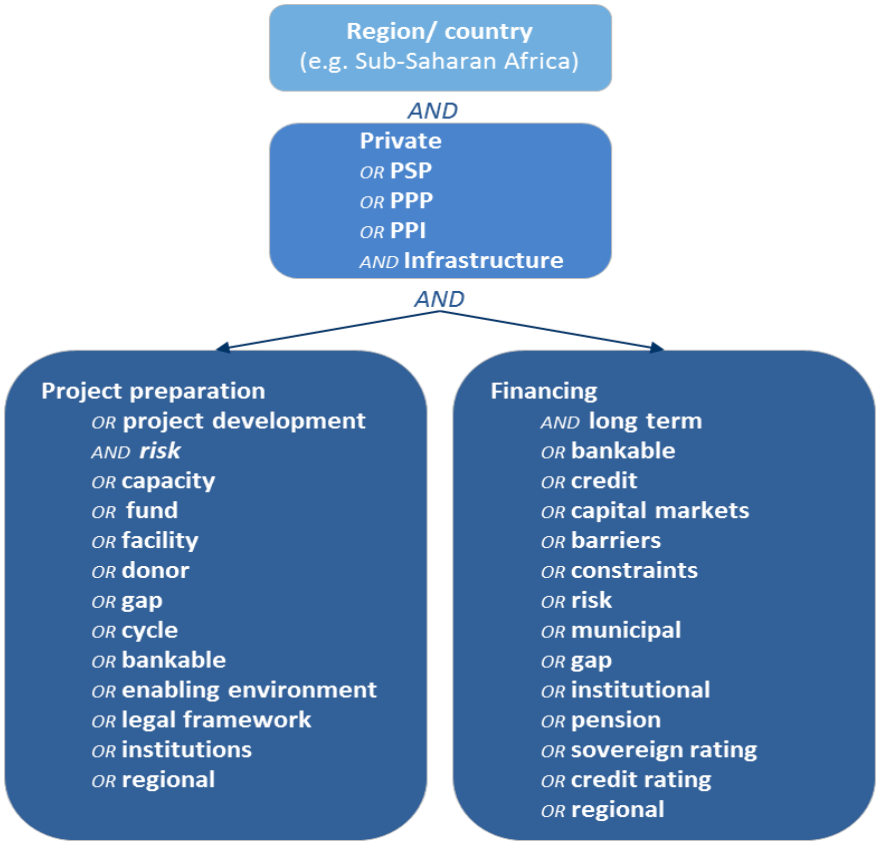
2.3. Search terms

Defined search terms were used to capture:

- The region/ country (i.e. either SSA or SA);
- Private sector involvement and infrastructure; and
- Either project preparation or financing.

These are summarised in Figure 2.2. The reports were compiled into a database and then coded against the different thematic areas outlined in the introduction.

Figure 2.2: Summary of the approach to carrying out searches



Source: CEPA analysis.

2.4. Coding papers

The criteria used to code each paper retrieved were:

- The source of the paper: e.g. think tank, international institutions, academic (peer reviewed journal or a university paper), etc.
- The type of paper: e.g. whether it was a review paper, a guidebook, an academic paper (a peer-reviewed academic paper, a policy paper, a working paper, a meeting paper (a report/ presentation produced specifically for a meeting, conference) etc.
- The geographic focus: with papers coded as either focusing on SSA (or countries within SSA), SA (or countries within SA) or other (where the paper covers multiple developing countries).

- The sector focus: e.g. looking at energy, water, transport, ICT and other (i.e. where the paper covers a number of sectors).
- The research question(s) covered by the paper.
- A very short summary description of the report's content.

2.5. Assessing the quality of the papers

The quality of the research on each question was assessed using a modified version of the 'principles of quality' set out by DFID, using a series of Yes/ No questions to assess the quality of the papers, together with an overall assessment for each indicator for each of the research themes considered.[1] An illustration of the template used is presented below.

Table 2.1: Template: assessment of the quality of the reports reviewed

Indicator	Sub-indicator	[theme under
Conceptual framing	Does the literature acknowledge existing research?	Yes
	Does the literature pose a research question?	No
	Score	
Openness and transparency	Does the literature present or link to the raw data it analyses?	No
	Do the authors recognise limitations/weaknesses in their work?	Rarely
	Score	
Appropriateness and rigour	Do the studies identify a research method?	Rarely
	Score	
Reliability	Have the studies demonstrated that the selected analytical technique is reliable?	No
	Score	
Cogency	Are the conclusions clearly based on the studies' results?	Yes
	Score	
Overall quality		

Source: CEPA analysis

The results for each question are presented in Section 7 of this review.

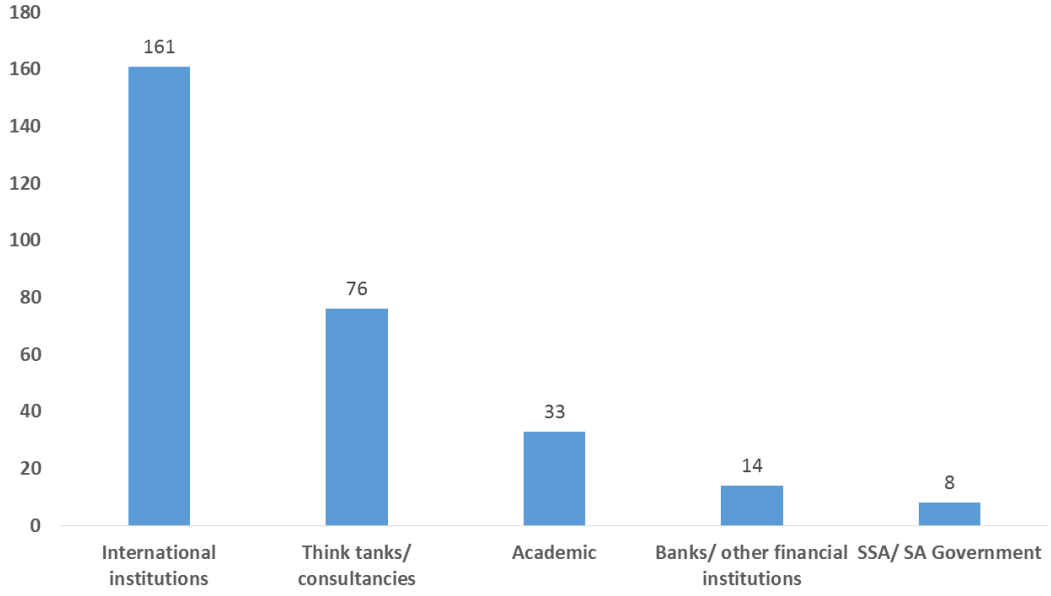
[1] DFID (2014). How to note. Assessing the strength of evidence.

3. OVERVIEW OF THE STUDIES REVIEWED

3.1. Sources of studies identified

In total 292 reports were identified; the majority of the papers collected (161) were commissioned by international organisations, such as the World Bank, DFIs (and United Nations organisations. The second most common source was think tanks and consultancies, which were responsible for 76 of the papers. This includes organisations such as the Overseas Development Institute (ODI) and the Commonwealth Business Institute. Only 33 of the 292 studies came from academic sources (peer-reviewed journals or universities).

Figure 3.1: Sources of the papers

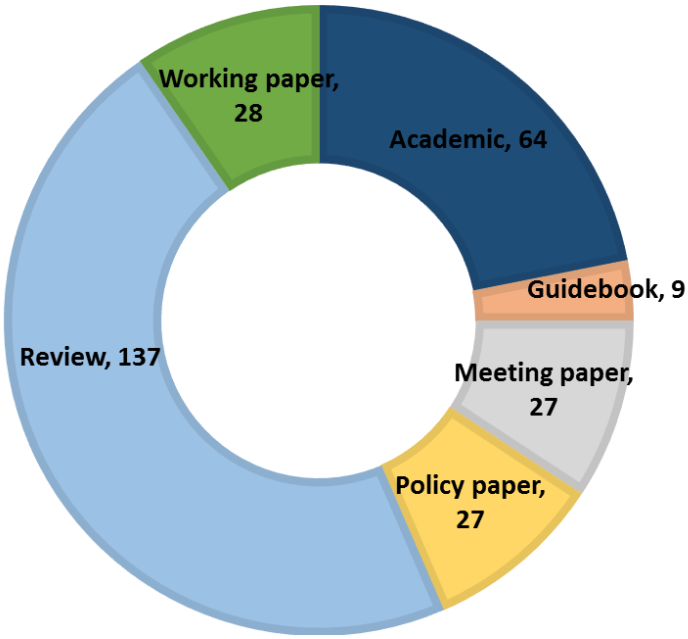


Source: CEPA analysis

3.2. Types of studies reviewed

As shown in Figure 3.2 below, the most common type of paper identified were classed as review papers (137), which provide an overview of the research questions under consideration without going through a full peer-review process. 64 peer-reviewed academic papers and 28 working papers were also reviewed. There were also a number of reports that were developed for the purpose of a meeting/ conference etc.

Figure 3.2: Type of paper reviewed

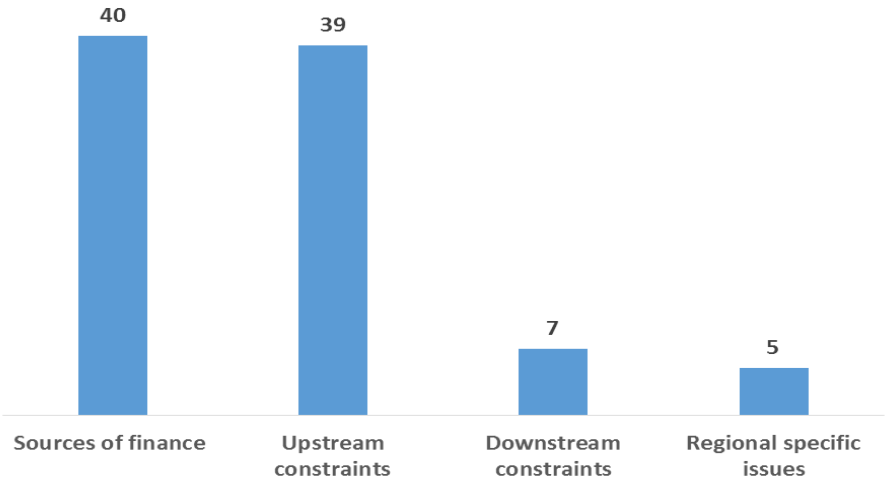


Source: CEPA analysis

3.3. Research questions covered in the academic studies

The research question(s) addressed in each paper identified through the literature search was also recorded. Figure 3.3 below, shows that of the 64 academic papers identified, the majority of them provide some coverage of issues related to the sources of finance for infrastructure and/ or the upstream constraints to mobilising increased private finance for infrastructure. Seven out of the 64 academic papers discuss the downstream project preparation constraints and 5 cover the specific issues related to regional infrastructure projects.

Figure 3.3: Coverage of the research questions within the academic research



Source: CEPA analysis

4. CONSTRAINTS TO THE DEVELOPMENT OF INFRASTRUCTURE PROJECTS PREVENTING PROJECT FROM ATTRACTING PRIVATE FINANCE

This section sets out the findings from the literature on upstream and downstream constraints that prevent infrastructure projects from attracting private finance.

4.1. Upstream constraints

The upstream infrastructure constraints are separated into institutional and financial/ macroeconomic components. Policy recommendations set out in the literature to address these constraints are then explored.

4.1.1. Academic studies on upstream constraints

Compared with the other issues covered in this Literature Review, academic studies are most prevalent on the topic of the upstream constraints to infrastructure investment. The findings from these papers are therefore summarised separately, though as Tewodaj (2013) notes, only a handful of studies have empirically investigated the determinants of private participation in infrastructure, and none has centred on SSA.

Moszoro et al. (2014) use a panel dataset, including information from the PPI database to assess the determinants of private financing of infrastructure in emerging markets and developing economies, with a focus on institutional, political and governance characteristics. They use data from 130 developing countries for the period 1990 to 2010. Their analysis finds that private participation in infrastructure financing is positively associated with freedom from corruption, rule of law, quality of regulations, and decreases with court disputes. Their study also finds that legal systems—types of democracy or dictatorship—do not play a role in whether the private sector invests in infrastructure. Overall, they conclude that their results support the argument that industry and political stability are key ingredients to increase the level of PPI investments in infrastructure and that the challenges from upstream "enabling" institutions, policies, and regulations and sector economics down to pipeline development need to be addressed simultaneously.

