Unlocking Local Finance for Sustainable Infrastructure

WORLD BANK GROUP
THE WORLD BANK IBRD • IDA | IFC International Finance Corporation | MIGA Multilateral Investment Guarantee Agency

PPIAF Enabling Infrastructure Investment

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ABBREVIATIONS

Acronym	Full form
CCDR	Country Climate and Development Report
CEPA	Cambridge Economic Policy Associates
CPF	Country Partnership Framework
CPSD	Country Private Sector Diagnostic
DBSA	Development Bank of Southern Africa
DFI	Development Finance Institution
EGP	Egyptian Pound
EMDE	Emerging Markets and Developing Economies
ESG	Environmental, Social and Governance
FX	Foreign Currency
FCI	Finance Competitiveness and Innovation Global Practice
GDP	Gross Domestic Product
GRID	Green, Resilient, Inclusive Development
IBRD	International Bank for Reconstruction and Development
IDA	International Development Agency
IFC	International Finance Corporation
IIF	Indonesia Infrastructure Finance
INFRASAP	Infrastructure Sector Assessment Program
IFP	Infrastructure Finance Practice Group
IPP	Independent Power Producer
IMF	International Monetary Fund
JETP	Just Energy Transition Partnership
KES	Kenyan Schilling
LCF	Local Currency Financing
LCY	Local Currency

Acronym	Full form
MIGA	Multilateral Investment Guarantee Agency
MTI	Macroeconomics Trade and Investments Global Practice
MYR	Malaysian Ringgit
NIB	National Infrastructure Bank
PPA	Power Purchase Agreements
PPP	Public-Private Partnership
REIPPP	South Africa's Renewable Energy Independent Power Producer Programme
RSF	Risk Sharing Facilities
SDGs	Sustainable Development Goals
SOE	State-owned Enterprise

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About PPIAF

PPIAF helps developing country governments strengthen policy, regulations, and institutions that enable sustainable infrastructure with private sector participation. As part of these efforts, PPIAF promotes knowledge transfer by capturing lessons while funding research and tools; builds capacity to scale infrastructure delivery; and assists subnational entities in accessing financing without sovereign guarantees. Donor-supported and housed within the World Bank, PPIAF's work helps generate hundreds of millions of dollars in infrastructure investment. While many initiatives focus on structuring and financing infrastructure projects with private participation, PPIAF sets the stage to make this possible. (http://www.ppiaf.org).

EXECUTIVE SUMMARY

The infrastructure financing gap is substantial, with annual investments totaling approximately $2.7 trillion in 2020, leaving a shortfall of $0.7 trillion. This gap widens when considering various country targets to achieve net-zero emissions by 2050, as the energy and transport sectors account for around 60 percent of emissions. The private sector's role in bridging this gap becomes more and more vital, especially given the fiscal constraints of emerging markets and developing economies (EMDEs), which have been exacerbated by the COVID-19 pandemic and geopolitical tensions.

With the demand for innovative solutions to mitigate foreign exchange risk for global investments in EMDEs a focus on reinvigorating the development of domestic credit/banking and capital markets could provide a long-term solution. Local Currency Financing (LCF) is emerging as a pivotal tool for unlocking financing for sustainable infrastructure development that adheres to the Green, Resilient, Inclusive Development (GRID) approach. Well-developed LCF markets can shield an economy from volatile foreign capital flows, reduce the burden of hard currency repayments, curb the accumulation of foreign debt, and tap into new domestic capital sources for development. Importantly, LCF can be more effective in bridging to bridging the substantial financing gaps faced by many countries by channeling domestic savings into critical sectors such as climate and infrastructure.

Findings from a literature and desk review have shown that to identify innovative solutions to bridge the infrastructure gap through LCF we need to consider both credit/banking and capital markets. While research on capital market development has been more extensive, the development of long-term credit markets, particularly for infrastructure, has not been as thoroughly explored. Also, as credit market dynamics evolve, solving the long-term finance challenge is likely getting more complex. This requires more innovative and cross-cutting approaches across credit and capital markets, which this knowledge work tries to explore.

This study aims to further address gaps in research related to commercial financing challenges in LCF for sustainable infrastructure. This will include a review of broader financial market challenges with a focus on credit/banking markets. This study is part of a broader program supported by the Public-Private Infrastructure Advisory Facility (PPIAF) to address the challenges in mobilizing LCF commercial lending into infrastructure and climate projects, public-private partnerships (PPPs), and risk sharing facilities in emerging markets. The study has drawn on the work done by the World Bank Group in particular the Infrastructure Finance Practice Group (IFP); Finance, Competitiveness & Innovation Global Practice (FCI); and the related donor-funded Joint Capital Markets Program (J-CAP) implemented by the Finance Competitiveness and Innovation Global Practice (FCI) and IFC. Through this report we expect that policy makers, money and capital market authorities, infrastructure, climate and environment, and private sector infrastructure/climate investors and financial institutions will be better informed to pursue financing options for infrastructure projects through LCF. Specifically, the report provides global knowledge and existing literature on the topic of LCF with a focus on local credit markets, an analytical framework, and actionable insights to navigate the complexities of LCF in infrastructure and climate investments.

The study explains the key drivers and enablers/binding constraints for the development of a robust ecosystem for financing infrastructure in local currency (LCY), such as: (i) the scale of private savings in a country; (ii) the ability and willingness of local credit markets to provide long-tenor debt; (iii) the potential for local capital markets to provide finance; (iv) the cost differential between LCY and foreign currency (FX) debt; and (v) capacity for structuring and credit evaluation skills for sustainable infrastructure financing.

The ability of local credit markets to provide long-tenor debt is essential, given the long drawdown period linked to construction and greenfield aspects of infrastructure and climate projects. The study highlights the challenges banks face in providing long-term LCF, including credit and liquidity risks. Banks, being the main source of debt financing in many middle-income countries, face limitations due to asset-liability mismatches. Alongside banks' reluctance to issue longer-dated capital, the Basel III international regulatory framework for banks have made them less competitive for long-term lending.

Findings from Malaysia and South Africa, two benchmark countries with more advanced LCF credit markets, have confirmed the importance of:

- **Government institutions that drive sound macroeconomic, financial**, money, and capital market policies enable low inflation and interest rate environment, a liquid and efficient foreign exchange market, develop and enhance local yield curves, and deepen local debt and equity capital markets.
- **Developing local lenders** that focus on utilizing a local deposit base and local bond market **as well as enlarging local institutional investors'**, and non-bank investors' capacity to participate and lead infrastructure and climate projects.
- **Specialized incentive mechanisms that bring dedicated focus on LCF** for infrastructure and climate investments. They may include pooled investment vehicles or credit enhancement products to crowd in private financing into infrastructure and climate investments. In addition, local, regional, bilateral, and multilateral institutions can provide risk mitigation, funding, and technical support.
- **International lenders and investors** that contribute their knowledge of financial structuring, project finance, due diligence, origination, syndication, and intermediation. They can provide direct FX financing, particularly to finance FX costs. This group can also provide LCF synthetically when terms and conditions are economical.
- **National infrastructure/climate investment programs can enhance demand for LCF**: The demand for LCF is driven by factors such as tariff design and cost competitiveness. Programs that create a demand for finance, such as South Africa's Renewable Energy Independent Power Producer Procurement Program (REIPPP), have been instrumental in developing financing capabilities.
- **High level of capacity, including project structuring skills that enable LCF solutions**: Enhanced capacity in project structuring enable advanced LCF markets to provide solutions for structuring of loans that will reduce their risk exposure, in particular for climate investments, including shifting away from long-term bank lending and focusing on banks as originators of loans that are then refinanced through capital markets to institutional investors.

Findings from developing country case studies-—in Egypt, Indonesia, Kenya, the Philippines, and Uzbekistan—have shown that EMDE countries are at different stages and pathways of LCF development and often are held back from their full potential of developing LCY markets due to the above-mentioned key binding constraints.

Intervention options to deepen local credit/banking markets for the financing of infrastructure and climate investments range from long-term upstream policy interventions to country-specific investment areas that build upon gap analysis between advanced LCF markets and less-developed LCF markets.

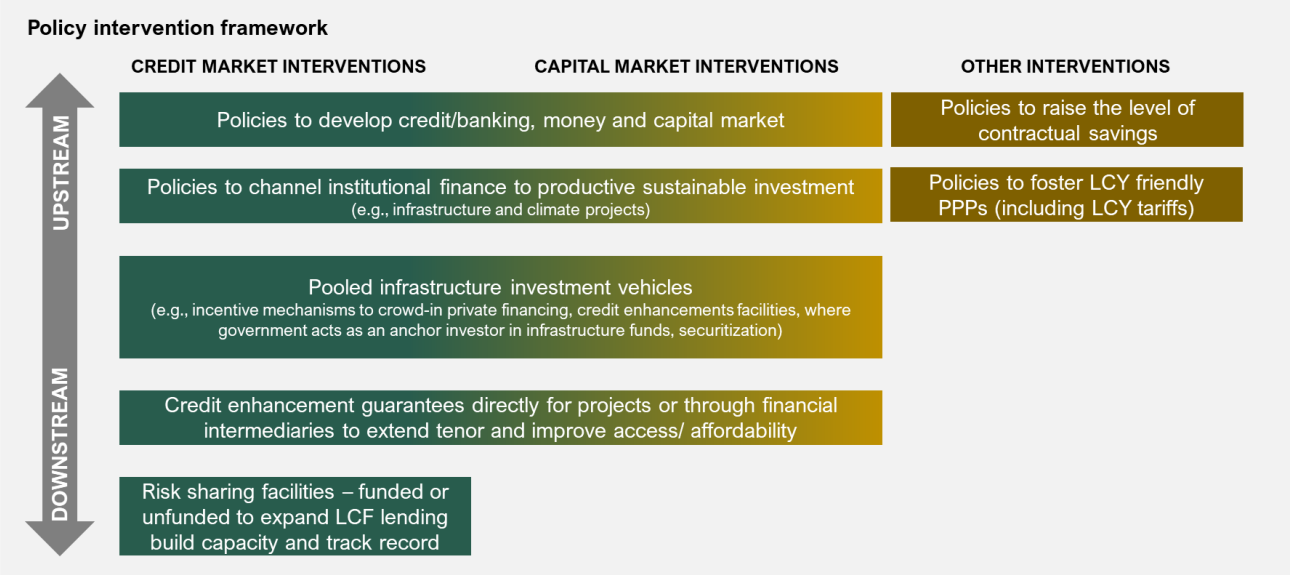
The following recommendations have been identified to assist countries in their journey toward achieving a more robust LCF market for infrastructure/climate investments.

- Promote macro-financial stability and deepen LCY markets. Prioritize policies that develop money and capital markets, increasing their scale and efficiency in capital allocation.

- Raise levels of institutional/contractual savings and encourage investments in infrastructure assets through appropriate policies and governance frameworks.
- Support long-term intermediation of institutional funds into infrastructure/climate projects while supporting development of attractive LCY project pipelines. Encourage diversification of institutional investors' assets into the sustainable infrastructure asset class including through pooled financing mechanisms.
- Support incentive mechanisms to crowd in private financing, namely, to develop credit enhancement products to increase local bank participation in project financings and encourage non-recourse financing.
- Encourage a programmatic approach to build a bankable pipeline of projects including PPPs that are fiscally sustainable.

These recommendations are presented more broadly as a policy intervention framework in Figure 1 below:

Figure 1: Identified policy interventions by category and upstream/downstream



Key considerations for operationalizing LCF and next steps

It is important for policy makers and LCF stakeholders to explore LCF options for infrastructure projects leveraging infrastructure finance and credit/banking and capital markets expertise globally. Given the significant interest in the topic, it is important to develop knowledge, tools, and resources to build capacity for stakeholders to create the right conditions and instruments to mobilize LCF for infrastructure and climate investment.

Addressing FX risk in PPPs and enhancing domestic financial ecosystems' capacity for LCF in PPPs is critical. The sources of LCF may vary throughout a project's life cycle, with different financing mechanisms such as risk sharing facilities to create LCF ecosystems and asset recycling to attract institutional investors being two examples. Credit enhancement instruments offered by DFI's such as the World Bank

Group guarantees at the project level or as part of risk-sharing facilities through financial intermediaries could be offered to demonstrate track record and build financing in nascent markets.

LCF stakeholders in project finance are encouraged to engage with local financial institutions as part of market sounding and project design to optimize LCF at the project level. Additionally, LCF considerations should be integrated into country diagnostics, leveraging assessments from local financial entities and financial databases. In parallel, DFIs could expand onshore LCY solutions, including swaps and local bond issuance, or pilot synthetic LCY loans[1]. Blended finance platforms to attract Environmental, Social and Governance (ESG) financing could be considered.

There is an overarching role for policymakers to support development of robust LCY financial markets, both for credit/banking and capital markets to achieve the volumes and tenors needed for sustainable financing of infrastructure and climate investments.

[1] MIGA providing insurance coverage for FX devaluation/depreciation for FX loans.

CHAPTER 1: BACKGROUND AND RATIONALE

This knowledge product study is part of a broader program supported by the Public-Private Infrastructure Advisory Facility (PPIAF) to address the challenges in mobilizing Local Currency Finance (LCF) commercial lending into infrastructure and climate projects, PPPs, and risk sharing facilities in emerging markets. With this in mind, this global study aims to inform follow-on country technical assistance to be developed by various World Bank Group units particularly the Infrastructure Finance practice group (IFP), Finance Competitiveness and Innovation (FCI), and International Financial Corporation (IFC). The program will enable a "bottom-up approach" where the global study would benefit from lessons learned from PPIAF ongoing technical assistance and the extensive repository of knowledge products. PPIAF's objective is to allocate funding over the next 4–5 years for the implementation of the Local Currency Finance (LCF) program in countries including capacity building.

This study has drawn on the work done by IFP, FCI, World Bank Group Joint Capital Markets Program (J-CAP), and others and was carried out in two phases:

Phase 1 started with a desk review of existing studies that led to the identification of a shortlist of countries including with more advanced LCF development that would serve as a benchmark: Malaysia and South Africa. It then reviewed factors that enabled Malaysia and South Africa to develop and deepen their LCF.

Phase 2 built on lessons learned from Phase 1 in analyzing five sample countries with varying contexts and at different points in LCF development—Egypt, Indonesia, Kenya, the Philippines, and Uzbekistan—and suggested a broad framework for countries to develop LCF credit markets for infrastructure, particularly through commercial banks in the context of potential World Bank Group engagements. Phase 2 also initiated a bottom-up approach review of a specific infrastructure asset—a prospective geothermal power project in Kenya—that could demonstrate substantive benefits from access to LCF (see Annex A of this forward section).

The targeted audiences for this study span across multiple disciplines familiar with infrastructure and climate investments and financing. Internal audiences are staff mainly in the infrastructure, finance, climate, and environment practices across the World Bank Group. Externally, the main audiences are public sector officials in the fields of finance, infrastructure, climate and environment, and capital market authorities; private sector audiences encompass infrastructure/climate investors and financial institutions. This study aims to take stock of the global knowledge and existing literature on the topic of LCF with a focus on local credit markets, providing an analytical framework and actionable insights to navigate the complexities of LCF in infrastructure and climate investments.

Rationale behind country selection: Informed by the literature review, the study identified high savings rates and financial development as key factors enabling LCF of infrastructure (refer to Chapters 4 and 5 regarding the enablers for LCF). Figure 2 below summarizes the findings of the preliminary data analysis on countries' savings rate and financial development against LCY debt-to- GDP ratio. Based on the long list below and on World Bank Group priority countries (J-CAP and JETP), Malaysia and South Africa were selected as benchmark countries and Egypt, Indonesia, Kenya, the Philippines, and Uzbekistan as country deep dives for developing LCF markets with a good geographic mix across regions. Deep-dive countries are at different points in the LCF development spectrum. The final selection was also informed by consultation with Bank Group country teams on interest for further Bank Group support.

Figure 2: Country categorization

	Savings rate < 20%	Savings rate >20%	
Financial development > 0.3	**Group 4:** South Africa* Brazil* Colombia* Philippines* Jordan Namibia	**Group 1**:** India Turkey Russia Malaysia Mexico	**Group 2:** Thailand* Indonesia China Peru Vietnam Morocco
Financial development < 0.3	**Group 5:** Romania * Kenya Nepal Senegal Pakistan Egypt	**Group 3:** Azerbaijan Cote d'Ivoire Nigeria Uzbekistan***	

* Comparatively high LCY debt to GDP ratio in absolute terms

** Group 1 countries have the highest LCY debt to GDP ratios for the 20-year 2001-2021 period. All of these countries have gross savings rates of greater than 20%, and they all have relatively high levels of financial development, with values of the IMF Financial Development Index above 0.3.

*** Uzbekistan had no prevalence of LCY debt finance to infrastructure but has low financial development.

Source: CEPA analysis, 2024

The methodology employed to reach the study's conclusions involve:

- An analysis of existing solutions for the deepening of local and capital markets through desk reviews.
- The development of scalable solutions based on the analysis of more developed markets like Malaysia and South Africa, with the potential for replication in other contexts.
- Internal consultations within IFC and the World Bank, including FCI and sector colleagues, to secure necessary concurrences.
- External consultations with local banks to understand their perspectives and challenges.
- Identification of potential target countries that are part of the Joint Capital Markets Program (J-CAP) and Just Energy Transition Partnership countries (JETP), with a focus on countries with a potential pipeline for LCF development.
- Piloting the developed framework using the findings from developed markets as benchmarks for emerging markets.
- Recommended solutions to deepen local credit markets in developing countries and concurrence with Bank Group country economists.

The findings of this report are complementary to WBG work on capital markets through the Joint Capital Markets Program (J-CAP) led by FCI and IFC which focus[2] on capital markets and country-level J-CAP programs[OBJ]. Among others, it aims to develop innovative approaches to sustainable financing that can be further applied and adapted in different J-CAP country programs. Broadly, J-CAP work constitutes support for diagnostics, analytical work, upstream reforms, capacity building, and partnerships for development of i) government debt markets and capital markets architecture; ii) mobilizing domestic and global institutional investors for assets linked to the Sustainable Development Goals (SDGs), climate change and carbon credit markets; iii) supply of investable assets linked to climate change and the SDGs; iv) digital financial services for more efficient and competitive financial disintermediation. J-CAP also has a strong focus on facilitating downstream infrastructure/climate investment transactions.

[2] FCI and IFC through the J-CAP intervention responds to:

i) the need to support the **ecosystem for sustainable and inclusive private finance** for strategic sectors in the real economy from a supply and demand perspective, **in which infrastructure is a key sector**.
ii) the need to **deepen and strengthen market frameworks and structures where intermediation will take place**; and
iii) need for **deeper and more efficient local currency government bond markets.**

J-CAP is made possible with support from the governments of Switzerland, Germany, Luxembourg, Australia, Japan, and Norway.

CHAPTER 2: INTRODUCTION

2.1 The challenges for infrastructure and climate investments

The infrastructure financing gap is substantial, with annual investments in 2020 totaling approximately $2.7 trillion, leaving a shortfall of $0.7 trillion. This gap widens when considering various country targets to achieve net-zero emissions by 2050, as the energy and transport sectors account for around 60 percent of emissions. The private sector's role in bridging this gap is crucial, especially given the fiscal constraints of EMDEs, which have been exacerbated by the COVID-19 pandemic and geopolitical tensions.

There is an untapped opportunity to leverage funding from local financial markets. Development finance institutions (DFIs) have limited direct lending capacity, thus necessitating the expansion and intensification of innovative structures to optimize private capital mobilization. This includes targeting domestic and global institutional investors in EMDEs, who collectively hold significant financial resources.

Middle- and low-income countries often rely on hard currency financing, despite most infrastructure project revenues being denominated in local currency (LCY). The volatility risk between hard and local currencies must be managed by the involved parties or through hedging products when available. However, not all currencies have deep financial markets that offer FX hedging, and there is always a residual risk that governments in EMDEs must bear. Key constraints identified by domestic financiers include underdeveloped domestic markets, limited risk mitigation instruments, and asset-liability mismatches due to the short tenors of deposits versus the long tenors required for infrastructure finance loans. These challenges, coupled with hard currency appreciation, increased currency market volatility, and dwindling foreign exchange reserves, underscore the need for domestic market-based solutions to facilitate LCF mobilization.

With the pressing demand for innovative solutions to mitigate foreign exchange risk in EMDEs, the focus is again on the development of domestic credit/banking and capital markets as a long-term solution. Local currency financing emerges as a pivotal tool for unlocking sustainable infrastructure development that adheres to the GRID approach. Well-developed LCF markets can shield an economy from volatile capital flows, reduce the burden of hard currency repayments, curb the accumulation of foreign debt, and tap into new capital sources for development. Importantly, LCF can help bridge the substantial financing gaps faced by many countries by channeling domestic savings into critical sectors such as climate and infrastructure. All things considered, given the lack of depth of financial markets in many EMDEs, a combination of local and global financing will be needed.

Local commercial banks often face challenges in providing long-term financing due to the short duration of deposits, leading to an asset-liability mismatch. While international financial institutions have historically offered credit lines to local banks for sector-specific lending, this is not a sustainable long-term solution. Beyond the banking sector, pension funds and infrastructure funds can offer additional local capital sources, although these are more common in higher-income countries and are not typically accustomed to financing greenfield projects.

LCF in project finance, particularly for renewable energy and climate-resilient development, can improve the management of currency exposures by aligning the currency of revenues with debt obligations. In some cases, a blend of hard currency and LCF for project finance transactions can be more effective in mitigating the impact of currency fluctuations on end-user tariffs. Asset recycling through domestic financing sources, such as pension funds and private investment funds, can effectively leverage LCF to monetize existing assets and raise capital for new infrastructure and climate investments.

2.2 Lessons learned from global case studies of institutional investors financing infrastructure.

Scarce public and concessional resources can be leveraged to allow private capital mobilization. Innovative financial structures and a greater role of global and local credit/banking markets, as well as institutional investors are essential. A recent analysis of global case studies has drawn the following conclusions[3]:

i) Adopting a whole life-cycle approach produces greater benefits through full engagement of DFIs with EMDE project sponsors from the early stage of conceptualization through the provision of debt and equity finance. In addition, strong DFI-led advisory services make a substantial difference.

ii) Domestic DFIs play an important role in addressing government action and financial markets failures. These include backstopping government obligations risk, supporting project preparation and financial structuring to generate investible pipelines, and facilitating dialogue between global and domestic private financiers and government.

iii) Transforming loans into investible assets for global institutional investors tends to yield the highest financial leverage impact. It reinforces that even as bank loans may be more appropriate instruments to finance infrastructure at a project stage given their greater flexibility for potential contingencies in infrastructure projects, they can be repackaged (as risks moderate during the operational phase) into investable assets for capital markets; and

iv) Both global and domestic investors should be targeted by DFIs to optimize private capital mobilization**.** Crowding in domestic institutional investors becomes especially relevant for LCF as solving for foreign exchange risk in a satisfactory manner remains a complex challenge.

2.3 The challenge for infrastructure finance in credit/banking markets

There are a number of challenges local credit/banking markets face when it comes to financing long-term infrastructure and climate projects. A primary challenge in bank finance is managing liquidity risk, particularly those arising from asset-liability mismatches, such as ensuring the term of liabilities can support the term of bank loans (assets). Bank assets are typically the deposit base that tends to be short term. However, given the greenfield nature of these investments, as well as the long availability/drawdown periods, credit/banking markets are still most suitable to provide such financing. Banks also more often house the expertise and relationships necessary to underwrite project risks.