Tewodaj (2013) carries out a cross country panel data analysis to assess the determinants of PPI comparing SSA with low and middle income countries (LMICs). The study finds that PPI in LMICs seems to be determined by the 'expected factors' – larger, open, more developed democracies with lower tax burden and a more stable macroeconomic environment receive more PPI.

For SSA, Tewodaj (2013) finds that corrupt countries with inefficient governments seem to attract more PPI in infrastructure this finding is consistent with Banerjee et al. (2006).[2] Tewodaj (2013) explains this may be because corrupt countries may also have location-specific advantages that attract PPI in the first place. An alternative hypothesis is that corruption and weak government efficiency may be promoting large PPI deals with large private gains at the expense of public interest. Tewodaj concludes that SSA governments and international policy makers should revise their policies around PPI so as to stimulate investment that provides more long-term potential for growth in environments with efficient regulatory regimes in place.

[2] Banerjee, G, J; Oetzel and R. Ranganathan (2006). Private provision of infrastructure in emerging markets: Do institutions matter. This paper is not currently available in the public domain, so it wasn't reviewed for the purposes of this Literature Review.

When looking at PPI trends over time, sharp drops have been noted in times of macroeconomic crises, such as the financial crises in Asia in 1997 and in Argentina in 1999 (Harris 2003). Basilio (2011) uses econometric analysis to demonstrate that a country's economic conditions constitutes the most important driver of investment flows in emerging markets, particularly, the market size and users' purchasing power.

Jensen et al. (2005) analyse the determinants of PPI in the water and sanitation sector in 60 developing countries. Their results provide support for the hypothesis that PPI is greater in larger markets where the ability to pay is higher.

Ba et al. (2010) assess the extent to which a country's level of economic development, financial sector development and institutional quality are factors that affect private capital into infrastructure projects by looking at the energy sector across 37 mainly Middle Income Countries (MICs) from 1990 to 2007. Their findings demonstrate that economic growth is a key determinant to private investment in power projects and that private investors also consider countries' governance quality. Their analysis also emphasises that the existence of an autonomous energy sector regulator significantly improves the private sector's involvement in power projects' financing, as does the presence of a well-developed financial sector. The paper concludes that developing countries should pay particular attention to enhancing the quality of regulation to ensure predictability and certainty, while also deepening their domestic financial and capital markets.

Hammami et al (2006) carry out an empirical analysis to assess the determinants of PPPs in infrastructure using three measures to capture private sector involvement (the number of PPP deals, the dollar value of PPP deals and the extent of PPP involvement in the deals) again using data from the PPI database. Their findings are that:

- Larger market size and higher customers' purchasing power are critical determinants of PPPs.
- Inflation or lack of price stability limit the number of PPPs, with their macroeconomic evidence suggesting that policy-makers need to ensure overall price stability in order to promote PPPs.
- Previous PPP experience is also an important factor in fostering additional PPPs.
- Political risk (in the form of ethnically fractionalised societies, and lack of checks and balances from the legislature) discourage the formation of PPPs.

4.1.2. Institutional constraints

The limited role for private investment in Africa's infrastructure is largely attributed to the weak enabling environment for infrastructure development in the region. Most cases of project cancellation are also attributed to this (OECD, 2012).

In a survey conducted by the OECD Development Assistance Committee (DAC), several development agencies identified political instability, weak public administration, corruption and, unreliable legal frameworks as the key barriers to promoting infrastructure development. Private investors in developing countries ranked the legal framework as the most critical "deal breaker", along with prioritising the stability and enforcement of consumer and project counterparty payments; the availability of credit enhancement or guarantees from government and/or multilateral agencies; and independence of regulatory institutions and processes from arbitrary government interference (OECD, 2012).

Similarly the World Economic Forum (WEF) and Boston Consulting Group (BCG) (2013a) note that investors in developing countries are reluctant to participate in long-term infrastructure

projects if they perceive serious weaknesses in the legal and institutional framework, or require excessive equity returns to compensate for the political risk.

The WEF and BCG (2013a) identify political and policy risk as the most relevant and unpredictable risk in emerging and developing countries. Features of the project environment, particularly political stability, political support, reliable monetary/fiscal conditions for project partners and the absence of corruption, are highlighted as forming key criteria in selecting projects for acceleration from the Programme for Infrastructure Development in Africa (PIDA) (WEF and BCG, 2013b).

Institutional weaknesses

The Africa Infrastructure Country Diagnostic (AICD) by Foster and Briceño-Garmendia (2010) indicates that there has been a limited focus on institutional strengthening of line ministries, with institutional inefficiencies estimated to result in a loss of around $17bn per annum in the region due to: uncollected bills; over-staffing; and under-pricing etc. OECD (2012) also notes that project cancellation rates in SSA may be higher due to weak institutional capacity.

Regulatory weaknesses

Findings from a survey conducted by the Multilateral Investment Guarantee Agency (MIGA) and the Economist Intelligence Unit (EIU) indicate that regulatory failings in developing countries are a top concern for foreign investors (World Bank, 2014a). In Africa, regulatory weaknesses are also identified as a driving factor behind most failed attempts at infrastructure reform and privatisation, as uncertainties in regulation can impede investor decision-making (UN HABITAT, 2011).

UN HABITAT (2011) reports that governments have established regulatory agencies for utilities following pressure from multilaterals and financial institutions, while lending by International Financial Institutions (IFIs) for investment in Africa's power sector has been bundled with institutional reforms. However, their report notes that there has been limited success with such efforts and many instances of failures, as governments have tended to adopt regulatory templates from developed countries, without adapting frameworks to the political and institutional aspects of their local economies. Foster and Briceño-Garmendia (2010) also find a lack of funding and of expert personnel to be an issue when regulators have been established.

Governance

Collier and Mayer (2014) note that there is a significant possibility of delays in projects, particularly if discretionary regulatory powers are assigned in a corrupt environment. Research by the World Bank indicates that levels of infrastructure investment are highly sensitive to sovereign risks, particularly for brownfield investments and for sectors and project types with higher retail risk, especially dependence on local currency earnings from household consumers. Concerns around government behaviour include: the threat of renationalisation, as has been the case with railways in Zambia and Tanzania; rules governing the repatriation of capital; creeping expropriation, such as through changes in the tax laws; lack of impartial regulatory price reviews; and an increase in land charges. It is estimated that 10-30% of the total value of infrastructure projects is lost through corruption and lack of transparency in developing countries (WEF and BCG, 2013a; World Bank, 2014b).

Political stability

The findings of the OECD survey (2012) indicate that donors perceive peace and security to be pre-requisites for the enabling environment in fragile states. It is also recognised that with regards to political instability, many countries in SSA have suffered from conflict resulting in high levels of political uncertainty, weak macroeconomic conditions and government institutions making it difficult to attract private capital into their economies (Brookings Institute, 2011a; UN-HABITAT, 2011).

4.1.3. Macroeconomic/ financial constraints

Non-cost recovery tariffs, exchange rate risks and an ambiguous investment climate are identified as the key upstream financial constraints to mobilising private finance for projects (Foster and Briceño-Garmendia, 2010; UN-HABITAT, 2011; Dethier and Moore, 2012; OECD, 2012; Commonwealth Business Council, 2013).

Non-cost recovery tariffs

The principles of economic pricing and cost recovery have not been universally adopted in Africa due to political resistance and social considerations (UN-HABITAT, 2011). It can be politically difficult to charge higher prices for utilities even in higher income countries, as these goods and services are often perceived as public goods. It is particularly difficult to reverse such changes once there is subsidisation in place (Dethier and Moore, 2012).

Andrés, Biller and Dappe (2013) highlight that in SA, some infrastructure services (such as piped water) are too costly to be implemented sustainably without any cost-recovery element, and therefore will fail in the long run unless this is present. In Africa, difficulties raising tariffs to cost-recovery levels and collecting bills from customers have often led to contract cancellation in the water and electricity sectors (OECD, 2012).

Foster and Briceño-Garmendia (2010) find that overall, only one fifth of utilities charge tariffs at levels sufficient to recover the full capital cost of investment, suggesting that if utility providers across the region revised their tariff levels to cover long-run marginal cost, efficiency gains could be raised to US$4.2bn per annum or 0.7% of GDP. The corresponding figure is higher when considering individual countries in the region. Reporting on the available evidence, OECD (2012) notes that adjusting tariffs to cost-recovery levels and strengthening revenue collection among utilities, would enable Kenya and Nigeria to save 1.3% and 1.7% of their GDPs each year.

Exchange rate risks

Exchange rate risks are also identified as a key concern, particularly for countries not using internationally traded currencies (Commonwealth Business Council, 2013; OECD, 2012).

Due to the narrowness of financial markets in these countries, most investors provide capital in foreign currency. However, as revenues are earned in local currency, local currency depreciation is a significant risk as it would increase the debt burden, making it more difficult to service the foreign debt (OECD, 2012).

Citing research based on renewable energy investment in Africa, the Report by the Commonwealth Business Council (2013) indicates that the private sector is unwilling to hedge exchange rate risks on currencies less commonly traded. Given that funding is required for 12-15 years for renewable energy, the use of hedging can be difficult even

when countries use major currencies, as costs increase prohibitively with an increase in tenor.

Ambiguous investment climate

With regards to renewable energy investments, a key issue concerns the uncertainty regarding the backing of Power Purchasing Agreements (PPAs) as costs and payment obligations for feed-in tariffs depend on up-front clarity (Commonwealth Business Council, 2012). Projects, particularly in renewable energy, can also be affected by force majeure risks, including accidents, extreme events and inaccurate predictions concerning wind and rainfall for hydropower projects (OECD, 2012).

4.1.4. Policy recommendations regarding upstream barriers

The need for governments to strengthen the enabling environment is emphasized, with a focus on improving the policy framework; regulations that include tariff setting at cost recovery levels and procurement; and sound public institutions for management of infrastructure (OECD, 2012; Commonwealth Business Council, 2013).

Strengthening legal and institutional frameworks for PPPs

The OECD has developed the Principles for Public Governance of PPPs emphasizing the importance of issues such as institutional capacity, value for money, and budgetary transparency (Miyamoto and Biousse, 2014). In India for instance, the implementation of a value for money framework is identified as a potential way of incentivising large-scale use of private sector participation (PSP), as the framework could systematically benchmark bids from the private sector for each project (Deloitte, 2014b).

The WEF and BCG (2013a) set out specific policy recommendations for countries in SSA, including the need for governments to formulate a comprehensive PPP policy outlining their intentions and how changes will be implemented, as well as relevant PPP laws based on international best practice, that apply across different sectors. Their report recommends that the institutional framework can be optimised by assigning clear roles and distinct responsibilities such as for policy-making, contracting/ monitoring and dispute resolution, with a role for PPP units to enhance institutional capacity.

It is emphasised that while legal and regulatory frameworks must provide adequate protection and obligations for all parties involved in PPP arrangements, the institutional framework should provide support and incentives for PPP implementation, as well as facilitate coordination between different parts of the government (World Bank, 2014b).

The MDB Working Group on Infrastructure (2011) suggest that a regional PPP expertise network could help neighbouring countries initiate PPP programmes, by facilitating the exchange of know-how and experience associated with various PPP strategies, while also helping to harmonise regulatory practices and enhance policy transparency. Miyamoto and Biousse (2014) report that several donors have also facilitated South-South knowledge exchange on PPPs.

Strengthening regulatory agencies

With respect to the renewable energy sector, the Commonwealth Business Council (2013) has identified the potential for regulatory frameworks in the renewable energy sector in African countries to adopt energy policy mechanisms (e.g. feed-in tariffs, quotas, tax incentives) and finance policy mechanisms (e.g. banking regulations, interest rates and

monetary approaches, 'Green Bonds' schemes and the creation of new financing institutions). The report also notes that there may be scope for regulatory reforms within local energy markets to foster competition and facilitate the free entry and exit of new renewable energy providers.