As credit market dynamics evolve, solving the long-term finance challenge is likely getting more complex. Following the 2008 financial crisis, Basel III reforms to the banking regulations have discouraged long-term lending by banks. Infrastructure is not recognized as a distinct asset class, and its attractive characteristics are not recognized in regulations, such as strong default recovery potential through government backing or risk mitigation innovations.

One reason for the persistence of these challenges is that while much research has taken place on the role of capital markets, the development of long-term credit/banking markets has been a

[3] World Bank (2023), *Global Institutional Investors and Sustainable Infrastructure: A Global Review of Case Studies to Finance the Infrastructure Gap.* Available online.

relatively under-explored area. The complexity of challenges points to the need for more innovative and cross-cutting approaches across credit/banking and capital markets, which this knowledge work tries to explore. While we need to consider both credit/banking and capital markets, the main focus in this work is on what facilitates long-term lending in the former.

Even as bank loans are often the most appropriate instrument to finance infrastructure/climate projects, commercial banks face significant hurdles in long-term lending due to liquidity risks stemming from maturity mismatches between their lending and funding. This is because bank loans generally have greater flexibility in financing for potential contingencies in infrastructure/climate projects. However, because banks fund long-term loans with short-term liabilities, they have to mitigate the risks of maturity transformation to effectively lend to infrastructure/climate assets.[4]

In the context of infrastructure financing, banks may lack the expertise in non-recourse project finance structures (beyond project assets and cash flows) and the due diligence required. Additionally, the inherent credit and interest rate risks of longer-term loans may deter banks from extending such loans to infrastructure projects. Local currency, long-term lending is also affected by the development of local capital and derivatives markets. Without adequate long-term LCF or proper exchange rate hedges, banks face limitations in lending long in local currencies In some cases, EMDEs do not have the reliable legal frameworks for non-recourse project finance (e.g., SPV vehicles).

Maturity transformation and related liquidity risks pose significant challenges for commercial banks in long-term lending, especially when domestic capital markets are not mature enough to provide refinancing or long-term funding alternatives to short-term deposits. These challenges can be intensified by banking regulations like Basel III that aim to minimize maturity transformation risks. The financial sector's development plays a crucial role in enabling long-term lending for infrastructure projects by fostering domestic capital markets that offer long-term funding and derivatives markets for interest rate hedging. Factors facilitating financial sector development include strong institutional frameworks, consistent government debt issuance to establish benchmark yield curves, and substantial domestic savings from large local investors.

Empirical evidence suggests that the capacity to provide LCY loans for infrastructure varies among banks within the same country. Larger, well-capitalized banks with a greater proportion of long-term liabilities are more likely to have a higher ratio of long-term loans. Foreign-owned banks also tend to engage more in long-term lending. While risk mitigation tools can enhance the bankability of infrastructure projects and support longer loan durations, there is less evidence they lead to lower interest rates on loans.

The provision of infrastructure finance through LCY credit/banking markets encounters two primary sets of obstacles: those that deter LCY loan provision and those that impede the offering of long-term loans. High domestic interest rates and the absence of LCY hedging tools can make LCY loans less appealing compared to FX loans. Moreover, the lack of a well-functioning government bond market with a reliable long-term yield curve is generally an obstacle for commercial banks lending in LCF, as they lack a reference to price long-term infrastructure assets. In some cases, this is also accompanied by high yields in short-term government securities that crowd out longer-term investments. Conversely, factors such as political stability, low inflation, and robust institutions can enhance the attractiveness of LCY lending by lowering domestic interest rates and reducing country risk.

[4] World Bank Global Financial Development Report, 2015; Peria and Schmukler, 2017; Garcia-Kilroy and Heinz, 2017; World Bank Institutional Investors and Sustainable Infrastructure: Global Review of case studies to finance the infrastructure gap, 2023.

The discussed challenges and enablers pertain to LCY credit/bank financing for infrastructure broadly, but also specifically to climate-related projects, which often share similar long-term horizons and significant construction risks. Climate projects may face additional hurdles, especially when involving novel technologies or requiring government support for financial viability. DFIs may play a more significant role in facilitating LCY lending to such projects, either by developing banks' institutional capacity to evaluate these projects or through guarantees and other risk mitigation mechanisms.

CHAPTER 3: LCF ANALYTICAL FRAMEWORK: LESSONS LEARNED FROM MORE ADVANCED LCF MARKETS

What do robust financing ecosystems look like in top-performing upper middle income, or even high-income countries and could they be replicated in developing markets? LCF is crucial for advancing development goals, allowing the private sector to manage currency risks effectively, especially for entities lacking hard currency revenues. Challenges in accessing local currency lending for developing countries stem from factors such as exchange rate risks, macroeconomic instability, and regulatory constraints.

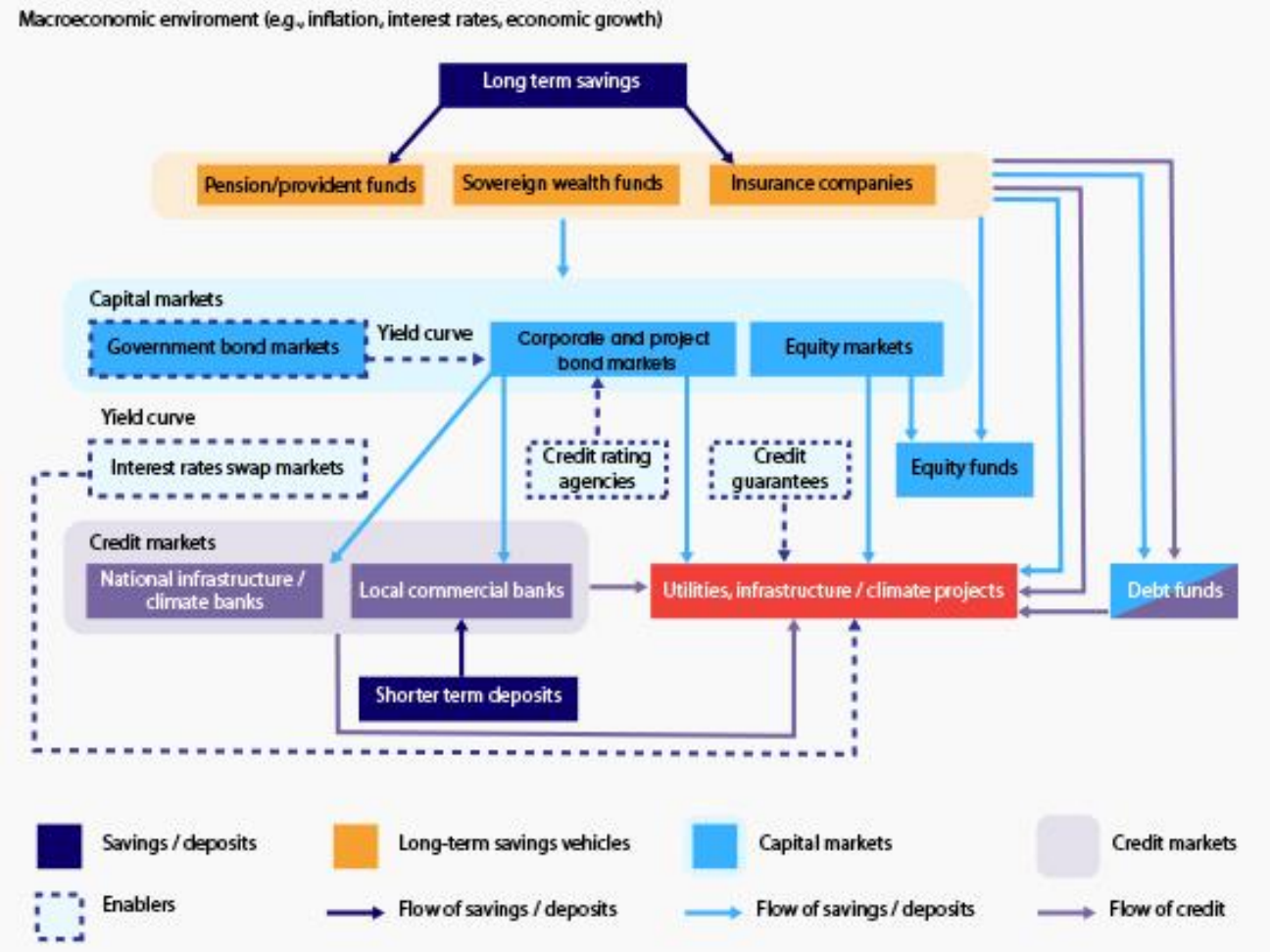
Robust ecosystems that are conducive for infrastructure and climate investments are characterized by:

- **A stable macroeconomic environment with low inflation and interest rates; high growth and employment; and fiscal headroom.**
- High level of contractual savings that translate in a pool of **institutional investors (infrafunds, pension funds, climate banks or debts funds)** that can invest directly or indirectly in long-dated assets to match with liabilities.
- **Deep and liquid capital markets** with established yield curve and hedging markets conducive to access green financing for climate.
- A demand that is driven by **well-designed projects due to the existing project structuring skills, advanced capacity of relevant market players** and robust utilities seeking long-term, fixed rate debt and patient risk capital (equity).
- **Adequate enabling and regulatory framework** and derisking channels such as credit enhancement or risk sharing facilities or advanced local credit markets that give access to derisking instruments such as partial credit guarantees.
- **The promotion of transparent and competitive public-private partnerships (PPP)** as a means of facilitating private finance (Case of Malaysia the government has heavily utilized PPPs for toll roads to accomplish its highway expansion objectives) and supporting LCF development.

3.1 Infrastructure finance and LCF ecosystem

In advanced developed markets, the infrastructure and LCF ecosystem, illustrated in Figure 3 below, aims through different and complementary routes to provide intermediate finance to investable/bankable utilities, infrastructure, and climate projects. LCF markets function well when all the components described below can come together, resulting in competitively/efficiently priced long-term fixed rate debt and patient risk capital, particularly equity, being available to projects.

Figure 3: The infrastructure finance ecosystem[5]



Sources: CEPA analysis, World Bank Group

3.2 The key enablers/binding constraints for a robust LCF market

The key enablers/binding constraints for a robust LCF market can be summarized as: (i) the scale of private savings in a country; (ii) the ability and willingness of local credit markets to provide long tenor debt; (iii) the potential for local capital markets to provide finance; (iv) the cost differential between local currency and FX debt; and (v) capacity for structuring and credit evaluation skills for sustainable infrastructure financing. These key enablers are further explained in Chapter 4 with a diagnostic of developing LCF markets against the robust LCF market benchmark.

[5] In Figure 5, "corporate bond markets" and "equity markets" are short hand for all forms of finance falling within them, such as project bonds in the former and private equity in the latter.