The OECD (2012) has similarly highlighted the need for reforms in the broader energy sector, to allow independent power producers to operate. The success of the telecommunications sector in Africa is attributed in part to liberalization in licensing, which led to increased numbers of market players and enhanced competition.

More generally, the importance of independent regulatory institutions, transparency and predictability of regulatory regimes for strengthening the investment climate is emphasised (UN-HABITAT, 2011; WEF and BCG, 2013a; World Bank, 2014b). Summarising findings across a number of studies, the UN-HABITAT (2011) notes that key features for effective regulation of privatised utilities include: coherence, independence, accountability, predictability, transparency and capacity.

However, Foster and Briceño-Garmendia's findings (2010) indicate that the impact of introducing independent regulatory bodies has been mixed, as regulators that lack the necessary capacity can lead to unpredictable decisions introducing more risks ("regulatory risk"). They demonstrate that positive impacts associated with establishing regulation have only been clearly identified in the telecommunications sector, while there has been minimal impact of regulation in the power and water sectors.[3] Collier and Mayer (2014) recommend that developing countries in Africa, could draw on the extensive knowledge and experience of OECD regulators by using them to advise, oversee or even undertake regulation of infrastructure projects in the region.

Support from multilateral institutions

DAC has encouraged donors to promote private investment by strengthening the capacity of public bodies in legal, regulatory, and administrative reforms and frameworks (OECD, 2012).

The World Bank and EU institutions have undertaken significant activity to address the gaps in the institutional environment. The OECD DAC Creditor Reporting System data indicates that 22% of Official Development Finance (ODF) directed to Africa's infrastructure has been allocated by development agencies to supporting improvements in the enabling environment, mostly through provision of capacity building, such as by training government staff in various stages of planning and operations (OECD, 2012). Miyamoto and Biousse (2014) finds that donors provide around 15% of the funding for developing countries to improve the enabling environment by building capacity of partner government ministries, PPP units, regional organisations, or local administrations.

Bilateral support for the enabling environment is often channelled through multi-donor platforms such as the Private Infrastructure Development Group (PIDG), and contributions to the World-Bank hosted Public-Private Infrastructure Advisory Facility (PPIAF), which provides technical assistance to governments to support development of a sound enabling environment and the adoption of PPPs in infrastructure across several countries in both SSA and SA (OECD, 2012). Other facilities identified as focusing on developing the enabling environment include: the DFID-financed Nigeria Infrastructure Advisory Facility (NIAF), which supports Nigeria in improving its infrastructure through policy and strategy formulation, planning, project implementation and private sector investment; the Technical Assistance Facility (TAF), which supports PIDG companies through the development of

[3] Note that transport was not included in the analysis.

potential investment opportunities and capacity support; and the EU-AITF which supports a group of European DFIs active in regional and national infrastructure projects (ICA, 2012; OECD, 2012).

Many donor countries, such as the US and the UK, have also directed significant levels of aid to support improvements in areas such as general public sector policy and administrative management, decentralisation, financial sector development, and privatisation. It is recognised that while these may not directly relate to infrastructure per se, they nonetheless could have spill over effects on private investment in infrastructure. For instance, Portugal has worked with partner countries such as Angola to help strengthen their capacity in statistics, land planning and general investment policies, while the IFC provides advisory services to improve countries' broader legal and regulatory frameworks to make these more conducive to private sector activities (OECD, 2012).

However, evaluating the support for PSP in developing countries' infrastructure, Miyamoto and Biousse (2014) find that almost 70% of ODF for infrastructure is directed to upper middle-income countries, which may benefit from relatively developed domestic financial sectors. They conclude that there is need for improved coordination between the various agencies within donor countries or multilateral institutions, in addition to the creation of a transparency monitoring mechanism of DFI activities, with the objective of ensuring the additionality of official support and increased aid effectiveness.

While countries in SSA have been active in developing legislation conducive to PSP in infrastructure, Foster and Briceño-Garmendia (2010) suggest that the telecommunications and electricity sectors have seen the most progress in implementing reforms, followed by transport. However, UN-HABITAT (2011) has detailed some recent improvements in transport, as arbitrary regulation is replaced with consensual performance contracts. Countries are also reported to have started establishing more sustainable institutions in the highways sector, such as autonomous road agencies and dedicated road funds, with positive results demonstrated in some cases.

Addressing financial risks through risk-mitigation instruments

Collier and Mayer (2014) highlight the need to expand the provision of risk mitigation facilities. A key aspect of the investment decision often depends on the availability of credit enhancements or guarantees from governments or multilateral agencies, with a role for such financial instruments to provide investors with control over political and commercial risks, and better management of risks that cannot be controlled, such as risks associated with (re-) financing and interest rates, exchange rates and currency convertibility (OECD, 2012; WEF and BCG, 2013a).

The key risk-mitigation instruments identified by the OECD (2012) include Partial Risk Guarantees (PRGs), Partial Credit Guarantees (PCGs), Political Risk Insurance (PRI), Currency Risk Coverage and Export Credit Guarantees (ECGs). While MIGA for instance, provides guarantees against non-commercial risks to investors and lenders; within the PIDG Group, GuarantCo provides long-term guarantees for local currency financing. By extending the tenors provided by local lenders, GuarantCo also increases the availability of long-term local currency financing and hence reduces the currency risk (OECD, 2012).

WEF and BCG (2013a) have also encouraged MDBs to develop more standardised solutions to mitigate political risk, such as extending the scope of existing instruments or arranging country-specific guarantees against credit defaults. Having such risk mitigation instruments in place would increase the score received by PIDA projects with regard to political risk, in the proposed selection process by WEF and BCG (2013b)

Raising user fees to cost-recovery levels

The importance of raising tariffs to cost-recovery levels is recognised as providing efficient price signals and helping recover lost revenues (Foster and Briceño-Garmendia, 2010). Correcting the current under-pricing and targeting subsidies more effectively are identified as key priorities for addressing problems in Africa's power sector (Commonwealth Business Council, 2013).

Dethier and Moore (2012) note that historically it has been easier to raise user fees in sectors with more commercially minded customers (such as ports, airports and freight rail) and where goods are perceived as luxury (such as mobile telephony). Policy-makers and infrastructure providers in developing countries have found it most difficult to raise tariffs in the electricity and water sectors due to political issues associated with charging higher prices for services that are largely regarded as being goods that should have universal access (Dethier and Moore, 2012).

Recommendations to overcome such issues include providing one-off capital subsidies to cover network connection costs, linking tariff increases with improvements in service delivery, automatically indexing tariffs to costs and installing prepayment meters to alleviate payment culture issues (Foster and Briceño-Garmendia, 2010).

4.2. Downstream constraints

Downstream infrastructure constraints are separated into technical and financial constraints associated with project preparation capacity. The policy recommendations set out in the literature to address these constraints are then drawn out.

4.2.1. Financial capacity

The Infrastructure Consortium for Africa (ICA) (2012) funded an assessment of the existing capacity of project preparation facilities (PPFs) in Africa. The report concludes that the level of funding provided by PPFs represents a significant and increasing shortfall in infrastructure project preparation support, and that unless it is addressed, it is likely to lead to a reduction in the number and quality of projects available for MDB / DFI / private financing in future years. An additional finding is that the funds available to support preparation activities have been fragmented across a large number of facilities. The report notes that this has reduced the potential impact of the PPFs, losing economics of scale and other potential benefits.

A similar finding is made in the conclusions of the Dakar financing summit (2014), which states that inadequate project preparation was one of the four key impediments to increasing private infrastructure investment in Africa (African Business Review (ABR) and NEPAD Business Foundation, 2014). While the World Bank (2013a) states that the limited flow of bankable projects, because of underinvestment in project preparation, represents a major obstacle to PPPs in infrastructure.

Leigland (2010) reports that the available funding for project preparation activities in Africa is only a fraction of what it needs to be. Leigland (2007) finds that the huge funding requirement for project preparation far exceed what African facilities have available. While PwC (2013a) concludes that unless African governments invest in project preparation the private sector will not respond effectively. The European Investment Bank (EIB) (2013) also finds that African countries are constrained by inadequate financing for project preparation and implementation.

In a guide that sets out best practices for project preparation activities, the WEF (2013) report states that the costs related to project preparation are high. The report indicates that

preparation costs are typically 1-2% for large projects (>US$ 500m); 2 – 3% for medium projects (>US$100m); and 3-4% for small projects (<US$100m). OECD (2012) states that in countries with well-developed PPP frameworks, project preparation costs typically amount to around 1% of the total project costs, while in countries with more limited PPP experience project preparation costs are in the range of 3% to 10%. Leigland (2010) notes that in Africa, approximately 10% of a project's total investment costs is typically needed for project preparation activities, compared to the 3 to 5% more common in developed markets.

Adam Smith International's review of PPFs in SA for the G20 Working Group (2014) reviews 18 institutions carrying out dedicated project preparation activities across SA. The review finds that typical funding for project preparation activities is low and recommends that there is a need to increase allocations to improve quality and to facilitate increased infrastructure investment.

4.2.2. Technical capacity

There are as many as 67 organisations targeting Africa that are purported to be carrying out PPF. However, of these, only a handful are actively involved in the provision of project preparation activities ICA (2012). The report also finds that there is a gap in the availability of early-stage project preparation support in Africa, relating to the SSA governments' ability to negotiate transactions that have been originated by the private sector.

World Bank (2011) uses the results of a case study of six African countries to conclude that one of the primary reasons for the delays in the implementation of infrastructure projects is the lack of capacity for project development and preparation. It concludes that local expertise for project preparation therefore needs to be strengthened, from project conceptualisation all the way to the design stage and for implementing accompanying reforms (OECD, 2009). In a case study that draws on findings from the Rift Valley railway concession, Mutambatsere, Nalikka et al. (2013) find that the presence of MDBs to support project preparation activities, was a key factor behind the railway concession reaching financial close, given the lack of capacity in the existing government institutions.

Leigland and Roberts (2007) state that project preparation has proven to be more complicated than originally anticipated in the design of many of the PPFs. They note that many of the African PPFs are designed to work on fairly mature projects - to establish bankability through feasibility studies and take them to financial close. However, many of the PPFs have found that little of the necessary pre-feasibility/ concept design work has been undertaken to enable projects to reach even feasibility stage. The authors note that the PPFs do not have the mandate to engage in early stage project development activities. Similarly in SA, Adam Smith International (2014) find that current project preparation efforts are adversely affected by the lack of attention to upstream activities such as strategic planning.

Nigeria's public service has a very low capacity to appraise and implement PPP projects (AfDB, 2011). This low capacity has already manifested itself in incomplete project preparation, lack of bankability studies, inadequate financial models and business plans, unfamiliarity with legislation, lack of experience to ensure quality and effective concession contract monitoring, among others. In addition to capacity related limitations, there are issues related to lack of transparency in the bidding process.

The literature also identifies some capacity constraints surrounding specific issues with the techniques available to carry out project preparation activities. Traditional Cost-Benefit Analysis (CBA) often leads to unrealistic analysis of infrastructure projects and as a result Africa's PPFs have found it difficult to establish their own best practices for their appraisal

efforts (PPIAF, 2007). Similarly the WEF (2013) report indicates that existing project preparation analysis includes biased demand and cost forecasts. In addition, it notes that there are issues related to the use of inadequate risk sharing/ mitigation structures in project design; failures in the engagement with stakeholders as part of the process of developing the projects; and delays in the necessary land acquisition and approvals.

Eberhard (2010) discusses the importance of effective project structuring and the role that this has had in determining the success of Independent Power Purchaser (IPP) deals across SSA. The report considers the critical barriers and success factors for IPP deals in Africa and notes that a key issue concerns the extent to which the project sponsors are able to develop an appropriate financing structure given the nature of the project and the requirements of potential sources of finance.

4.2.3. Policy recommendations

Address the fragmentation of project preparation activities

The St Petersburg Accountability Report on G20 Development Commitments (2013) suggests that the key actions for the period 2014 – 2017 should include improving the effectiveness of PPFs by creating a global network of facilities. The report also notes that more effective and co-ordinated PPFs are needed to promote PPPs. This could be progressed by the creation of a global network of regional PPFs, building on existing facilities and with more sustainable funding mechanisms. Similar recommendations were made in the earlier High Level Panel on Infrastructure Recommendations to the G20 (2011).