The following Table 1 further elaborates the main components of LCF ecosystem and their enabling characteristics:

Table 1: Components/elements and favorable characteristics of successful LCY financing ecosystems

Component / element/"building block"	Major enabling /favorable characteristics	Explanation
1 Macroeconomic monetary and fiscal management		
	Low nominal and real interest rates	Enables borrowing, especially if competitive with FX
	High growth rates	Increases affordability and available savings
	Low inflation	Improves affordability. Enables low interest rates
	High employment	Improves affordability of infrastructure services
	Fiscal headroom	Enables government support to improve affordability and guarantee capacity
2 Demand for finance from infrastructure projects and businesses		
	Predictable and trusted legal and regulatory environment	Creates investment and lending confidence
	Capable institutions, including robust project preparation capacity	Underpins public sector origination of projects
	Incorporation of the needs of LCY into project design	Levels playing field/favors LCY equity and debt investment making it possible
	Programs of investment opportunities	Ensures an enduring project pipeline. Facilitates private sector investment in financing capabilities.
3 Supply of finance: institutional savings, capital, and credit markets		
(a) Institutional savings		
	Contracted pension savings	Drives build-up of long-term financing resources looking for longer-dated assets to match with liabilities
	Life insurance funds	
	Mutual funds	Creates demand for listed infrastructure/ utility equity and debt instruments
(b) Capital markets		
Government bond issues	Regular benchmark issues	Facilitates yield curve
		Underpins development of long-term interest rate swaps markets
Interest rate swaps markets	Liquidity across the yield curve	Enables long-term interest rate hedging at efficient rates
Corporate issues	Deep and wide market with high turnover	Increases attractiveness to investors and issuers
Infrastructure bonds	Amortization profiles similar to bank loans	Creates more competition with bank loans
Credit ratings agencies	Educates market in credit analysis	Trusted ratings agencies facilitate investment in investment grade stock

Component / element/"building block"	Major enabling /favorable characteristics	Explanation
Equity markets	Large, liquid primary and secondary markets	Facilitates efficient domestic capital raising. Institutional equity may prefer to invest in illiquids indirectly through funds rather than directly
(c) Credit markets		
Banks	Large and well capitalised	Facilitates long-term lending
	Stable deposit rate	Reduces asset-liability mismatch risks
	Access to long-term bond markets	
	Infrastructure financing skills	Supports credit assessment and risk management
Insurers	Ability to lend directly to projects	Insurers do not face the same asset liability mismatches as banks (nor the same Basel III regulation)
National infrastructure banks	Provision of long-term debt to projects, funded in part by local capital market issues by NIBs	Facilitates development of both domestic credit and capital markets
National green banks and climate finance facilities	Provision of long-term debt to climate projects, funded in part by local capital market issues by domestic climate finance institutions	Dedicated source of capital for climate projects Can crowd in private sector investment
(d) Alternative financing vehicles in support to capital and credit markets		
Private equity funds	Large, liquid primary and secondary markets	Facilitates patient capital raising for alternative asset classes like infra and climate. Institutional investors may prefer to invest in alternative asset classes through funds rather than directly
Specialist infrastructure debt funds and other vehicles	Intermediate debt on a pooled financing basis through non-banking financial institutions	Channels funds from institutional investors into projects, including in local currency

Sources: CEPA analysis, World Bank Group,2024.

3.3 Case studies of Malaysia and South Africa

We examined Malaysia and South Africa's experiences as applicable for LCF for infrastructure and climate investments. Our review confirmed that scale of domestic savings, banking and non-bank financial institutions market development, and infrastructure development programs have proven conducive for LCF development in both countries.

Malaysia

- High domestic savings: Malaysia had an exceptionally high savings rate from the 1980s until 2010, with gross domestic savings peaking in 1998 at 48.7 percent of GDP. Mandatory public pension plans have been identified as a key factor behind Malaysia's high savings rate.

- Strong and diverse banking market: There are a wide variety of banks that were active between 2005 and 2022, many of which are non-Malaysian banks. Of the Malaysian banks (MayBank, RHB Bank, CIMB Group, Affin Bank), Maybank and RHB Bank appear to have been the most active lenders between 2005 and 2022. The banks are active in infrastructure finance but more in an investment banking role. Sometimes this can involve bridge financing or takeout financing. Most of the focus is on the project risk analysis.
- Deep non-bank financial institutions market: Malaysia's deep institutional investor base, comprising pension and provident funds, insurance and takaful (Shariah-compliant insurance) companies, and asset management companies, has provided (and continues to provide) a key source of liquidity to fund long-term, capital-intensive expenditure including on infrastructure projects, intermediated through the capital markets. At the end of 2019, the total value of outstanding bonds was equivalent to 98 percent of GDP—the second highest ratio of outstanding bonds relative to GDP after Japan.
- Financial market development milestones:
    - Until the late 1980s, the principal source of corporate finance in Malaysia was through commercial banks, which provided short-term, floating rate financing primarily for working capital needs.
    - The development of corporate debt markets introduced longer-term, fixed rate financing, and by 1992, capital market issuance exceeded bank financing.
    - Between 1990 and 2019, LCY finance grew substantially: in 1990, only around 20 percent of corporates' capital market financing needs were met in Malaysian Ringgit, whereas at the end of 2019, nearly 80 percent of Malaysian non-financial corporate debt was denominated in Ringgit.
    - Between 1994 and the end of 2019, 26 percent of Malaysia's cumulative corporate bond issuance originated from the infrastructure sector. Bond financing has extended to both the construction and post-construction phases.
    - Where issues have arisen such as the Asian financial crisis in the late 1990s, the opportunity was taken to recalibrate and take policy actions to improve economic robustness through an increased focus on domestic capital market development.
- Infrastructure development programs conducive of LCF: Malaysia had a number of flagship programs that supported the development of demand for LCY. Some noteworthy ones include: the privatization program; the toll roads program; the Green Technology Financing Scheme—a scheme involving interest rate subsidies and guarantees to green technology projects; and the Large-Scale Solar program—a competitive bidding process to award power purchase agreements (PPAs) to large-scale solar projects.

  Local currency tariffs for infrastructure: Tariffs and tolls for infrastructure projects are set in MYR, making investment and debt provision more attractive for local sponsors and financiers rather than FX-based ones.

The Malaysian approach to infrastructure financing that mobilizes LCF has several key elements. These include the involvement of state-owned or well-established Malaysian companies as project sponsors, long-term concession agreements, and the catalytic role of the national pension fund in purchasing sukuk and project bonds. The involvement of the national pension fund as a major investor ensured the success of debt issues, often sukuk, which were sold to a wide range of domestic institutional investors.

All this in turn has allowed for setting local currency tariffs for infrastructure projects. Tariffs and tolls for infrastructure projects are set in MYR, making investment and debt provision more attractive for local sponsors and financiers rather than FX-based ones.

South Africa

- Weak domestic savings: South Africa has a structurally weak savings rate at an aggregate level. The savings rate has not climbed above 19 percent of GDP since 2000, making the country heavily dependent on foreign savings and investment.
- Strong and concentrated banking market: South Africa has a sophisticated and large financial sector. Banking sector assets stood at 120 percent of GDP in 2019, compared to 68 percent and 54 percent for insurance company and pension fund assets, respectively. In 2019, domestic credit to the private sector was 129 percent of GDP, much higher than for other African countries such as Morocco (88 percent), Kenya (33 percent), and Egypt (27 percent). Its banking market is highly concentrated, with the largest five banks (Standard Bank, FirstRand, Absa, Nedbank and Investec) holding over 85 percent of the industry's deposits in 2020. The treasury function within South African banks appears to be able to support long-term LCY lending through a combination of ordinary cash deposits, term deposits, and some bonds (not necessarily long term). Interest rate hedges are available for 15–18 years.
- Considerable infrastructure financing skills that exist among banks and to a lesser degree, institutional investors, was a stand-out observation. Institutional investors are more conservative and less upskilled on credit assessment for project finance structures so they tend to lend directly to projects alongside banks.
- Non-bank financial institutions limited for infrastructure: Prior to the mid-1980s, the debt capital markets in South Africa comprised government and parastatal debt. By the early 1990s, the South African Reserve Bank was conducting regular auctions on behalf of the government with the National Treasury providing information on the extent of the borrowing requirement. In 1992, the first corporate bond was issued in South Africa. As of February 2024, bonds issued by banks comprised around 72 percent of the outstanding value of corporate bond issuances listed on the Johannesburg Stock Exchange. South Africa has a well-developed non-banking financial sector. The insurance sector has high penetration with assets of around 68% of GDP in 2019. While the pension fund industry is also large, with assets under management at around 30.6% of GDP in 2022.
- Experienced national development bank: Earlier financial market skills development was led by the Development Bank of Southern Africa (DBSA) on the infrastructure side. DBSA was established in 1983 and has since been mobilizing financing and building capacity of mostly public sector actors. DBSA assists with project preparation, de-risking, project management, and access to below market-rate funds. The Climate Finance Facility, launched by DBSA in 2019, focuses on crowding in private finance for mitigation and adaptation projects that would otherwise fail to attract private sector capital. The main instruments used are subordinated debt and credit enhancements. In 2023, DBSA total assets were 108.5 billion rand (around 1.5% of GDP), and total infrastructure supported was 60 billion rand.
- Infrastructure development programs conducive of LCF: Dating back over two decades, early PPP transactions created demand for local financing, for instance toll roads in South Africa—including the N4 toll road to Maputo, Mozambique. Subsequently, between 2012 to 2022 the renewable energy

sector was the primary beneficiary of LCY loans from commercial banks, with the majority of transactions part of REIPPP[6].

Despite weaker domestic savings, similar to the experience in Malaysia, all of the above have in turn made it possible for South Africa to set local currency tariffs for infrastructure: in particular, the rand-based tariffs under REIPPP has meant that a significant amount of financing has also been in rand. Having said that, there was also a history of hard currency or hard currency linked tariffs in South Africa.

These examples also demonstrate that the presence of robust key actors is critical for LCF market development:

Governments and institutions that drive sound macro-fiscal, financial, money and capital markets policies enable low inflation and interest rate environment, a liquid and efficient foreign exchange market, develop and enhance local yield curves, and deepen local debt and equity capital markets.

Local lenders and institutional investors that focus on utilizing local deposit base and local capital markets, enlarging non-bank investors, and increasing local capacity to participate and lead infrastructure and climate projects.

Specialized institutions that bring dedicated focus on LCF for infrastructure and climate investments. support incentive mechanisms to crowd-in private financing into infrastructure and climate investments. In addition, local, regional, bilateral, and multi-lateral development institutions can provide risk mitigation, funding and technical support.

International lenders and investors that contribute their knowledge of financial structuring, project finance, due diligence, origination, syndication, and intermediation. They can provide direct FX financing particularly to finance FX portion of project costs. This group can also provide local currency financing synthetically when terms and conditions are economical.

[6] South Africa's REIPPP is a competitive tender process that was designed, including through payment backstops, to facilitate private sector investment into grid-connected renewable energy generation in South Africa. Successful projects enter into a PPA with Eskom, South Africa's "single buyer" of electricity.

CHAPTER 4: APPLICATION OF LCF FRAMEWORK DIAGNOSTIC IN FIVE SAMPLE COUNTRIES

This section provides a diagnostic of the main gaps identified in less-developed LCF markets after applying the LCF framework presented in Chapter 3. It focuses on five developing economies with varying country contexts and at different points in LCF development—Egypt, Indonesia, Kenya, the Philippines, and Uzbekistan, focusing on key LCF binding constraints.

The five sample countries chosen for this analysis, Egypt, Indonesia, Kenya, the Philippines, and Uzbekistan are at different stages of LCF development. This study has found that long-term LCF in the Philippines is generally available, but mainly from the banking market. Indonesia has been utilizing the national infrastructure bank model to deepen long-term LCF. Kenya's major infrastructure projects largely had FX tariffs to attract FX financing, which while necessary at the time, somewhat limited the role of LCF. Egypt, despite a large banking sector, still relies on FX financing as the country faces macroeconomic challenges. Uzbekistan mainly relies on FX financing for major infrastructure projects as LCF is substantially more costly.

We studied each of the countries through the lens of the enablers/binding constraints introduced in Chapter 3 and evaluated the availability and affordability of LCF for infrastructure and climate investments.

Lack or insufficient scale of contractual savings (pension, provident, and insurance funds). Contractual savings are more long-term than bank deposits but require appropriate intermediation through institutions capable of evaluating and mitigating credit risk.

Kenya has a relatively high level of pension savings, especially relative to Indonesia and even the Philippines, which just makes it into double figures (11%).

Indonesia and the Philippines have relatively low levels of pension and insurance assets (despite having high levels of gross savings).

Table 2: Key intermediation of contractual savings

Key contracted saving metrics					
Metric	Malaysia	South Africa	Philippines	Indonesia	Kenya
Pension fund assets to GDP (%) (2019 unless stated)	61%	84%	3%	2%	13%
Insurance company assets to GDP (%) (2019)	19%	58%	9%	5%	7%
Pension fund and insurance company assets to GDP (%) (2019 unless stated)	80%	143%	11%	7%	20%
Mutual fund assets to GDP (%) (2020) GFDD.DI.07	36%	62%	2%	4%	NA

Source: World Bank Global Financial Development Database

Ability of local credit markets to provide long-tenor debt. Banks are constrained by the asset-liability mismatch between short-term deposits and long-term loans and likely limited depth of money markets to support maturity transformation.

Banks in the Philippines have been active in lending to projects in pesos for several years now, displacing FX lending, the availability of which contracted during the global financial crisis of 2008. Tenors appear to be up to a maximum of approximately 15 years, although these appear to be more on a corporate rather than project finance basis.

In Indonesia, most lending to the private sector is reported to be three to five years, and exceptionally seven to 10 years, whereas lending to state-owned entities ranges from 10 to 15 years (but with significant recourse to the sponsoring SOE). Most infrastructure lending is to SOEs on a corporate finance basis, with banks being challenged by SBLs.

In Kenya, interviews suggested that banks are lending in KES up to about five years.

Table 3: Bank lending to the private sector

Bank lending to the private sector					
Metric	Malaysia	South Africa	Philippines	Indonesia	Kenya
Domestic credit to private sector by banks (%GDP) (2021)	128%	58%	50%	32%	31%
Domestic credit to private sector (%GDP) (2020) GDFD.DI.14	134%	112%	52%	39%	32%
Domestic credit to government and SOEs by banks (%GDP) (2020) GDFD.EI.08	24%	17%	18%	11%	16%

Sources: World Bank, Domestic credit to private sector by banks (% of GDP). World Bank, Global financial development database, September 2022 version.

Potential for local capital markets to provide long-term finance. Bond markets are the main alternative to bank lending but require effective institutions, e.g., regular government bond issuance (to establish yield curve), bond investors' capacity for project structuring and due diligence, and acceptable credit rating agencies.

In the Philippines and Indonesia, the market for 5+ year issues of bonds exists, although with limited liquidity.

In Egypt, Kenya, and Uzbekistan, long-term bond financing is limited to government securities. Bond pricing is typically uncompetitive compared to bank pricing as yield curves are undeveloped.

Table 4: Key bond market metrics

Key bond market metric (as of November 3, 2023)					
Metric	Malaysia	South Africa	Philippines	Indonesia	Kenya
Current one year yield (%)	3.27%	8.45%	6.56%	6.33%	15.44%
Current 10-year minus one year yield (bps)	82	185	51	63	140

Sources: World Government Bonds, South African Reserve Bank

Relative cost of local currency finance. Even where local financial markets can offer term finance, if the costs of LCY finance are significantly greater than FX finance, LCY finance will be unattractive to infrastructure and climate projects.

In nominal terms, most countries have greater interest rate differentials with U.S. equivalents at the longer end of the market than at the shorter, suggesting a greater premium required for longer-term debt.

Indonesia, Malaysia, and the Philippines have much lower differentials in both nominal and real terms than the other countries.

Table 5: Key interest rate differentials metrics

Key interest rate differentials metrics (basis points), average (2017-2022) One year					
Metric	Malaysia	South Africa	Philippines	Indonesia	Kenya
One-year / 365 Treasury bill less USD equivalent (nominal)	90	520	170	310	790
One-year / 365 Treasury bill less USD equivalent (real)	140	330	220	210	580
Ten-year less USD equivalent (nominal)	140	680	310	460	1070
Ten-year less USD equivalent (real)	120	300	270	140	490

Source: CEPA calculations

Capacity for structuring and credit evaluation skills for sustainable infrastructure financing. Develop local currency schemes to build capacity and support the low-carbon transition.

Banks:

For banks to lend to infrastructure projects, they will need to develop their credit evaluation and structuring skills. While being able to participate in long-term project financing should be the ultimate aim, medium- term corporate lending can also be useful; for instance, in financing receivables from household purchases of assets such as solar household systems. A desire to lend for a longer period may also force

them to improve their asset-liability management and become more comfortable with holding long-term liabilities on their balance sheet, which could have favorable spillovers to other forms of long-term lending.

Non-bank financial institutions:

In general, as economies develop, increasing volumes of savings are channeled into local pension and insurance funds, which in turn seek long-dated debt assets denominated in LCY that match their similarly dated liabilities and offer a premium to competing government securities. For example, in Malaysia, the country's deep institutional investor base, comprising pension and provident funds, insurance and takaful (Shariah-compliant insurance) companies, and asset management companies, has provided a key source of liquidity to fund long-term, capital-intensive expenditure (including on infrastructure projects), intermediated through the capital markets.

CHAPTER 5: DEVELOPING LCF MARKETS – COUNTRY CASE STUDIES

Case studies from the Philippines, Indonesia, Kenya, Egypt and Uzbekistan

Given the binding constraints diagnosed, this section provides a more detailed overview of the LCF landscape for infrastructure and climate investments. It further highlights the key targeted interventions for LCF market development in the medium term. These proposed interventions would work alongside a more long-term structural reform agenda across countries, the priorities for which differ based on a country's level of development.

The main data sources are CEPA analyses, World Bank DataBank, and Global Financial Development.

THE PHILIPPINES

LCF Market Overview for infrastructure/climate investment

- Banking market: As of 2021, bank credit was just over 50% of GDP and mostly directed to non-financial corporates. The top five banks hold about two-thirds of total banking assets, while eight of the top 10 banks are part of or associated with a conglomerate group (the remaining two are state owned).
- The banking sector is highly reliant on deposits as a source of funding, comprising around 85% of total liabilities. Of these deposits, approximately 84% are LCY deposits. On the asset side, loans make up approximately 55% of total banking sector assets. The banking sector also holds 29% of LCY-denominated government securities.
- Non-bank financial institutions market: Institutional investors in the Philippines hold a much smaller asset base: in December 2019 it stood at 29% of GDP, led by insurance and mutual funds.
- Historically, infrastructure finance in the Philippines has been provided by the local banking sector via loans with tenors of five to seven years, however tenors can be as long as 12–15 years. Interviews indicated that since 2010 most PPPs have been locally financed by banks as the sector provides a liquid source of LCY credit. The reliance on banking sector lending is in part due to the dominance of conglomerates in the economy, which is also one of the main reasons for the underdevelopment of the capital markets in the country. Loans to infrastructure projects are priced to take into account the financial strength of the conglomerate involved.
- The value of outstanding LCY bonds in the Philippines was approximately 50% of GDP in 2022.
- Central Bank policies are supporting infrastructure financing (e.g., priority lending sector, carve out of project finance from Single Borrower Limits).

Potential interventions for deepening LCF for infrastructure and climate projects

- Develop local currency long-term instruments for LCF bonds issued by banks for on-lending in infrastructure/climate projects.
- Make investment regime more enabling to encourage diversification of institutional investors' assets into operating stage infrastructure/climate projects (directly or indirectly via banks or non-bank market intermediaries). This will need the right instruments, likely LCF credit enhancement mechanisms and capacity building support for structuring and due diligence.
- Develop pooled finance mechanisms and vehicles to crowd in commercial lenders and capital market investors.
- Deepening capital markets (LT reform agenda).

Sources: CEPA analyses; World Bank Databank, Global Financial Development

INDONESIA

LCF Market Overview for infrastructure/climate investment

- The Indonesian financial sector is relatively small compared to its peers and is dominated by banks. As of 2017, the financial sector assets amounted to 72% of GDP. The available instruments are short-term in nature, making the provision of long-term financing limited.
- Banking market: The commercial banking sector is concentrated with four banks playing a major role—Mandiri, Bank Rakyat Indonesia (BRI), Bank Negara Indonesia (BNI) and Bank Central Asia (BCA). Total assets in the banking sector are equivalent to c. 43% of GDP, and around three-quarters of financial sector assets, standing at IDR 10,888 trillion (c. USD 714 billion) in May 2023.
- Non-bank financial institutions market: Pension funds, insurance companies and mutual funds are the main institutions. The government is the biggest issuer of bonds in Indonesia, although the corporate bond market has grown steadily in recent years. As of September 2023, government bonds made up 92% of the value of outstanding LCY bonds, with corporate bonds at 7% and the rest made up by bonds issued by the central bank.
- Indonesia has set up several state-backed entities, aimed at mobilizing long-term financing. Of these, the Indonesia Infrastructure Finance (IIF) is a key development, which has been able to issue LCY bonds to finance part of its portfolio; they have also created PT SMI and the Indonesia Infrastructure Guarantee Fund (IIGF) that collectively contribute to the infrastructure sector development ecosystem.
- Following the Asian financial crisis in 1997, investment in infrastructure was neglected for nearly two decades in Indonesia. The result was insufficient infrastructure in poor conditions. Since 2016, the national strategic projects have been implemented to address infrastructure gaps. The majority of the investment in these projects has come from the budgets of central and regional governments and state-owned entities (SOEs). The government of Indonesia has been working toward creating an attractive environment for more private investment.
- Whereas transport projects such as roads have tariffs priced in LCY, power generation projects are largely FX-based. LCY-denominated assets such as roads could create securitization opportunities where tariffs are cost reflective.

Potential interventions for deepening LCF for infrastructure and climate projects

- Long-term refinance of operating-stage assets of state-owned infrastructure companies, including the asset recycling approach.
- Encouraging diversification of institutional investors' assets into operating-stage infrastructure/climate projects (directly or indirectly via banks or non-bank market intermediaries). This will need the right instruments, likely LCF credit enhancement mechanisms and capacity building support for structuring and due diligence.
- Develop local currency long-term instruments—for instance bank issuance of LCF bonds for on-lending in infrastructure/climate projects.
- Develop local currency pooled finance mechanisms that potentially crowd in development FIs, commercial lenders, and capital market investors.
- Scale national infrastructure banks.
- Deepening money markets and long-term savings including private pension funds (LT reform agenda).

Sources: CEPA analyses; World Bank Databank, Global Financial Development

KENYA

LCF Market Overview for infrastructure/climate investment

- Banking market: Kenya has a well-established banking sector that has experienced significant growth in recent years—total banking sector assets have increased significantly since the end of 2017, from KES 4 trillion (c. USD 39 billion) to KES 6.6 trillion (c. USD 56 billion) as of the end of 2022 (c. 48% of GDP), although as intimated below this is likely driven by the purchase of government securities. As of Q4 2022, the loan-to-deposit ratio in the Kenyan banking sector was c. 79%. Banks hold a significant portion of their assets in government securities—around 25% of total banking sector assets.
- Non-bank financial institutions market: Institutional investors hold a much smaller asset base: total pension fund assets in 2021 were around KES 1.5 trillion (c. USD 13.7 billion, around four times smaller than total banking sector assets, and c. 12.5% of GDP) while total assets under management in the insurance sector were KES 0.85 trillion in 2021 (c. USD 7.75 billion, around half the size of the pension sector.
- An important project or sector-specific challenge relevant to the LCY financing of infrastructure and climate projects appears to be the structure of power purchase agreements in the energy sector. PPAs in Kenya are denominated in FX, and the cost of any exchange rate fluctuations are passed on to consumers. This structure makes FX more attractive relative to LCY for financing IPP projects. If PPAs kept the same structure, but were denominated in LCY, LCY financing would be relatively more attractive.
- The pass through of nominal exchange rate depreciation costs, typically into the project's tariff either whole or in part, is largely necessary for a project to be creditworthy to FX debt providers, irrespective of the sector.