Alexander (2013) emphasises the importance of creating a network of PPFs to ensure that their activities are carried out effectively. The ICA (2012) assessment recommends that synergies and complementarities across both the existing and the new PPFs are utilised and that the new institutions are adequately resourced, in terms of finance and technical capacity.

WEF (2013) notes that a number of the Regional Economic Communities (RECs) either have or are in the process of setting up their own PPFs, identifying that the Economic Community of West Africa States (ECOWAS) is setting up a PPF. ICA (2012) recommends that the REC based PPFs need to be focused on priority initiatives (such as transport corridors) rather than being generic facilities. According to the report, this would lead to a link forming between RECs/ national governments and project financiers.

The EIB (2013) recommends that donors should consolidate their support for project preparation activities. The report notes that combining official development assistance in upstream activities alongside private finance in project preparation, as is the case in InfraCo, is an innovative approach that is more able to absorb the risks related to project preparation.

In SA there is also a need to rationalise the funding for project preparation activities, with consideration given to establishing a new facility with the ADB and World Bank for the preparation of an increased number of infrastructure projects. (Adam Smith International, 2014).

Performance assessment of PPFs

The St Petersburg Accountability Report on G20 Development Commitments (2013) recommends that a broader global assessment of PPFs is required that goes beyond the ICA (2012) study, to help determine which PPFs should be moved forward by the MDBs.

ICA (2013a) concludes that more work is required to capture the cost, performance and other data relating to the preparation of projects. In addition, benchmarking of the PPFs is needed to better assess the performance of the organisations.

Information on PPF and broader project preparation

In a scoping exercise carried out by completing consultations with 50 stakeholders and by undertaking a preliminary analysis of 56 PPFs, Schneider-Roos et al (2014) conclude that part of the difficulty that the private sector has in accessing finance for project development activities, is that there is no simple way to get an overview of existing funding possibilities. Their analysis recommends that a global database of existing project preparation funds is required, and that such a database would facilitate a better understanding of the performance of the existing facilities. This would need to be established in cooperation with the existing ICA Fund Finder.

Global Infrastructure Basel (2014) suggests that the existing early stage project development support does not set a comprehensive set of standards to help ensure the sustainability of potential infrastructure investments. Their report recommends that there is a need to develop a sustainable infrastructure PPF that invests specifically in early stage projects to ensure the sustainability of a project.

Increasing local capacity for project preparation

The MDB Working Group (2012) provides a series of recommendations to improve the local capacity for PPFs:

- Use existing PPP Units in developing countries to concentrate expertise and improve coordination.
- Establish a fellowship programme supported and managed by the private sector.
- Develop common standards for PPP documentation.
- Review existing PPFs and restructure them to be more sustainable placing a greater emphasis on recovering the costs of project preparation.

More general interventions to improve project preparation capacity

The recent Dakar Financing Summit for Africa's Infrastructure mentions that the range of sources of finance for project preparation activities has to be expanded (ABR and NEPAD Business Foundation, 2014). It notes that innovative approaches to secure more private sector involvement in project preparation are needed, citing the intention of the Africa50 Fund and the proposed World Bank Global Infrastructure Facility (GIF) to lower investor risks in an attempt to leverage increased private capital for project preparation activities.

ABR and NEPAD Business Foundation (2014) also recommend that novel approaches to attract venture capital need to be considered, such as the use of partial risk guarantees to limit the down side risks to private investors.

Public funds could be used to provide initial seed funding to explore the viability of projects based on transparent criteria. Public funding of feasibility studies and other project preparation costs can crowd-in private investment. Without some public financing of these up-front costs, projects will never become bankable (World Bank,2013a).

Collier and Mayer (2014) recommend that alongside the provision of technical support for project development activities, there is a need for donors to provide catalytic finance for

'political entrepreneurs' that are focused on overcoming the political economy constraints that have stymied the development of projects in Africa.

OECD (2009) recommends that PPFs should be developed that can channel funds towards a large number of smaller projects rather than a relatively few landmark projects; such facilities would be able to ensure that a larger number of beneficiaries benefit from the projects.

5. CONSTRAINTS IN FINANCIAL MARKETS PREVENTING PROJECTS FROM ATTRACTING PRIVATE FINANCE

This section reviews the available literature that covers the question of whether there is a supply of infrastructure projects in SSA and SA that cannot be financed because of issues faced in domestic and international credit and capital markets. The availability of private finance, the sources of finance and the barriers to accessing those instruments as well as the policy recommendations to address them are then discussed.

5.1. Availability of private finance

As part of the AICD, Foster and Briceño-Garmendia (2010) estimate Africa's total infrastructure financing needs at $93bn a year. Annual contributions to infrastructure amount to $45bn, with public finance being the main source of funds. Even if all potential efficiency gains were to be fully captured by addressing inefficient management and poorly targeted subsidies or tariffs, they estimate that there would still be a funding gap of circa. $31bn per annum in the region, with a critical need to leverage alternative sources of finance, such as private finance to close the gap. In the SA region, an infrastructure investment gap of US$2.5 trillion is estimated over the years 2010 to 2020 (Andrés, Biller and Dappe, 2013).

5.1.1. Trends in private finance for infrastructure in SSA

A presentation by the World Bank (2014a) indicates that over the period 2003 – 2013, 153 infrastructure related finance deals were completed in Africa, with an estimated value of $59bn. This accounts for a very small proportion of the global finance for the overall infrastructure market over the corresponding period – around 8% of all deals by number and 1% by size.

Only 21 countries in SSA have had one or more deals completed in the past ten years, with four countries, Nigeria ($17bn); Ghana ($11bn); South Africa ($10bn); and Angola ($4bn), accounting for 70% of the total deals completed in the region, mainly due to a few, very large projects. The majority of deals completed (64%), totalling $37bn, were in the oil & gas and mining sectors (World Bank, 2014b).

Local infrastructure investment is reported to increasingly involve investors with a stake in the developed asset, such as companies in extractive industries. New private investors are also attracted to sectors with sources of revenues that are additional to infrastructure-related revenue streams from off-take agreements, such as co-generation in Tanzania, Kenya and Mozambique (EIB, 2013).

While the presentation by the World Bank (2014a) indicates that $8.9bn was provided for private infrastructure finance in SSA in 2012, data from the Dealogic database presented in the IFLR1000 Energy and Infrastructure SSA Guide (2013) estimates this figure at $13bn. The OECD (2012) notes difficulties in accurately estimating private investment as there is no official data on FDI contributions to Africa's infrastructure. ICA's Annual Report for 2012 (2013b) also identifies limitations to the trend analysis on investments in African infrastructure, particularly, a lack of consistent datasets and the lack of a central database of activities of private sector investors or commitments by China.

5.1.2. Trends in private finance for infrastructure in SA

Using information available in the PPI database, PPIAF (2013) has determined the number and size of PPI infrastructure projects in the SA region over the period 1990 to 2012. Although overall the level of PPI sector investment has declined in the years immediately after the financial crisis, there is a significant upward trend in the level of investment over the period under consideration, with a year-on-year investment growth in the region of around 14%, since 2002. In 2012, 128 new infrastructure investments are estimated to have reached financial close, with the vast majority (106) completed in India.

Within India, to date, private developers have largely depended on financing from state-owned banks for the majority of debt provision. The banking sector is now approaching exposure limits to the asset class and increased levels of Non-Performing Assets, following a period of credit expansion. An investment need of $1,000bn is estimated under the Twelfth Five-Year Plan (2012-2017), of which 47% is expected to be privately financed, up from 38% in the Eleventh Five-Year plan. The increase is to be supported by the promotion of non-recourse financing; project bond solutions and infrastructure debt funds, in addition to improvements in the enabling environment and an increasing role for development banks. The state-owned infrastructure investment vehicle – the India Infrastructure Finance Company Ltd (IIFCL) is expected to play a key role, and has been authorised by the government to issue US$2bn in tax-exempt bonds (PPIAF, 2013).

5.2. Financial instruments and institutions providing finance for infrastructure

The table below summarises the financial characteristics and potential investors for the different phases of a project life cycle. A different mix of financial instruments is required at each stage, given their distinct risk and return profiles and incentive problems (PPIAF, 2011; Bank for International Settlements, 2014).

Table 5.1: Local sources of finance for infrastructure

Stage	Financial characteristics	Type of investment required
Planning	• The authority procuring the project needs to find equity investors, who in turn have to secure commitments from debt investors, typically in the form of bank lending. • Given the significant uncertainty and potentially lengthy planning period, the initial commitments by debt investors tend to be high cost.	• Equity sponsors need a high level of expertise, and are typically construction companies or governments. • Debt financing is usually from banks (through syndicated loans). • Bond financing is rare as projects carry high risks in the initial phase.
Construction	• This is a high-risk phase in which unlikely events may arise, stemming from the complexity of projects. • Default rates are relatively high. • The pool of potential equity investors is restricted as few have the highly specialised technical expertise and monitoring that is required.	• Again there is typically a reliance on equity, with construction companies themselves often best placed to provide this given the information requirements. • Sponsor equity may be complemented with bridge loans and subordinated or mezzanine debt. • The decision for potential lenders about whether to provide debt is

Stage	Financial characteristics	Type of investment required
	• Initial commitments from debt-holders must extend beyond this stage, given that there is no cash flow generated.	typically determined by the credibility and financial capacity of the project sponsor or Special Purpose Vehicle (SPV), if one is in place.
Operation	• If a project reaches the operation phase and starts to generate cash flows, the level of risk declines significantly.	• At this stage the project become similar to fixed income securities, which makes bond financing a suitable financing instrument. • Bond finance often comes into play when the initial bank loans are being refinanced. Although growing, this is not yet very common, with the debt from the initial phase typically refinanced through bank loans or government funds.

Source: PPIAF (2011): Towards better infrastructure: conditions, constraints and opportunities in financing PPPs; BIS (2014). Understanding the challenges for infrastructure finance.

The main sources of finance for infrastructure projects that are identified in the literature are (i) DFIs; (ii) institutional investors; (iii) public sector sources of finance; (iv) local sources of finance for infrastructure; and (v) international private sources of finance for infrastructure (Bhattacharyay, 2010; Kingombe, 2011; PPIAF, 2011; Hildyard, 2012; OECD, 2012; Baker & McKenzie, 2013b; Commonwealth Business Council, 2013; ECDPM, 2013b; EIB, 2013; PWC, 2013a;G20 Working Group, 2013; Mengisstu, 2013; 27Four Investment Managers, 2013; Deloitte, 2014; Inderst and Stewart, 2014; World Bank, 2014b).

5.2.1. DFIs

The table below sets out an overview of the main financial instruments currently provided by DFIs.

Table 5.2: Overview of current sources of finance for infrastructure provided by DFIs

Instrument	Description	Examples of institutions
Sponsor/ developer equity	• Support the development of projects. • However, only a few specialist public and private developers are deemed to be viable in terms of financial and technical capacity.	InfraCo Africa; Infra Ventures; AFC; Aldwych; Globeleq; Aeolus
Bridge financing	• Provide short-term finance until the project can obtain longer-term financing, with the aim to 'crowd in' other sources of finance. • There are fewer instances of this at present.	AfDB; IFC
Term finance	• Provide funds directly to projects or to specific infrastructure dedicated funds, usually for early-stage and high-risk projects. • Finance is typically provided in the form of equity and subordinated debt.	CDC Group; FMO; EAIF; Belgian Investment Company
Guarantees	• Provide cover to investors for commercial and political risks faced over the project life cycle,	MIGA; GuarantCo; Proparco; AfDB

Instrument	Description	Examples of institutions
	largely benefitting large-scale projects.	
Blended finance	• Combine concessional financing with market-based finance, often to fund interest rate subsidies.	The EU-Africa Infrastructure Trust Fund; IFC; EBRD; FMO;
Export credits	• Around $30bn of finance is provided (including sovereign deals, but excluding South Africa), mostly to extractive industries. • Support exports and services provided by private companies.	International Export Credit Agencies; Norwegian Guarantee Institute for Export Credits

Sources: OECD (2012). Mapping support for Africa's infrastructure investment; ICA (2013b). Infrastructure financing trends in Africa; Deloitte (2014a). Africa Construction Trends Report (2013); Cedric Achille, Mbeng Mezui and Bim Hundal (2013). Structured finance: Conditions for infrastructure project bonds in African markets; WEF (2013). Strategic infrastructure finance in Africa: A business approach to project acceleration.

5.2.2. Institutional investors

There is a renewed interest in mobilising finance from well-capitalized institutional investors, with the objective of adding more liquidity into the market and financing the infrastructure gap (PWC, 2013a; World Bank, 2014b).

Institutional investors such as pension funds and insurers have sought out new sources of long-term, inflation-protected returns over the last decade within the context of a low interest rate environment, falling sovereign debt yields and volatile stock markets (Commonwealth Business Council, 2013; G20 Working Group, 2013;OECD, 2013a; PWC, 2013a;). Inderst (2009) confirms that more pension funds are inclined towards investing in infrastructure as if offers the opportunity to protect against market volatility, inflation and interest rate risks.

Opportunities are identified for institutional investments to invest in infrastructure through: (i) infrastructure bonds; (ii) infrastructure funds; (iii) debt finance; (iv) equity investments; and (v) re-financing of projects (Hall, 2009; IDFC, 2009; Chuckun, 2010; Foster and Briceño-Garmendia, 2010; AfDB, 2011; Bond, Platz and Magnusson, 2010; Hildyard, 2012; Stewart and Yermo, 2012; Baker and McKenzie, 2013b; ECDPM, 2013a; PWC, 2013a; OECD, 2013a; WEF and BCG, 2013b; Collier and Mayer, 2014; Inderst and Stewart, 2014; World Bank, 2014b).

The OECD's Annual Survey (2013) of Large Pension Funds (LPFs) and Public Pension Reserve Funds (PPRFs) notes that funds with a separate investment allocation to infrastructure perceive infrastructure as an asset-class in its own right, and typically look for direct exposure to the characteristics of the sector, largely through project bonds and unlisted equity instruments, including investment in projects and infrastructure funds. Indirect exposure is usually associated with listed equity and corporate debt. The investment approach is driven by different factors such as maturity of the infrastructure market; pension funds systems (size of funds); regulation; and sector experience.

Infrastructure bonds

Top-tier institutional investors are the primary purchasers of sovereign bond issuances in SSA recently, driven by the region's higher yields and improved sovereign risk profiles (Bloomberg, 2013).

Recent successful sovereign bond offerings by countries such as Zambia, Ghana and Nigeria indicate that the global investor base is more open to African credits than ever before, although there may still be a role for credit enhancements to ensure that bonds meet the minimum investment grade, given the underlying risks in African project finance (WEF and BCG, 2013b).

The growing pools of African capital and substantially wide investor base of such capital markets could also address the infrastructure funding gap, particularly as domestic capital can help mitigate currency risks for countries issuing bonds, as well as have a better understanding of local operational and political risks (WEF and BCG, 2013b). The following table presents some of the key pension fund players in SSA, as identified by WEF and BCG (2013b), summarising their resource base and potential.

Table 5.3: Key pension funds in SSA, in terms of resource base and potential

Country	Concentration	Assets (US$ bn)	Corporate bonds
Kenya	17 fund managers; NSSF has 1/3rd assets	5	Can hold up to 30% of portfolio, but currently 6%
Uganda	NSSF accounts for 95% of pension assets	0.8	NSSF holds 2.5% of assets in corporate bonds
Tanzania	Five largest funds account for 60% of total assets	2.1	New guidelines put 30% limit on corporate bonds
Nigeria	Top 3 control 55% as- sets; top 5 control 69%	14.3	35% limit on non-sovereign bonds; currently holds 2.5%
Ghana	SSNIT dominant; 14 PFAs (Pension Fund Administrators) registered for new fund	2	30% limit; currently no corporates in market
South Africa	GEPF has c.37% assets; competitive private FMs	312	Regulation 28 allows 100% investment in fixed income corporate bonds
Namibia	GIPF has 82% assets; Largest PFA has 60%	8.5	Permissive regulation allows corporate bonds
Botswana	BPOPF is largest fund; no data for others	5.6	Permitted but limited availability
Zambia	NAPSA and AfLife are around 80% of market	2	20% in a single sector

Source: WEF (2013). Strategic Infrastructure in Africa A business approach to project acceleration.

National insurance assets have been invested in telecommunication bonds in Mozambique, while pension funds in South Africa, Namibia and Botswana having purchased infrastructure bonds in both local and regional capital markets (ECDPM, 2013b; Inderst and Stewart, 2014). Stewart and Yermo (2012) review the existing evidence on pension fund investment in infrastructure in "new" markets, finding that pension funds in Kenya have also taken up significant portions of the recent issue of Kenyan government infrastructure bonds, with maturities ranging between 8 – 20 years, and offering incentives such as qualification for statutory liquidity requirements and higher agency commissions.

In India, bank debt rather than bonds dominates as the instrument used for privately funded infrastructure, with "effectively no project bond market thus far" (PWC, 2013a). Similarly,

the bond market in Bangladesh is relatively small, with a completely illiquid and underdeveloped corporate bond market (Faisal and Ridwan, 2010).

Infrastructure funds

Infrastructure funds offer an opportunity for institutional investors to mitigate risks through exposure to a basket of projects rather than making direct equity investments in specific projects (Hildyard, 2012; Inderst and Stewart, 2014).

Inderst and Stewart (2014) explore the potential models for institutional investment in emerging markets and developing economies (EMDEs), noting that infrastructure funds may be particularly appropriate in the context of low sovereign credit ratings and a smaller number of more centralized investors. They find this to be the case in Asia, where large social security funds are partnering with governments and MDBs to set up infrastructure funds or facilities. Commercial funds may also be set up in the form of unlisted private equity funds, mutual funds or listed investment trusts (Inderst and Stewart, 2014).

Hildyard (2012) focuses on the implications of the evolving 'infrastructure as an asset class' industry, on the growing role of private equity infrastructure funds in financing infrastructure in developing countries. The briefing notes that although public pension fund investment from developed economies is largely directed towards North American and European infrastructure funds, there has been some investment in emerging-market focused funds. Examples include 3i India Infrastructure Fund, which has drawn investments from Scotland's Lothian Pension Fund, the Netherland's All Pensions Group and Canada's Alberta Investment Management Corporation. Findings of the OECD's Annual Survey of LPFs and PPRFs (2013) indicate that investment in unlisted infrastructure funds accounted for 38% of the total $64bn allocated to unlisted infrastructure equity at the end of 2012.

There is also some evidence of investment in infrastructure funds by domestic institutional investors in SSA, with South African insurers and pension funds investing in the Pan African Infrastructure Development Fund or the South African Infrastructure Fund (Chuckun, 2010; Inderst and Stewart, 2014). Ghana's Social Security and National Insurance Trust (SSNIT) is also identified as one the nine investors of the Pan African Infrastructure Fund, and has invested in Emerging Capital Partners (ECP), which manages six private equity funds investing in Africa, including AIG Africa Infrastructure Fund and the Canadian Investment Fund for Africa (PPIAF, 2011).

Non-bank lending

There has been increased debt financing from the insurance sector in India, predominantly from Life Insurance Company (LIC), with the perception that such investors may be more comfortable lending to projects through highly rated Non-Bank Financial Corporations (NBFCs) which have deep sector knowledge and risk appetite for long gestation projects (IDFC, 2009).

The recent development of Infrastructure Debt Funds (IDF) in India also offers an opportunity to attract more institutional financing, either by pooling resources across a range of infrastructure assets under a Mutual Fund Structure, or with the creation of an NBFC that is restricted to investing in PPP projects that have completed one-year of commercial operations, with possible credit enhancements in place to attract investors. It is noted that if successful, the models could provide a framework for future funds in the region (World Bank, 2014b).

In SSA, pension funds have invested heavily in domestic debt, both historically and currently. Pension funds and insurance companies account for a third of domestic debt in the region and represent the second biggest lending source after retail banks, particularly in Kenya, Madagascar, Mauritius, Rwanda and South Africa (27Four Investment Managers, 2013). Various projects in South Africa for instance, have reportedly involved the direct participation of pension funds and other institutional investors through loans and private placements (Achille; Mezui; Hundal, 2013).

Equity investments

Although pension funds' investment in equities in many countries in SSA is limited by regulations around exchange controls and asset allocation, there has been an increased investment allocation towards equities in countries that have undertaken pension fund reforms, such as Ghana, Kenya and Nigeria. (27Four Investment Managers, 2013). In Cape Verde, national insurance funds have reportedly been invested in telecommunications equity (Irving and Manroth, 2009; Inderst and Stewart, 2014).

However, there is generally limited direct project finance, including equity, from institutional investors in EMDEs. Given the market conditions typical of such countries, investors may be more suited to lower risk instruments, with bonds used more than equity (Inderst and Stewart, 2014).

Refinancing existing projects

Refinancing of projects represents a key opportunity for attracting institutional finance, given that investors look for steady inflation-adjusted income streams, and so are largely interested in mature, operating assets with a proven and predictable cash flow (MDB Working Group on Infrastructure, 2011; Bond, Platz and Magnusson, 2012; Stewart and Yermo, 2012; PWC, 2013a; Inderst and Stewart, 2014). In South Africa for instance, institutional investors do not appear willing to take on construction risk, and instead have been brought into projects post completion (PWC, 2013a). Stewart and Yermo (2012) confirm that in general, it is usually the larger, more sophisticated investors, who are able to invest at the riskier end of the spectrum, and even then such greenfield projects constitute a small percentage of their portfolios.

In India, the minimum rating requirements (typically AA or AAA) for institutional investments present a challenge to refinancing. While there have traditionally been no credit wrappers to bridge the ratings gap, IIFCL and ADB recently signed credit enhancement documents for the GMR Jadcherla Expressway as part of a pilot initiative designed to raise the rating to a point where the project can refinance in the bond market when the bank facility matures or reaches a price reset point (PWC, 2013a).

Collier and Mayer (2014) suggest that to the extent that risks cannot be further insured beyond the use of conventional risk mitigation instruments, they could be re-bundled so that investors with a low risk-threshold, such as OECD pension funds, can invest only in the low-risk component of the project.

5.2.3. Public sector sources of finance

Sovereign Wealth Funds (SWFs); resource-backed infrastructure financing; and government infrastructure bonds are identified as the main sources of public sector support for infrastructure financing (Platz, 2009; Bhattacharyay**,** 2010; AfDB, 2011; MDB Working Group on Infrastructure, 2011; Kingombe, 2011; Hildyard, 2012; OECD, 2012; ECDPM, 2013b; EIB, 2013; Mengistu, 2013; Inderst and Stewart; Mecagni et al, 2014).

SWFs and resource-backed loans are seen as more suited to resource-exporting countries, while the issuance of government infrastructure bonds is largely limited to countries with sufficiently developed domestic bond markets (EIB, 2013).

Sovereign Wealth Funds

Kingombe (2011) has reported a diversification trend across a number of SWFs, suggesting that they will look to allocate resources to non-traditional or alternative assets, particularly infrastructure, which is consistent with their long-term higher-return focus. In addition to their long-term tenor and competitive returns, infrastructure investments may also be attractive to SWFs given their size, ability to diversify and hedge cyclical exposures, and because they often have investment guarantees (Bhattacharyay, 2010a).

Data from the "Sovereign Wealth Fund Ranking" (updated August 2013) suggests that SWFs hold over $5.8 trillion in financial assets, made up of excess reserves held by central banks (ECDPM, 2013b). Inderst and Stewart (2014) provide a more conservative estimate, reporting that SWFs have $4 trillion in Assets Under Management (AUM). Using Prequin (an infrastructure database), the authors find that 56% of SWFs invest in infrastructure, with an estimated asset allocation of around 1% based on investment volumes of $5bn over the period 2005-2012. Potential investment in EMDE infrastructure is estimated at 5% of assets, equivalent to c.$250 bn (Inderst and Stewart, 2014).