Potential interventions for deepening LCF for infrastructure and climate projects

- Develop an LCF project pipeline.
- Support/transition to local currency-based tariffs for infrastructure services where cost and economics are merited (for instance in energy).
- Encourage institutional investors' (pension funds) participation in infrastructure/climate. This will need the right instruments, likely LCF credit enhancement mechanisms and capacity building support for structuring and due diligence.
- Macro-fiscal consolidation and deepening money markets (LT reform agenda).

Sources: CEPA analyses; World Bank Databank, Global Financial Development

EGYPT

Potential interventions for deepening LCF for infrastructure and climate projects

- Banking market: Egypt's financial sector is dominated by banks, which held assets worth EGP 13 trillion (c. USD 424 billion) as of the end of March 2023—equivalent to around 140% of GDP and 90% of total financial sector assets. However, bank lending to the private sector in Egypt is considerably lower, at only 31% of GDP in 2022.
- Deposits are the banks' primary source of funding, comprising 73% of total liabilities as of the end of March 2023. Of banking sector deposits, most are LCY—around 86% as of the end of June 2022.
- The dominance of public sector investment in infrastructure has historically meant there have been fewer opportunities for Egypt's banking sector to get involved in the financing of infrastructure.
- Non-bank financial institutions market: This is a growing market in Egypt and reached 12% of GDP in 2022. Egypt Post and the insurance subsector are the two largest groups in this market. As of 2022, Egypt Post assets totaled EGP 327.2 billion (c. USD 17.4 billion) and Egyptian insurers' net assets totaled EGP 178.4 billion (c. USD 9.5 billion).
- The debt capital markets are underdeveloped: as of the end of June 2022, the value of bonds issued and listed on the Egyptian Exchange stood at EGP 2.5 trillion (c. USD 130 billion, equivalent to around 32% of GDP), but the vast majority of these (98%) are government securities. The bond markets are also focused on short maturities, with an average maturity of six years as of 2021.
- Outside of the banking sector, Egypt's financial development is very limited. The bond market is dominated by government securities (98% of outstanding securities), but even so there is no meaningful liquid yield curve. The institutional investor base is also very shallow, and what funds there are, tend to be invested in government bonds.

Potential interventions for deepening LCF for infrastructure and climate projects

- Reassess the roles of existing public sector infrastructure lenders and crowd in private sector financing in particular financing from commercial banks with support of DFIs, MDBs that would play a more catalytic role.
- Macro-fiscal consolidation, government long-term yield curve, deepening institutional savings and developing long-term investment products (LT reform agenda).

Sources: CEPA analyses; World Bank Databank, Global Financial Development

UZBEKISTAN

LCF Market Overview for infrastructure/climate investment

- Banking market: The state-owned banking sector dominates the financial system and is highly concentrated. State-owned commercial banks account for 80% of total banking sector assets.
- State-owned commercial banks have had little incentive to mobilize household savings, instead funding their activities mainly from long-term and low-cost foreign bank credit lines and international financial institutions (about 36%) and the state (about 25%) through long-term government and state-owned Uzbekistan Fund for Reconstruction and Development funding.
- There are 19 private commercial banks, but they are small relative to state-owned commercial banks and mostly lend to the private sector on commercial terms with a focus on consumer loans.
- Non-bank financial institutions market: Non-bank financial system participation is negligible. Non-bank credit organizations are underdeveloped and are in the main microcredit organizations (MCOs), leasing companies, pawnshops, and one mortgage refinancing company. Combined, the 63 MCOs and 64 pawnshops represent just 0.2%–0.3% of the banking sector assets. There are over 100 leasing companies, with a loan portfolio accounting for an estimated 2% of banking sector credit. Both the pension and insurance systems of Uzbekistan are underdeveloped. The insurance penetration ratio (gross written premiums to GDP) is very low, estimated at just 0.52% in 2021.
- Presently, LCY is not typically used in significant infrastructure transactions, nor is it even considered. This is in part because it is not competitive with FX from a cost perspective given the very high interest rates present in Uzbekistan.

Potential interventions for deepening LCF for infrastructure and climate projects

- Support governments' efforts to reform state-owned financial institutions and investment funds to bolster infrastructure lending, crowd in DFIs, MDBs, and commercial banks.
- Improve fiscal efficiency, further developing money markets and deepening long-term savings (LT reform agenda).

Sources: CEPA analyses; World Bank Databank, Global Financial Development

CHAPTER 6: KEY RECOMMENDATIONS AND HIGH-LEVEL ROADMAP TO DEEPEN LCF MARKETS IN DEVELOPING COUNTRIES

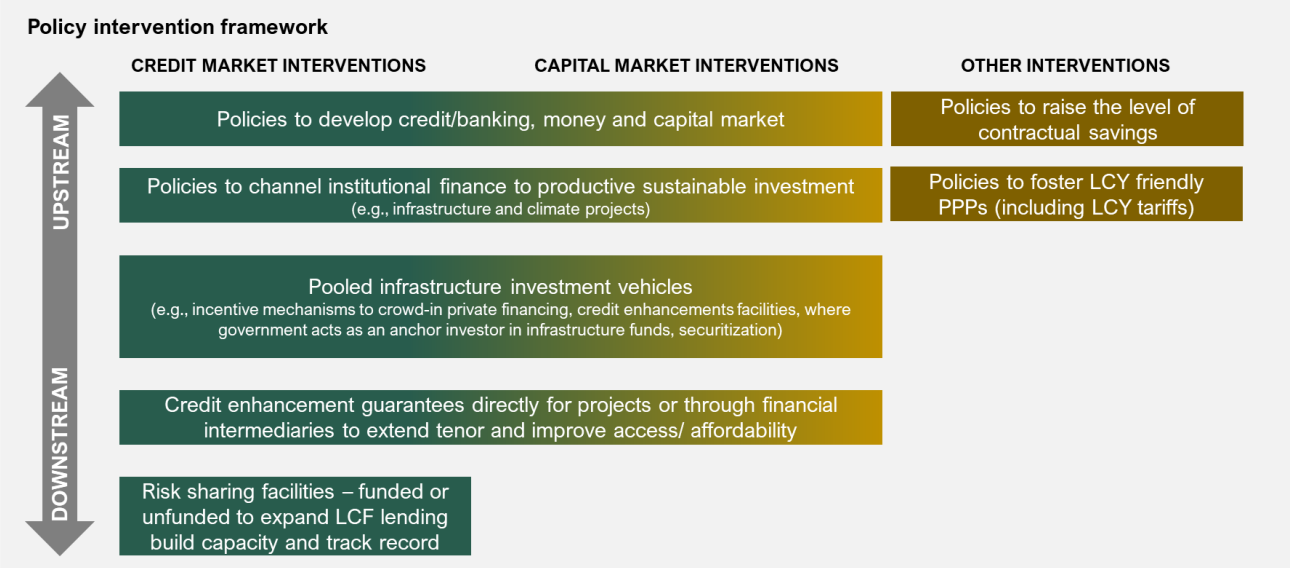
The following recommendations have been identified to assist these countries in their journey towards achieving a more robust LCF market for infrastructure/climate investments.

1. **Promote macro-financial stability and deepen local currency markets**. Prioritize policies that develop money and capital markets, increasing their scale and efficiency in capital allocation.
2. **Raise levels of institutional/contractual savings** and encourage investments in infrastructure assets through appropriate policies and governance frameworks.
3. **Support long-term intermediation of institutional funds into infrastructure/climate projects** while supporting development of attractive local currency project pipelines. Encourage diversification of institutional investors' assets into the sustainable infrastructure asset class including through pooled financing mechanisms.
4. **Support incentive mechanisms to crowd-in private financing namely develop credit enhancement products** to increase local bank participation in project financings and encourage non-recourse financing.
5. **Programmatic approach** to build bankable pipeline of PPPs that are fiscally sustainable.

6.1 Policy recommendations: A Framework

The framework of policy recommendations comprises a toolkit of interventions across upstream through downstream, credit and capital markets, and other policy interventions. These are summarized in Figure 4 below.

Figure 4: Identified policy interventions by category and upstream/downstream



Strong and stable macro-financial policies are foundational forLCF development by promote macro-financial stability through fiscal, monetary, and financial sector policies. Robust policies that are fundamental to improving savings rates and lowering inflation and interest rates address barriers to long-term lending. Through reducing interest rate differentials between LCY and FX financing they deepen local currency markets.

Robust contractual savings growth and disbursement policies to raise levels of institutional/contractual savings should be a paramount upstream policy priority in those places where it is recognized that institutional finance rather than bank finance can bolster financing for infrastructure (and in future climate finance projects). Countries such as Malaysia (as well as Singapore and Australia) introduced compulsory long-term savings decades ago, which over time created vast pools of institutional savings that have been channeled into infrastructure asset classes. On the positive side, most countries have some level of institutional/contractual savings. What is important is that such savings are permitted to flow into productive investments including infrastructure assets managed through appropriate policies and governance frameworks.

Achieve trustworthy, efficient money and capital markets that help channel savings to the real sector and deepen long-term finance. LCY debt financing of infrastructure and climate can only take place where the tenors are sufficient to meet the borrower's preferred mode of financing. In most countries, capital markets are the main channel through which long-term institutional savings are intermediated. Presence of capital markets would allow banks to recycle their capital and projects to refinance project finance loans once risks are reduced especially post construction.

Development of fiscally sustainable LCY-friendly PPPs coupled with a tariff policy aligned with costs to leverage financing at scale and on affordable terms, including from the LCF markets. Ability to raise local currency long-term debt will also allow the services of infrastructure and climate projects to be set in local currency, thereby reducing FX exposure both for the project and the government counterpart.

Key interrelated pillars essential for LCF development:

a) **Depth and liquidity of money markets**. Money markets are a key building block for local currency finance. This occurs through their role in price formation and liquidity distribution across tenors making it critical for the functioning of financial markets and development of a sustainable local currency-financing framework. Functional money markets need a stable local currency deposit base, which in turn is enabled by a policy framework that targets domestic price stability to anchor interest rates. Additionally, it needs pricing benchmarks (like risk-free rates) and progressively, derivative instruments to manage risks.

b) **Liquid government bond markets**. A reliable long-term yield curve is critical as a price reference for long-term investments including infrastructure. The World Bank works on all the pieces that support the development of government markets in the primary and secondary market such as instrument selection, auctions, and primary dealers. Even in markets where bank finance dominates, having a well-developed government bond market helps banks price infrastructure assets better and manage their liquidity more efficiently. Creating liquidity across maturities is one of the key prerequisites to the creation of capital markets. A government can assist in achieving this through the maturity profile of its bond issues, which serve as risk-free benchmarks.

c) **Financial market infrastructure for markets to operate with integrity and efficiency.** This is for trading and post-trading infrastructure: electronic trading platforms, exchanges, central

securities depositories, and clearing and settlement platforms. As decarbonization efforts intensify, this would need to also include market infrastructure for carbon credits.

d) **Deep local credit/banking market capacity, credit evaluation, and structuring skills.** Banking systems need strong technical support in developing credit evaluation and structuring skills to be able to start taking infrastructure risk. Global reviews confirm the need for scaling up and increased access to capacity building programs, project preparation facilities, and where relevant, credit enhancement facilities.

e) **An Institutional investor base comprising long-term investors such as pension funds and insurance companies** through an enabling policy and regulatory framework to broaden and deepen the investor base, in particular a private pension fund pillar. As local institutional investors seek to channel their funds into long-dated debt assets denominated in LCY, thereby earning a risk premium over safer government securities, the infrastructure investment risk must be accompanied by strong capacity building. This requires prioritizing policies that develop capital markets to increase their scale and efficiency in capital allocation. For example, in Malaysia, the country's deep institutional investor base, comprising pension and provident funds, insurance and takaful (Shariah-compliant insurance) companies, and asset management companies, has provided a key source of liquidity to fund long-term, capital-intensive expenditure (including on infrastructure projects), intermediated through the capital markets.[7]

f) **Instruments and vehicles that can channel investors into long-term assets such as** project bonds, private equity funds, securitization, and collateralized lending obligations through the repackaging of operational assets, infrastructure debt funds, co-investment platforms, as well as leveraging domestic DFIs as financing partners. Co-investment platforms that allow co-investment between global and local investors and, in some cases MDBs or DFIs, hold strong promise for financial leverage impact, including in LCF.[8]

g) **Enhanced competitiveness of local project sponsors and developers** and in turn bolster their ability to raise resources from local financial markets. Balancing development of local private sector sponsors with the need for social and environmental impact will need the sustained support of governments to strengthen local capacities.