Some of the largest SWFs are located in emerging markets (G20 Working Group, 2013). China is a particularly important financier, through the involvement of the China Investment Corporation and the China–Africa Development Fund, which is estimated to have invested $540m in 27 projects in Africa (Kingombe, 2011; PPIAF, 2011; OECD, 2012; ECDPM, 2013b; Inderst and Stewart, 2014). The Libyan Arab African Investment Company is also cited as an example, having invested $800m in 13 African countries (EIB, 2013).

Within Africa, nine countries account for around $156bn, or 3% of the total value of SWFs estimated as of August 2013, and may be a more significant player than pension funds (27Four Investment Managers, 2013). Nigeria has reportedly planned to establish a $1bn SWF, including an infrastructure fund component financed by the country's oil revenues (AfDB, 2011). New funds are also being set up in natural resource rich countries such as Angola, Gabon, Mauritanian, Chad, Equatorial Guinea and Ghana, often with the specific objective of investing in infrastructure (Inderst and Stewart, 2014).

Resource-backed infrastructure financing

Resource-backed infrastructure financing involves loans that are backed by natural resources, typically in the oil and gas sector and also mining sectors (EIB, 2013).

China, the largest foreign financier of infrastructure in SSA, mainly negotiates resourced-backed loans, with investments in Angola, Nigeria, and Sudan backed by oil, in Gabon by iron, in Ghana by cocoa, and in the Democratic Republic of the Congo by copper. Under these arrangements, China's financial institutions, such as China Development Bank, provide non-concessional loans to African governments, who then contract Chinese companies to build infrastructure projects in addition to extending the right to extract natural resources (OECD, 2012; EIB, 2013; Mengistu, 2013).

Government infrastructure bonds

Examples of government bonds "earmarked" for infrastructure investments are found in Senegal, Ghana and Kenya (Inderst and Stewart, 2014). Kenya for instance, has issued three

such bonds since 2009 at a total value of $1bn, using incentives such as allowing the bonds to be used as collateral for bank loans and exempting bondholders from tax on the interest earned (EIB, 2013).

Platz (2009) has explored the potential of sub-sovereign bonds in financing infrastructure in developing countries, applying a supply and demand framework to analyse the market for such bonds in South Africa and India. On the supply-side, key factors identified include: financing needs and responsibilities of municipalities; debt service capacity; low borrowing costs; suitable regulatory and legal environments; and credit enhancements. The demand-side factors centre on financial sector composition and depth; issuer familiarity and confidence; secondary markets; and acceptable expected returns.

Infrastructure finance has been successfully raised through municipal bonds in South Africa, with four institutional bonds launched in Johannesburg totaling $506.2m, some which have received partial guarantees for 40% of the principal, shared equally by the IFC and Development Bank of Southern Africa (DBSA) (Platz, 2009). Nigeria's sub-national bond market is also reported to have grown rapidly, with bonds issued by Nigerian States (Mecagni et al, 2014; Inderst and Stewart, 2014). In India, municipalities have raised $285.5m through taxable bonds, tax-free bonds and pooled financing arrangements, mostly issued to finance water and sewerage systems (Platz, 2009).

5.2.4. Local sources of finance for infrastructure

Irving and Manroth (2009) examine the role played by local financial systems in supporting infrastructure projects across 24 countries in SSA over the period 2000 – 2006, while PPIAF (2011) conducts a similar review of six countries in SSA. Both studies consider the role of commercial banks, syndicated loans and local capital markets. Table 5.4 below summarises the information available on these sources of finance.

Table 5.4: Local sources of finance for infrastructure

Source	Key findings in the literature
Commercial banks	• Historically, the overall role of commercial banks in providing finance for infrastructure has been small. In 2006, excluding Nigeria and South Africa, the total amount of loans to the infrastructure sector in 22 countries in SSA was less than the corresponding amount in Chile (Irving and Manroth, 2009). A key issue has concerned the inability of banks to provide long-term credit, with seven years as the longest credit tenor across the six countries reviewed by the PPIAF (2011). • However, local commercial banks have an important role going forward, as European banks move away from infrastructure finance in EMDEs following the implementation of stricter regulatory restrictions. Domestic lenders have become more sophisticated in recent years, with domestic banks rather than international lenders teaming up with DFIs and ECAs to finance projects. South African banks, such as Investec and Nedbank, have co-invested in projects alongside local DFIs such as DBSA, given the local currency lending requirements of the country's Renewable Energy Independent Power Procurement Programme. • There has been an increase in commercial bank lending to infrastructure in India, with banks estimated to have provided about half of the debt finance needs of infrastructure investments until the end of the Eleventh Plan. This was facilitated by the unwinding of their excess investments in government securities maintained as Statutory Liquid Ratio.
Syndicated	• This is a growing source of finance for infrastructure projects, although the

loans	overall contribution has been modest. There were only five such deals in 2006, excluding South Africa (Irving and Manroth, 2009).
Local capital markets	• Local capital markets are described as being shallow and illiquid and not fulfilling their potential role in supporting infrastructure finance. Equity markets in SSA are also generally small; apart from South Africa, the biggest markets are in Nigeria, Kenya and Zimbabwe. • While dollar bonds have dominated local capital markets in SSA, there have been recent efforts to develop the domestic bond market such as with the issuance of a five-year local currency NGN12bn denominated bond (c$75m) in Nigeria by the IFC, and Kenya's sixth infrastructure bond for KES20bn (c$230m) in 2013. • Domestic debt markets in SSA are dominated by government, which accounts for over 75% of the local bond market capitalisation. The level of sovereign bond activity has risen significantly, with the amount of local currency debt securities issued by governments increasing from $11bn in 2005 to $31bn in 2012. Further progress required in this area includes the development of a benchmark yield curve to stimulate an increase in corporate bond lending for infrastructure projects. • There are examples of corporate bond issues being used to support infrastructure investment, such as Safaricom and Kengen in Kenya neither of which required credit enhancements. South Africa's local capital markets are also well developed with the availability of long-term credit. The country's private sector has successfully issued bonds to finance projects in water, transportation and power. However, with the exception of Nigeria and South Africa, in general the corporate bond market is perceived as being non-existent in SSA. Similarly in SA, Bangladesh and India are both described as having illiquid and underdeveloped corporate bond markets.

Sources: IDFC (2009) Financing Infrastructure; Jacqueline Irving and Astrid Manroth (2009). Local sources of financing for infrastructure in Africa: A cross-country analysis; Faisal and Ridwan (2010). Infrastructure Financing through Domestic Capital Market in Bangladesh; PPIAF (2011). Towards better infrastructure: conditions, constraints and opportunities in financing PPPs; EIB (2013). Accessing Local Markets for Infrastructure. In: Banking in sub-Saharan Africa: Challenges and Opportunities: PWC (2013a). Capital markets: the rice of non-bank infrastructure project finance; AFC (2011). Local market perspectives: opportunities in Africa's local debt capital markets; Deutsche Bank (2013). Capital markets in SSA.

5.2.5. International private sources of finance

International commercial banks

European banks have reportedly moved away from infrastructure finance in EMDEs following the impact of the global financial crisis and implementation of stricter regulatory restrictions, (Inderst and Stewart, 2014). Reviewing project finance data from the Infrastructure Journal, a report by Baker and McKenzie (2013b) also attributes the above factors with imposing immense pressure on banks and their long-term lending capabilities. Looking at transactions involving commercial project finance, they estimate that international commercial bank, lending accounted for only 8% of total project finance lending in South Africa between 2009 and the first half of 2013. This compared to local commercial bank lending which financed 69% and DFIs, which financed 23%.

International banks are also found to represent a limited financing option for infrastructure projects in the six countries reviewed in PPIAF (2011). Where they have been involved, their role has been to provide short-term financing that is enhanced by risk mitigation

instruments from the DFIs/ development partners, to reduce political and commercial risks. Examples cited include guarantees issued by MIGA totalling €71m to cover loan and hedging investments by Standard Chartered Bank of the United Kingdom and an equity investment by DP World FZE of the United Arab Emirates, for the Dakar Container Terminal, Senegal-DP World, estimated at $540m. Another key issue is that these banks cannot lend in local currency, while the exchange risk in foreign currency loans impede projects with local currency revenue.

Private infrastructure funds

Private equity funds mobilise financing from both international and local institutional investors, as well as traditional financiers, such as banks, DFIs, endowment funds, corporates and asset managers (Hildyard, 2012; EIB, 2013). Hildyard (2012) indicates that although SWFs have mostly invested directly in infrastructure projects, they are considering greater use of private equity infrastructure funds. For instance, CIC has reportedly been in discussions with Citadel Capital which has infrastructure investments in 15 African countries, while China National Development Bank has set up its own private equity fund, managed by the Sino-African Development Fund Limited Corp, to invest in Africa. In the Asian context, AIF Capital's Asian Infrastructure Fund has mobilised resources from SWFs to invest in transportation, telecommunication and power across the continent.

Quoting an unpublished World Bank manuscript, PPIAF (2011) notes that as of 2009, a total $18.9bn was raised or targeted by the 45 infrastructure funds and facilities identified to be operating in Africa at the time, with investors committing about $10bn of this total. In SA, private equity infrastructure investments are estimated to have reached $4bn by 2010 in India alone, with deals over the next three years expected to grow by 25-50% (Hildyard, 2012). However, the resources raised for investment by private equity are likely to underestimate total financial contributions to infrastructure development, as funds typically leverage this pool of capital by three or more times, marketing their own "debt funds", which typically provide both mezzanine debt and senior loans (Hildyard, 2012).

With the exception of telecommunications, private funds in the countries reviewed by the PPIAF (2011) have not been found to make significant investments in other core infrastructure sectors. However, AfDB's brief (2011) on innovative financing in the broader Africa context, indicates that both multi-sector and specialised infrastructure funds have participated in both green and brown-field projects, with private equity funds investing in various sectors, including upstream industries, with national, regional or pan-African reach.

Specialized infrastructure funds are distinguished from private equity funds based on the fact that they are created by established infrastructure firms, including upstream industries that invest in various infrastructure projects (EIB, 2013). The Macquarie Group is credited with pioneering specialized funds in the SSA region, sponsoring the South Africa Infrastructure Fund as early back as 1996. Other examples cited include the Emerging Africa Infrastructure Fund (EAIF) in SSA, a multi-donor platform providing senior and subordinated-long term project financing by pooling funding from DFIs and private commercial banks (AfDB, 2011; OECD, 2012; EIB, 2013).

Specialized infrastructure funds offer a mix of financing instruments, including equity, senior debt, subordinated debt or mezzanine finance. Amounts range from $5 - $120m per project, with foreign currency financing provided, as well as longer tenors up to 15 years, as offered by the EAIF. (AfDB, 2011; EIB, 2013).

At least ten specialized infrastructure funds have reportedly reached financial close in Africa, mobilising close to $3bn in direct financing (AfDB, 2011). Construction firms have also set up

dedicated infrastructure funds in India to raise funds more easily for new projects. For instance, more than 20 leading British construction firms and finance companies collaborated to form the British-India Roads Group (BRIG) in 2010, with the objective of capitalising on India's road-building programme by entering into JVs or SPVs with local partners (Hildyard, 2012).

International capital markets

Mecagni et al (2014) highlights that despite the currency and other risks, funding is being sought through international debt instruments to overcome a lack of long-term local currency financing in SSA.

There were significant Eurobond issuances in SSA in 2012 and in the first half of 2013, including by Ghana ($750m 10 year bonds), Rwanda ($400m 10 year bonds), Zambia ($750m 10 year bonds), Tanzania ($500m seven year private placement) and Angola ($1bn 7 year private placement) (PWC, 2013a). Overall, some 13 countries in SSA have now issued Eurobonds, in many cases to support infrastructure funding (Deutsche Bank, 2013).

However, experience of SSA countries with international sovereign bonds is still limited. Of the 11 countries in SSA that accessed international sovereign bond markets over the period 2004-2013, only three (Ghana, Zambia and Senegal) issued bonds with the stated intention to use the money raised for building public infrastructure (mainly roads, energy and transport). Most issuances are accounted for by South Africa; by the end of 2011, SSA's total international bonds stood at about 0.25% of the stock of outstanding international bonds issued by 34 emerging and developed countries but only 0.02% when excluding South Africa (Mecagni et al, 2014).