In approaching these, a number of complementary factors are critical for leveraging financing at scale:

(1) Standardization of the underlying asset (i.e., a pipeline) and debt instrument.

(2) Co-investment between different financiers—banks and global and local investors; and

(3) Risk mitigation and credit-enhancement solutions that could mitigate specific risks, i.e., credit risk, political risk, etc.

(4) Last but not least, a programmatic government approach to procurement of infrastructure and climate projects, coupled with enabling environment reforms, a transparent process, and strong signaling around a steady stream of projects directly supports growth of long-term LCF. This has been evident in several case study countries, namely, South Africa, Malaysia, the Philippines, Indonesia, and Kenya. South Africa's REIPPP is a competitive tender process that was designed, including

[7] World Bank (2020), *Malaysia's domestic bond market: A success story*. Available on the World Bank website.

[8] World Bank (2023), *Global Institutional Investors and Sustainable Infrastructure : A Global Review of Case Studies to Finance the Infrastructure Gap.* Available online.

through payment backstops, to facilitate private sector investment into grid-connected renewable energy generation in South Africa. Following its feed-in tariff mechanism launched in 2011, Malaysia's Large Scale Solar program was launched in 2016 to support the expansion of Malaysia's solar PV capacity. The program is based on a competitive bidding process via which PPAs are awarded.

6.2. Pooled infrastructure investment vehicles to crowd in private financing for scaling sustainable infrastructure through LCF

Channeling institutional savings into infrastructure via capital markets is not an automatic feature even in middle-income countries. Which is why, irrespective of the level of development, policy makers should consider incentive mechanisms such as pooled infrastructure vehicles[9] to crowd in private financing such as credit enhancement solutions or infrastructure funds described below. These pooled infrastructure vehicles would be tailored to addressing specific market failures in a country and facilitate private financial flows rather than crowd them out. The vehicles could be coupled with issuance of long-tenor bonds in local capital markets, priced above the government equivalent benchmark and subscribed by local (and possibly) international institutional investors. This would be on-lent, typically as senior debt and/or project bonds to qualifying infrastructure and climate projects. Such vehicles can take a leading role in providing finance to climate projects, helping to increase private sector interest in them (note this also happens in the most advanced financial systems). These vehicles could also serve for securitization and take-out financing by institutional investors in operating phases of projects.

- The **IIF** (Indonesia Infrastructure Finance) was established in 2010 to provide long-term Indonesian rupiah finance to infrastructure, in which state equity capital has worked alongside capital from IFC and the private sector to leverage Indonesian rupiah-denominated bonds with up to seven years' maturity. In addition, financing from the World Bank has been on-lent to the IIF as a mezzanine tranche to increase its leveraging capacity. Box 1 below provides a short case study on IIF.
- **The DBSA** has been a major financier of various projects under the REIPPP, investing some ZAR 12.4 billion into 14 projects, from the first round onwards, as well as being a debt provider to the N4, **South Africa**'s first infrastructure project financing.
- **Bank Pembangunan** is the largest development bank in **Malaysia**, with an asset size of MYR 26.6 billion (c. USD 6 billion) as of 2019. It is owned by the Ministry of Finance and has been involved in various infrastructure projects in Malaysia, such as highways, railways, airports, ports, power plants, water supply, and telecommunications. Some of the notable projects that it has financed include the Kuala Lumpur International Airport, the Penang Bridge, the Mass Rapid Transit system, and the Bakun Hydroelectric Dam.
- The **Development Bank of the Philippines** is the primary government banking institution engaged in development financing, including infrastructure. It has been designated as the country's infrastructure bank since 2017 and supports infrastructure development such as the administration's "Build Better More" program, which aims to improve transport, water, energy, and social

[9] In some country contexts, governments may choose to be anchor investors in private sector-led infrastructure debt funds. Such vehicles can be seen as complementary and global lessons from BNDES in Brazil and Banobras in Mexico could be useful reference points. rather than as an alternative to an NIB in advancing LCF objectives for infrastructure.

infrastructure and the environment sector, which supports renewable energy, climate change adaptation and mitigation, and solid waste management projects.

Box 1: Indonesia Infrastructure Finance, an example of pooled infrastructure investment vehicle

The IIF was established in 2010 to catalyse and accelerate private participation in infrastructure development. It is a joint venture between the government of Indonesia and DFIs (Asian Development Bank [19.99 percent], German Investment Corporation [15.12 percent], IFC [19.99 percent]) and a commercial bank, Sumitomo-Mitsui Banking Corporation (14.90 percent). Government participation was channelled through PT SMI (30 percent).

IIF's capital structure comprises paid in equity, a mezzanine tier, and a senior tier largely comprising Indonesian rupiah bonds, although it has raised some US dollar debt.

According to its 2022 Annual Report, IIF investment offers a number of products:

Fund-based - Loans in the form of, among others, senior loans, subordinated loans/mezzanine financing, bridge financing, take-out financing, and/or refinancing; financing of other activities related to infrastructure projects under the prevailing laws and regulations; and equity investment.

Non-fund-based - Search for swap market related services for infrastructure financing companies; Guarantees in the form of fulfilment of financial liabilities, credit enhancement, and/or performance bonds.

IIF can invest across a wide range of infrastructure sectors: transportation, roads, water resources and irrigation, drinking water, centralized wastewater management systems, localized wastewater management systems, waste, and toxic waste management system, telecommunications and informatics, electricity, oil and gas, and renewable energy, energy conservation, urban infrastructure facilities, educational facilities, sports, arts and cultural infrastructure and facility, district, tourism, healthcare, correctional, public housing, state-owned building, industrial estate, food distribution, and other infrastructure.

6.2.1 Credit enhancement solutions

Offer targeted credit enhancement solutions to develop lending to nascent sectors. Credit guarantee schemes or risk sharing facilities (see Annex 3) help unlock local commercial financing when there is sufficient liquidity on the balance sheets of banks, but lending is constrained due to real or perceived credit risks (counterparty, market, technology, etc.)

IBRD/IDA and IFC joint approach to developing risk sharing facilities for infrastructure and climate projects in local currency. There are synergies between the risk sharing facilities (RSF) supported by the IBRD/IDA and IFC's operations. IBRD/IDA guarantees or loans for RSFs are deployed to reduce barriers to affordable local currency commercial financing in nascent markets or riskier sectors where the private sector is not yet very active. Unlocking commercial financing through the IBRD/IDA-supported RSFs' credit enhancements coupled with technical assistance for ecosystem development help create a track record for investments in the targeted sector. As these sectors become more established and a history of performance is demonstrated, IFC could then deploy their products on commercial terms, ensuring the continued growth and evolution of these sectors. Thus, the World Bank and IFC offerings on RSFs complement each other.

Increasing local bank participation through IBRD/IDA guarantees. Where banks are able to lend for five years or more, loan rollovers through the use of tenor extension guarantees (providing either back-end credit and/or liquidity support) can potentially enable 5-year loans to be rolled over to 10 or even 15 years. They could provide a shorter-term tranche of LCY in a longer-term overall FX project financing structure. The inter-creditor agreements would need to be adapted to take account of the different terms

and conditions of the LCY tranche. LCY tranche could also be offered as a shorter tranche, to be part of a wider FX financing.

MIGA local currency products. Through supporting local currency denominated loans or long-term swap arrangements by international investors, MIGA can provide guarantees in currencies that are considered freely convertible such as the Colombian pesos, Kenyan shillings, South African rand, and the West African CFA franc. Additional currencies are being reviewed for eligibility from time to time. In addition, MIGA has been collaborating with TCX to enable synthetic local currency loans. A piloting program on this product is being considered.

Establishing specialist debt funds: These can be structured as corporations, potentially with some government first loss capital to act as an enhancement or through general partner/limited partner structures. Debt funds raise capital from institutional investors and lend directly without any reliance on deposits to infrastructure projects. Different forms of credit enhancement could potentially support such approaches.

CHAPTER 7: KEY CONSIDERATIONS FOR OPERATIONALIZING LCF AND NEXT STEPS

This section provides high-level considerations when assessing opportunities with stakeholders having interest in deepening local financial markets and solutions for sustainable infrastructure. This includes LCF operationalization through sustainable infrastructure project design including PPPs, country diagnostics, and capacity building. These high-level considerations build on ongoing interventions and support mechanisms for LCF globally and in countries. This chapter provides areas of focus to scale up the existing interventions and areas that should be further developed through studies, knowledge sharing, and capacity building programs described under the Next Steps.

In designing infrastructure projects, infrastructure practitioners, project financiers and developers should identify opportunities for financing sustainable infrastructure in LCY. Sources of LCF can differ over the project life cycle, with institutional investors potentially more interested in operational assets. Different financing options would then be identified, such as hybrid PPPs, risk sharing facilities, or even asset recycling.

Engage with local financial institutions: Technical teams responsible for designing infrastructure projects in different sectors should engage in direct dialogue with local financial institutions to optimize LCF at the project level.

Inclusion of LCF in country diagnostics: LCF considerations should be included during the drafting stage of country diagnostics, with assessments from local banks and non-bank financial institutions and consulting data from relevant financial databases.

Expand onshore LCY solutions and risk sharing/mitigation by DFIs: Expansion of DFIs onshore LCY solutions (such as swaps and local bond issuance), partnerships for FX hedging solutions and guarantees to risk mitigate local currency loans are essential for development of LCF for infrastructure and climate projects.

Public-private partnerships: Mitigating FX risk in PPPs is crucial, and there is a need to develop the capacity of domestic financial ecosystems for structuring PPPs with LCF.

Capacity building and knowledge sharing: There is a need for knowledge sharing, capacity building programs, and follow-up studies to deepen LCF for infrastructure and climate investments.

7.1 Key LCY considerations for DFIs' project design

In general, debt finance can be provided on a corporate or project financing basis, with the latter most associated with large greenfield infrastructure investments. However, DFIs like IBRD/IDA debt financing for infrastructure/climate investments is generally channeled through projects via line ministries, government agencies, SOEs, or financial intermediaries. Private arms of DFIs like IFC debt financing to corporates, project financing, and financial intermediaries are common. Some DFIs like IBRD and IFC together have several financial instruments aiming to support the provision of long-term LCF for infrastructure and climate investments in client countries. For low- to middle-income countries, DFIs have special instruments, for example IDA for the World Bank Group that provides grants and concessional loans predominantly in Special Drawing Rights.

In some projects led by these DFIs like IBRD/IDA, local financing would typically be provided by the public counterparty as "counterpart financing" and managed by the government counterpart (either as part of public sector budget allocations or local equity and borrowings).