5.3. Barriers to scaling up infrastructure finance and recommendations to address them

5.3.1. Constraints to scaling up infrastructure finance

The G20 Working Group (2013) concludes that there is a lack of evidence to suggest that global financial regulatory reforms have contributed significantly to addressing long-term financing concerns. However, the report does note that reforms impacting international banks, such as Basel III, could increase the costs of long-term lending to banks with the result that the supply of loans could fall.

With the exception of South Africa, bond markets are either non-existent or at a nascent stage in SSA (27Four Investment Managers, 2014). Key constraints to the development of Local Currency Bond Markets (LCBMs) include a limited and undifferentiated investor base, mostly concentrated in domestic banks; undeveloped secondary markets; and illiquid debt instruments - which make it difficult to raise long-term financing (with the exception of South Asia) (Mecagni et al, 2014). The scarcity of long-dated instruments has also limited the evolution of a yield curve (Moody's, 2013), while the uptake of infrastructure bonds has been slowed down in part, by a lack of clarity amongst governments and project sponsors regarding the feasibility of bond finance relative to traditional sources of finance (PWC, 2013a).

In terms of equity financing, the small size and illiquidity of stock markets impede the ability of pension funds to constructively participate in Africa's financial markets (27Four Investment Managers, 2013). In the Indian context, it is difficult for recently implemented infrastructure projects to meet the restrictions imposed on institutional investments, such as a minimum dividend payment record of seven years for equity (IDFC, 2009).

Infrastructure funds are also perceived as being disappointing, given that they are often highly leveraged, charge high fees and have a short time span of less than ten years relative to the life of an infrastructure asset at typically 25-30 years (Stewart and Yermo, 2012). Similarly, Hall (2009) points to the unsustainable investment practices of such funds, particularly paying dividends and fees by taking on more debt. In India, key challenges identified for private equity investments in infrastructure include regulatory uncertainties; concerns about return; high leverage of infrastructure companies; expectations mismatch over asset valuation; and the macroeconomic environment (Deloitte, 2014b).

Barriers to accessing institutional finance

Financial allocations to infrastructure from institutional investors, in both advanced and emerging markets, are quite modest. Pension fund allocations to direct infrastructure investment on average account for just 1% of the total assets of OECD investors, and although some OECD investors have sought out infrastructure opportunities in emerging markets, they have mostly focused on upper middle-income countries (Inderst and Stewart, 2014).

While South Africa has the most developed and active pension funds industry in SSA, just 4% of total pension fund assets in the country are allocated to infrastructure (Chuckun, 2010; Stewart and Yermo, 2012). Similarly, in India, rapid growth in private insurance has not been accompanied by greater infrastructure investments, with insurance companies, pension and provident funds rarely investing in paper with a maturity longer than five to seven years (IDFC, 2009).

The following key barriers are identified as impeding institutional investors in supporting infrastructure:

- **Lack of high-quality data, and a clear and agreed investment benchmark.** Beeferman (2008) identifies a paucity of reliable data as a key issue, while Inderst (2009) confirms that uncertainty on the size, risk, return and correlations of this diverse asset class can constrain greater involvement of pension funds.
- **Limited risk-management expertise.** Findings from the OECD-AfDB (OECD, 2014b) seminar suggest that infrastructure investment by OECD-based investors is held back by insufficient investment and internal risk expertise. Infrastructure assets involve new types of investment vehicles and risk for pension fund managers, such as fluctuating leverage and ownership issues, in addition to regulatory, political and environmental risks, which they have limited experience dealing with (EIB, 2010). The high transaction costs of evaluating, executing and monitoring projects also imply that the relative returns are not attractive to institutional investors for small projects (e.g. below $30m) (Bond, Platz and Magnusson 2010).
- **Regulatory deficiencies**. Projects in both SA and SSA typically fall below the minimum AA or AAA rating required by insurance companies and pension funds, particularly OECD investors (Collier and Mayer, 2014; World Bank, 2014b; IDFC, 2009). Collier and Mayer (2014) point to an inertia in bond ratings in SSA, as African projects cannot be rated higher than a country's sovereign debt despite differences in the underlying risk structure. Financing from domestic institutional investors may also be limited by a ceiling on the share of total assets that can be invested in infrastructure, as well as restrictions on the type of investment (Stewart and Yermo, 2012).
- **Risk aversion.** IDFC's findings (2009) suggest that insurance companies in India are inherently risk-averse and tend to invest mostly in publicly listed infrastructure

companies with the objective of meeting mandated minimum infrastructure requirements (15% of Life Fund for life insurance companies and 10% for general insurance companies) rather than financing projects.

5.3.2. Policy recommendations

In addition to improving efficiency in the delivery of infrastructure finance in SSA, the EIB (2013) recommends that the public sector can mobilise domestic resources by removing exemptions and strengthening tax administration to increase public revenues; introducing tax incentives to promote long-term savings. The report notes that African governments can also incentivise private investment in projects by providing risk mitigation instruments, such as viability gap financing, and "sweeteners" for risky partnerships, such as guaranteed floor returns and tax holidays, as was recently the case with the Dakar Toll Project.

More broadly, Collier and Mayer (2014) provide a series of recommendations on how public money can be used to catalyse increased private infrastructure finance. Their suggestions include:

- The increased provision of **political risk insurance** in SSA by MIGA, the World Bank's political risk insurance arm, with consideration given to using International Development Association (IDA) credits to cover the costs of the insurance premium related to important infrastructure projects.
- The provision of **currency hedges**, potentially by organisations such as GuarantCo , to provide investors with insurance against the risks caused by the fact that the revenue streams from most infrastructure projects in SSA are in local currency.
- **Re-financing** through divestment of the existing portfolio of operational infrastructure projects by DFIs such as IFC, FMO and CDC, with the intention to sell them on to more suitable long-term providers of finance such as bond markets and institutional investors. This would inject additional liquidity into these agencies enabling them to carry out more activity where they are most needed.

Recommendations for innovative financing for infrastructure from the African Centre for Economic Transformation (ACET) (2011) include leveraging ODA to mobilise resources from SWFs, by providing insurance against risks and financing the gap between the terms on which capital is raised from SWFs and the terms on which they are provided to LICs for sovereign borrowing. In this context, there is a proposed role for MDBs to administer a Low Income Country Infrastructure Fund (LICIF) that would intermediate the transactions, providing term finance at reasonable interest rates, to boost private involvement in infrastructure.

Inderst and Stewart (2014) highlight that MDBs can mobilise private sector financing not just through the provision of risk mitigation instruments, but also by bringing in advisory and well-established technical standards and safeguards to EMDE projects, with the objective of raising investor confidence and reducing the investment risk premium.

Within the Indian context, the IDFC (2009) has made recommendations to improve the functioning of the domestic financial system through the creation of mechanisms to address the asset-liability mismatch inherent in infrastructure lending by banks and NBFCs, and by distributing risks more widely across a broader range of investors. A more recent report by Deloitte (2014b) has proposed a number of banking reforms to address the infrastructure-financing gap in India, including (i) further capital raising by public sector banks; (ii) reducing banks' infrastructure debt financing burden by allowing commercial banks to raise infrastructure bonds which are exempt from taxes; (iii) introducing a refinancing scheme

with matching tenors; and (iv) providing banks with more flexibility to churn their infrastructure loan portfolio (e.g. by implementing a regulatory framework for multi-asset CDOs which facilitate securitisation).

Deloitte (2014b) also proposes measures to enhance equity availability in India, such as policy amendments to facilitate greater participation in private equity by domestic entities such as pension and provident funds, banks, insurance companies etc.; listing of funds by the Security and Exchange Board of India (SEBI) to provide greater liquidity to investors; as well as, bringing tax treatment on unlisted equity shares for approved sectors on par with listed shares.

Recommendations for mobilising institutional financing for infrastructure

A number of papers published by the OECD call for governments to tap infrastructure financing from institutional investors, such as pension funds (Inderst, 2009; Croce, 2012; Stewart and Yermo, 2012). Recent developments include the "Institutional Investors and Long Term Investment" project launched by the OECD in 2012, which addresses potential regulatory barriers and market failures to facilitate long-term institutional financing (Croce, 2012).

Drawing on the data collected through the OECD Large Pension Funds (LPF) Survey 2011, Croce (2012) reports on trends in LPF investment in infrastructure, noting that in order to attract private sector investment to infrastructure, particularly institutional investment, policy-makers must address the asset allocation issues faced by investors, as well as making the asset class financially attractive.

Stewart and Yermo (2012) emphasise the importance of ensuring appropriate valuation and reporting of infrastructure investments. Definitions of alternative assets should ensure that the data collected and reported is comparable across pension funds, in order to guide regulation by policy-makers as well as enable investors to monitor the flows into different types of alternative assets, and their respective cost and performance (Croce, 2012). Proposed steps for governments include: (i) supporting independent data collection and objective information provision; (ii) promoting higher transparency standards in private equity vehicles and direct investments; and (iii) establishing international guidelines for performance and risk measurement of infrastructure (and other alternative) investments (Inderst, 2009).

In addition to ensuring a stable and transparent regulatory environment for projects and developing a national long-term strategy for the infrastructure sector, Stewart and Yermo (2012) outline the following key recommendations for developing countries, including in Asia and Africa, to successfully mobilise financing from pension funds:

- Provision of **tax incentives** and appropriate **financial risk transfer mechanisms** in infrastructure projects (such as guarantees of debt instruments and first equity loss on investments).
- Development of **prudential regulatory frameworks** to ensure that pension funds have the necessary governance and risk management mechanisms in place for project finance risks. At the same time, there may be scope to ease quantitative investment restrictions, such as prohibitions on direct unlisted equity investments or the limits set on indirect investments via infrastructure funds (the highest ceiling is typically set at 10% of total assets). Other regulations that are identified as potentially restricting investments include solvency rules, valuation and performance rules and credit rating standards.

- **Development of capital markets**. Increased access to fixed income instruments with long maturities would facilitate the pricing of long-dated infrastructure assets, while adequate stock market development could facilitate the creation of listed infrastructure products and funds, serving as a benchmark for unlisted investments.
- Development of **appropriate investment vehicles**. Multilaterals and governments could kick-start the unlisted infrastructure sector by providing initial capital for new funds. Collaboration between pension funds (both within and across borders) could be encouraged to establish joint infrastructure funds.

Deloitte (2014b) suggests similar reforms to increase infrastructure investments in India from the country's insurance sector. Recommendations include reducing the minimum share of investments in debt instruments (excluding government and other approved securities) that are required to have a rating of AAA or equivalent, and incorporating AA+ rated debt instruments; and revising the tenor of investments in infrastructure related facilities to enable investments in brownfield projects. The report also suggests that flexibility of funding options for projects can be increased by expanding the ambit of "approved investments" to include insurance company investments into SPVs of infrastructure projects, debentures of private limited companies and non-dividend track record companies in infrastructure. Finally, it recommends that the exposure limit to the infrastructure sector for life insurance companies, could be revised upwards from the current level of 15% of project equity to 20% of the total project cost, as has been done by IIFCL.

6. REGIONAL INFRASTRUCTURE

6.1. Upstream constraints to infrastructure finance

The development of effective regional institutions, harmonisation of regulatory procedures, setting of priorities and mobilisation of political will, are cited as the key institutional challenges to realising the benefits of regional integration (Foster and Briceño-Garmendia, 2010).

- **Institutional coordination.** A region-wide framework is required to facilitate coordination across stakeholders, particularly given the inefficiencies associated with a proliferation of sub-regional institutional arrangements (MDB Working Group on Infrastructure, 2011). There are over thirty institutions responsible for supporting African integration, leading to an unclear allocation of responsibilities for strategy, project development and financing (World Bank, 2011). Overlapping sub-regional and regional institutions in Asia also tend to have multiple tasks and goals, and are often informal, weak and ineffective (Bhattacharyay, 2010b). Limitations to cross sub-regional integration between South and Southeast Asia include coordination gaps in cooperative planning and implementation (AsDB and AsDBI, 2013).
- **Legal, policy and regulatory barriers.** Regional infrastructure projects are complicated by the need to address synchronized policy and regulatory issues across countries, as projects involve multiple countries and stakeholders, with differing legal, financing and regulatory environments (ABR and NEPAD Business Foundation, 2014; Brookings Institute, 2011a). Gaps in the regional backbone segment of the ICT sector are attributed in part to the diversity of regulatory frameworks, while there has been slow harmonization of regional power pools with national power regulations and development of dispute resolution mechanisms. Similarly, regional integration of rail networks in SSA requires several legislative issues to be addressed. Cross-border operations of the SADC regional railways for example, depend on establishing common technical, operating and safety standards, with a regional regulator in place to oversee the network (Commonwealth Business Council, 2013; WEF et al, 2013).
- **Lack of strong political leadership.** Building political consensus among countries in Africa is identified as a key priority given diverging national agendas or even histories of conflict (Ernst and Young, 2012; World Bank, 2011). The OECD-led study (2012) on perceived challenges by donors in aligning assistance to country-led infrastructure plans in Africa, indicates the disconnect between country and regional priorities and the lack of coordination among partner government ministries and regional communities (OECD, 2012; Commonwealth Business Council, 2013). Such factors are attributed with the slow progress in completing strategic projects such as the Trans-African Highways Initiative. The effectiveness of regional planning initiatives such as the Programme for Infrastructure Development in Africa (PIDA) and the Presidential Infrastructure Champion Initiative, also depends on commitment from multiple levels of government, as well as the extent of alignment between regional and national projects, such as in terms of funding priorities (EIB, 2013). In SA, political uncertainty has stalled regional projects such as the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation Highway (De, Samudram, and Moholkar, 2010).

Alexander (2013) identifies a combination of these challenges as part of a critical assessment of PIDA, particularly, insufficient traction at the national and Regional Economic Communities' (REC) levels with a lack of clarity on responsibilities for PIDA advocacy and

prioritisation of PIDA projects by national governments, in addition to a lack of harmonised policies or regulations at the regional level and the absence of supranational authority.

With regard to upstream financial barriers, the recent Dakar Financing Summit for Africa's Infrastructure (2014) has highlighted the misalignment between incentives for the supply and demand of regional projects and financial viability, as well as other challenges for preparing bankable regional projects (ABR and NEPAD Business Foundation, 2014).

- **Equitable allocation of risks and rewards**. In SSA experience suggests that the level of investment required for the regional infrastructure projects may be a disproportionately high, even prohibitive for small economies, and may have to be concentrated in a particular country based on geography, implying a role for financing instruments to "right-size" the high up-front risk borne disproportionately by private investors (EIB, 2013). An uneven distribution of costs and benefits across participating countries can also complicate the financing for cross sub-regional infrastructure projects involving Southeast Asia (AsDB and AsDBI, 2013).

- **Financial viability.** It is often difficult to establish a reliable chain of cash flows that enable recovery of investments. For instance, off-takers for Africa's power generation include utilities, which are often not creditworthy and/ or may be located in different countries (ABR and NEPAD Business Foundation, 2014). Regional power infrastructure also requires coordinated power pricing, third-party access regulations and effective cross-border trading contracts (World Bank, 2011). Distorted energy pricing and subsidy regimes are also cited as impediments to cross-regional energy trading between South and Southeast Asia, while there may be uncertainty regarding demand, such as forecast traffic volumes, in regional transport projects in Asia (AsDB and AsDBI 2013; Bhattacharyay, 2010a). More generally, pre-conditions for private financing, such as revenue-sharing and tariff fixation are difficult to establish for cross-border investments in Asia (De, Samudram and Moholkar. 2010).

6.2. Downstream constraints to infrastructure finance

Despite increased funding from traditional donors and the emergence of new funding sources, there has not been significant progress in implementing the full potential of transformational regional projects in Africa (Brookings Institute, 2011a). The literature points to the following key downstream barriers specific to regional infrastructure:

- **Higher costs of project preparation and longer process time** relative to national projects, given the increased complexities (World Bank, 2011). Many regional integration projects in Africa take longer than ten years from inception to delivery, leading to significant cost overruns (ABR and NEPAD Business Foundation, 2014). The AfDB (2008) estimates average costs for preparing and supervising regional projects to be 1.5 times higher compared to projects based in one country, while the World Bank spends 70% more on average on preparation (MDB Working Group, 2011). In general, cost estimates range between 5-10% of total project financing costs for regional projects, with 7% taken as a central estimate across sectors (ICA, 2012).

- **Inadequate resources for project preparation activities**. A financing gap of US$800m is estimated for the project preparation of the World Bank's ten regional infrastructure projects in Africa (Brookings Institute, 2011). Despite the establishment of various PPFs, available resources fall short of regional needs, with limited ability of such institutions to fund preparation and provide sustained and timely technical assistance for regional projects (World Bank, 2011; MDB Working Group on Infrastructure, 2011). ICA's assessment of PPFs in Africa (2012) has highlighted significant gaps in the resources for

project preparation for transformative regional projects, and a growing disconnect between ambition and ability to deliver for regional-focused facilities such as the NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF), as many PPFs appear to have underestimated the additional organisational, institutional, technical and financing challenges (ICA, 2012). Bureaucratic rules and a lack of formal budgetary arrangements to help defray administrative costs are also cited as bottlenecks to regional infrastructure investments for multilaterals, as these investments are treated as per the norms for other projects. Line managers at multilateral institutions thus have to seek out trust funds or other resources to cross-subsidize project preparation (Brookings Institute, 2011a). For instance, IDA project preparation advances are restricted to US$3m per project, while its guidelines do now allow for grants to regional organizations or supra-national projects, limiting the scope for the World Bank to provide capacity building for weak regional agencies (Brookings Institute, 2011a; World Bank 2011).

- **Under-resourced and weak regional bodies,** which typically lack the authority, legal framework and resources to lead project design, act as sponsors (ABR and NEPAD Business Foundation, 2014). RECs have limited capability to identify and promote regional projects, and weak authority to enforce decisions (World Bank, 2011). Bureaucratic incentives for regional projects are poor, as while there is no additional recognition for successful delivery, significant incremental risk and budgetary shortfalls have to be managed along with coordination across multiple countries to meet internal processing rules designed for single-country projects (Brookings Institute, 2011a).
- **Lack of private sector sponsors and experience** with the capability, balance sheets and risk tolerance needed to facilitate a competitive environment for large regional projects. The situation is exacerbated by donors' traditional procurement policies, which discourage developers from spending money in advance of a costly tendering process. Public procurement systems and standard practices also tend to be unsuitable for large regional projects. (ABR and NEPAD Business Foundation, 2014; MDB Working Group, 2011).

A report published by the ADBI (2010) on intra-Asian regional investments identifies similar impediments to implementation, including difficulties in locating funding for technical preparation, lack of expertise and project implementation capacity and the absence of a prioritised programme for development (Bhattacharyay, 2010a).

6.3. Access to infrastructure finance

The large-scale of investments for regional projects in Africa typically calls for the involvement of multiple public and private financiers (ABR and NEPAD Business Foundation, 2014). Given the required quantum of capital, it is possible that financing from even several MDBs may not be sufficient, implying the need to raise private debt capital supported by robust guarantees (ICA, 2012).

The use of traditional financing methods may not be readily available for regional projects in SSA. An issue for projects involving Botswana and South Africa is that MICs typically have no access to concessional financing for regional integration programmes and investment, while projects with significant regional spill-overs (such as the Ethiopia-Sudan interconnector) may involve less than three countries and so would not qualify for concessionary regional financing (ABR and NEPAD Business Foundation, 2014; World Bank, 2011). The assessment of PIDA indicates that public financing constraints are also relevant, as African governments have to bear most of the costs, but face fiscal and debt-related challenges (Alexander, 2013).

Financing is a key challenge to Asian connectivity as well, as sub-regional institutions typically lack financing facilities, while there is also an absence of dedicated instruments or concessional resources for financing regional projects (Economic and Social Commission for Asia and the Pacific, 2013; Bhattacharyay, 2010b). Limited levels of domestic financial capacity and limited regional financial integration are cited as key constraints for financing infrastructure connectivity between South and Southeast Asia (AsDB and AsDBI, 2013). The literature points to the following key barriers to the supply of finance specific to regional infrastructure:

- **Limited levels of domestic financial capacity**. Regional and national financial markets remain underdeveloped due to factors such as a: (i) lack of reforms in contractual savings and unwillingness to allow foreign banks and financial institutions to participate in building local capital markets; (ii) narrow investor bases for bond markets in both sub-regions and low liquidity in secondary markets; and (iii) regulatory constraints impeding long-term institutional savings in infrastructure assets and cash-flow-backed bonds.
- **Limited regional financial integration,** owing to which national savings and foreign exchange reserves tend to be parked in US and European government securities, rather than flowing to regional investments.

7. CONCLUSIONS

There is a lack of independent peer-reviewed research available in the public domain on the research questions considered in this review. Much of what is available is produced by international organisations such as the World Bank.

Thus while a number of policy recommendations can be unpicked from the literature for both developing country governments and development partners, there is as yet no strong evidence-base to support them. There are also a number of important gaps within the existing evidence-base for each of the research questions that are subject to this review.

7.1. Gaps within the research

The main gaps are summarised below:

- **Upstream constraints**. There are relatively more academic studies that cover this issue. In the main, these are empirical studies that have sought to assess the determinants of the provision of private finance for infrastructure relying on the PPI Database as the main source of project level data. These studies present evidence on a range of factors related to the enabling environment (both institutional and economic/ financial) that have an impact on the level of private finance. There is a need for additional research to enable the development of a consensus, as to which of the factors have the most significant impact on securing private sector finance which could help to improve the sequencing of policy interventions in this area.
- **Downstream constraints.** There is a lack of research on this issue compared to the upstream constraints. There is a gap in the studies that review the current role played by non-PPF sources of funds for project preparation activities. More also needs to be done to evaluate the extent to which the available technical and financial capacity for project preparation activity has actively prevented potentially viable projects from attracting finance. Finally, more detailed analysis on the topic of project structuring, particularly drawing on more detailed case studies, would also be an important contribution to the literature.
- **Sources of finance.** Availability of data is a particular problem in this area. Despite the useful information provided by the PPI database, there is very little consistent and up to date quantitative information on actual financing through the project cycle or the construction and operation phases. There is also a lack of evidence on the particular types of projects and/ or financing approaches that have been successful across a range of country/ sector contexts.
- **Institutional investors.** An important limitation with the existing reports on institutional investors is the availability of recent studies with discussions of specific regulatory and policy barriers restricting infrastructure investments.
- **Regional infrastructure.** There is an important gap in the quality of information available regarding the different sources of infrastructure finance currently available/most suited to support regional infrastructure projects.

7.2. Assessment on the quality of the available literature

The overall summary on the quality of the literature available across the different questions is presented in the table below. The table highlights the lack of studies that provide information on the data that has been accessed and carried out a detailed consideration of

the reliability of the analytical techniques used in the study. Both these issues reflect the fact that there are few peer-reviewed academic papers available on the questions covered in this Literature Review.

Table 7.1: Assessment of the quality of literature available on the different research questions

Indicator	Sub-indicator	Upstream constraints	Downstream constraints	Sources of infrastructure finance	Institutional investors	Regional infrastructure finance
Conceptual framing	Does the literature acknowledge existing research?	Yes	Yes	Yes	Yes	Yes
	Does the literature pose a research question?	Rarely	No	Rarely	No	No
	Score	🟡	🔴	🟡	🟡	🔴
Openness and transparency	Does the literature present or link to the raw data it analyses?	Rarely	No	No	No	No
	Do the authors recognise limitations/weaknesses in their work?	No	No	Rarely	Rarely	Rarely
	Score	🔴	🔴	🔴	🔴	🔴
Appropriateness and rigour	Does the literature identify a research method?	Rarely	Rarely	Rarely	Rarely	Rarely
	Score	🟡	🟡	🟡	🟡	🟡
Reliability	Has the literature demonstrated that its selected analytical technique is reliable?	No	No	No	No	No
	Score	🔴	🔴	🔴	🔴	🔴
Cogency	Are the conclusions clearly based on the literature's results?	Yes	Yes	Yes	Yes	Yes
	Score	🟢	🟢	🟢	🟢	🟢
Overall quality of the literature		🟡	🔴	🟡	🟡	🔴

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