Opportunities for refinancing, additional financing, and asset recycling of existing infrastructure assets with LCF. Existing infrastructure assets generally have a well-established track record and require periodic major maintenance. LCF for brownfield infrastructure assets by local financial institutions could

be promoted to unlock capital invested in existing infrastructure for new assets.[10] As part of a country program dialogue leading to a new country partnership framework, the potential for the refinancing of existing DFI loans should be explored with government authorities in addition to the deliberation on new financed projects by such institutions. It is recommended that DFIs' sector teams continue collaboration with the global Asset Recycling Communities of Practices on the topic of LCF in confirming targeted country clients' interest for asset recycling and refinancing/additional financing with LCF. [11][12]

Some examples of key considerations taken by the World Bank Group with regards to project design include:

- **IBRD/IDA guarantees/risk mitigation targeting local financiers.** Guided by the World Bank Group's Statement on Evolution Roadmap, it is aiming to triple guarantees by 2030, which means reaching over $20 billion in guarantees annually. Bank Group sector teams are considering risk mitigation solutions in support of local financial institutions and local investors that can contribute to this goal, in addition to supporting foreign investors. These draw from experiences such as the Partial Risk Sharing Facility (PRSF) for Energy Efficiency project (http://prsf.sidbi.in/) in India where the PRSF has leveraged private capital over three times. Or the Nachtigal hydroelectric power plant in Cameroon, where a World Bank Group loan guarantee supports mobilizing a 21-year local currency facility from local banks (see Annex 3). It could also draw on the experience of several investment funds/fund-based structures deployed for spurring investments in sustainable infrastructure assets globally including in Colombia, Mexico, and India. IBRD/IDA sector teams should have more direct dialogue with local financial institutions to explore appropriate mechanisms to optimize LCF at the project level, while at all times ensuring full alignment with the World Bank's Financial Intermediary Fund guidelines.
- **Onshore solutions by IFC.** IFC may further deepen onshore LCY solutions such as through onshore cross-currency swap and local bond issuance. IFC can do swaps with domestic counterparties including domestic or regional private banks, SOEs, and even central banks. These combinations of financial instruments will help increase local currency liquidity.
- **Originate to refinance toward development of LCF.** Debt for infrastructure/climate investments can also be potentially provided through bond finance, especially for operational assets after the construction phase as discussed under asset recycling above.

7.2 Key LCY considerations for country diagnostics

Infrastructure practitioners particularly in DFIs are being socialized on the topic of private capital facilitation/enablers/mobilization through LCF. This effort could go further to include LCF aspects during the drafting stage of country diagnostics such as WBG Country Private Sector Diagnostic (CPSD), Country Climate and Development Reports (CCDRs), Financial Sector Assessment Program (FSAP), and Infrastructure Sector Assessment Program (InfraSAPs). Together with the assessment of private capital aspects, the author teams should include considerations for LCF particularly from local banks and non-bank financial institutions. Brief LCF assessments along the lines of Chapter 5 of this report could be

[10] Asset Recycling Toolkit 2023, World Bank Group.

[11] WBG Asset Recycling Community of Practice is administered by World Bank's Infrastructure Finance and Guarantees and IFC Global Upstream Department.

[12] In 2023 a group of countries globally was assessed as having near-term potential for assets recycling. The countries were India (roads, power transmission and generation, airports), Indonesia (roads, power utilities), Uzbekistan (roads, railways, power utilities, airports, oil and gas), Kazakhstan (roads, oil and gas), Brazil (roads, railways, power utilities, airports), Mexico (roads, airports), Egypt (power utilities), Morocco (power utilities), and Nigeria (roads, railways, power utilities).

added as appropriate. Data from central banks, monetary and capital market organizations, and financial databases should be consulted (see the references in the Annex of this report). To help incentivize local financing, there could be policies that further promote the setting of tariffs for infrastructure/climate projects in local currencies where cost and economics merit it. Furthermore, since low-carbon investments can be relatively new and perceived as riskier for local financial institutions, government authorities may support de-risking and risk sharing for such investments.

7.3 Key LCY considerations for climate projects

Where climate investment is referenced in this study, it corresponds to infrastructure investment that produces mitigation or adaptation benefits. While financing for revenue-generating infrastructure projects with climate mitigation benefits is discussed in this report, the financing for climate adaptation investments is more challenging. Projects for climate adaptation are less likely to have financially viable revenues. Furthermore, the challenge of financing adaptation is not just one of specific investments to increase resilience and adaptive capacity of communities and regions, but one of ensuring all investments are climate resilient, which requires practical approaches for meeting the incremental costs of such investments. Additional unique characteristics are that the return on investment for climate adaptation tends to be social rather than economic with much longer investment horizons than typical financing tenor available from many financial markets.

Moreover, discussions with institutional investors or commercial banks highlighted the importance of bankable pipelines and the need to assess project and financing risks associated with climate projects. Providing early support on climate investment pipeline generation and initial due diligence could facilitate the channeling of financing toward climate projects in local currency. For this purpose, scaling up the use of project screening tools such as the infrastructure and climate screening tool[13] developed by the Indonesia Infrastructure Finance Facility with the support of PPIAF would facilitate the identification and design of projects that meet minimum requirements for approval by credit investment committees of banks or national infrastructure funds.

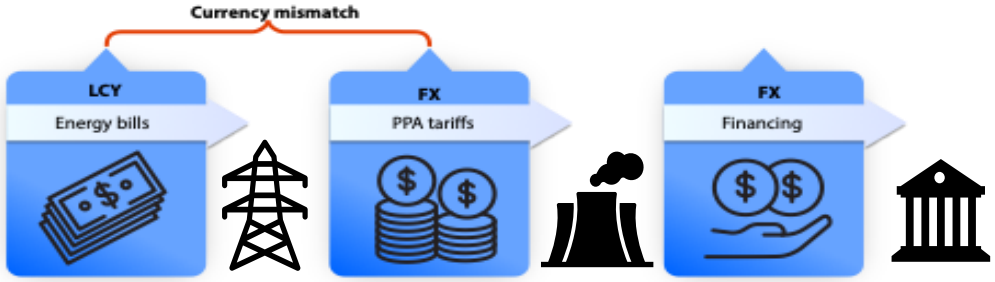
7.4 Key LCY considerations for PPPs

Mitigating FX risk – Projects are exposed to FX risk if debt payment obligations are priced in FX and revenues received from customers are in LCY. In the event of LCY depreciation against FX, debt service costs will increase in LCY terms.

Reducing FX resource pressure – Figure 5 below illustrates where there is a currency mismatch between off-taker revenues and infrastructure tariffs, the off-taker will need to convert its LCY revenues into FX to pay the sponsor by accessing the host country's FX reserves. This is particularly undesirable if FX reserves are scarce.

13 Report on IIF Climate Change Adaptation Investments and Quantification of Impacts, WBG, 2024 Link

Figure 5. Currency mismatch in PPAs



Developing the capacity of domestic financial ecosystems becomes crucial for the structuring of PPPs with a glance at LCF impact. In countries like Malaysia, the promotion of PPPs has enabled financing for infrastructure in local currency as a means of facilitating private sector participation in infrastructure. Consequently, the evaluation and appraisal skills related to credit assessment had improved, resulting in an increased capacity and capability to undertake more infrastructure financing transactions.

Therefore, developing the financial market skills in relation to PPPs, IPPs, and PPAs by building the capacity of local market players is crucial for the deepening of LCF markets. For example, market players could be supported in identifying bankable PPP pipelines to be funded in local currency (e.g., Malaysia's privatization program and South Africa's REIPPP). Moreover, findings from the study *"Global Review of case studies to finance the infrastructure gap*" have revealed the need for scaling up the availability of capacity building programs, project preparation facilities, and credit enhancement facilities such as the Infracredit established by PIDG in Nigeria to address PPP transaction costs pertaining to technical, legal, and financial advisory services that can be a deterrent to lending long in local currency. Indeed, the study revealed that the cost incurred for due diligence for smaller-scale transactions like small renewable energy projects cannot be offset by the limited return on investments for private stakeholders. Therefore, the lack of standardized contracts for such transactions, in particular for small-scale private investments, can become a major hinderance to invest in local currency in developing countries.

The standardization of PPP contracts for LCY with a special focus on risks associated with climate investments would facilitate the acceleration of the project preparation process and reduce the perception of risk from potential institutional investors. Beyond standard contracts, the development of academies, toolkits, and knowledge sharing programs will help to strengthen the capacity of targeted stakeholders such as institutional investors (e.g FIs), PPP units, and project developers and sponsors who lack the capability or capacity.

Other considerations would include development of fiscally sustainable PPPs and the expansion of funding sources such as asset recycling programs.

- LCY can be incorporated into the financing of infrastructure in several ways: either upfront or during refinancing. The range of **options** available is likely to be related to the depth and breadth of financial markets, which in turn is likely to be correlated to a greater or lesser extent with the size of a country's economy. Because of the potential for refinancing infrastructure, the sources of LCY financing can differ over the **project life cycle,** for instance, institutional investors would be more interested in **operational** as opposed to **greenfield assets**, which means they will be more likely to provide finance post-commencement of the commercial operation date (COD).

7.5 Next steps on studies, knowledge sharing, and capacity building products

This study has broadly confirmed that the most fundamental approach to deepening LCF for infrastructure and climate investments is through increasing the capacity of existing local financiers and crowding in new local and international financiers, which in turn is supported by sound macroeconomic, financial, money, and capital market policies and key enablers. The recommendations described in Chapter 5 and 6 along with the key considerations outlined in Chapter 7 should lead to the implementation of follow-up studies and capacity building programs:

- **Knowledge sharing** and consultation with government authorities, DFIs, and infrastructure/climate teams globally on key findings and soliciting input on operationalizing LCF in projects and analytical works. The capacity building program would include additional project-level case studies carried out together with World Bank Group teams to consider LCF components including for IPPs, on-grid and off-grid renewables, mini grids, energy efficiency investments, green fleet financing, and adaptation investments (see example in Annex 4).
- **Training materials, learning tools, knowledge learning academies**[14] including the guidance note on engaging local commercial banks, and non-bank financial institutions in infrastructure/climate projects in select countries. The final products will be consistent with existing joint MDBs policies, guidance note on Financial Intermediary Financing, and general procurement guidelines.
- **Policy notes**[15] related to LCF.
- **Develop LCF approaches for sustainable infrastructure** to be used in country assessments like InfraSAPs, Financial Sector Assessment Programs, CPSD, CCDRs, and the Water Sector Assessment Program (Water SAP).
- **Guidelines/options for establishing and strengthening pooled infrastructure investment vehicles** such as infrastructure funds, drawing on existing material including several publications from FCI.
- **Guidance note and standardization contracts for LCF** considerations in PPPs for infrastructure and climate investments.
- **Guidance note** on financing instruments for project design and structuring in local currency.

[14] May use a J-CAP country. GEMLOC advanced – middle/south-south element.

[15] Policy notes should be an integrated piece reflecting the collective domain expertise of IFP and FCI. The Note should speak to ways in which the originate to *distribute approach* can be harnessed, such as a Just Energy Transition supported at scale in LCF by banks and capital markets through instruments and approaches including asset recycling, refinancing, supporting risk sharing facilities. The note should be concise, reflect feedback from WBG country teams and market sounding, be simple and digestible for the target audience. There could be two variants of the note, one each for internal and external audience.

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ANNEX 2: GLOSSARY

Just Energy Transition Partnership (JETP)

Under the JETP, which South Africa joined in late 2022, around $8.5 billion of grants and concessional finance will be mobilized over three to five years. The aim is to accelerate the retirement of coal plants and the deployment of renewable energy and to support green hydrogen and other low-carbon transport technologies as well as repurpose mine sites.

Renewable Energy Independent Power Producer Program (REIPPP)

South Africa's REIPPP is a competitive tender process that was designed, including through payment backstops, to facilitate private sector investment into grid-connected renewable energy generation in South Africa. Successful projects enter into a PPA with Eskom, South Africa's "single buyer" of electricity.

Sustainable infrastructure: Structural components—design, build, operate, and maintain—of the public provision of economic and social services that do not compromise the ability of future generations to receive such services. This includes investments in resilience and climate change, as well as economic infrastructure (digital, energy, transport, water, sewage, etc.) and social infrastructure (health, education). The term "infrastructure" throughout the report refers to sustainable infrastructure.

Climate Investments: Infrastructure investment that produces mitigation or adaptation benefits.

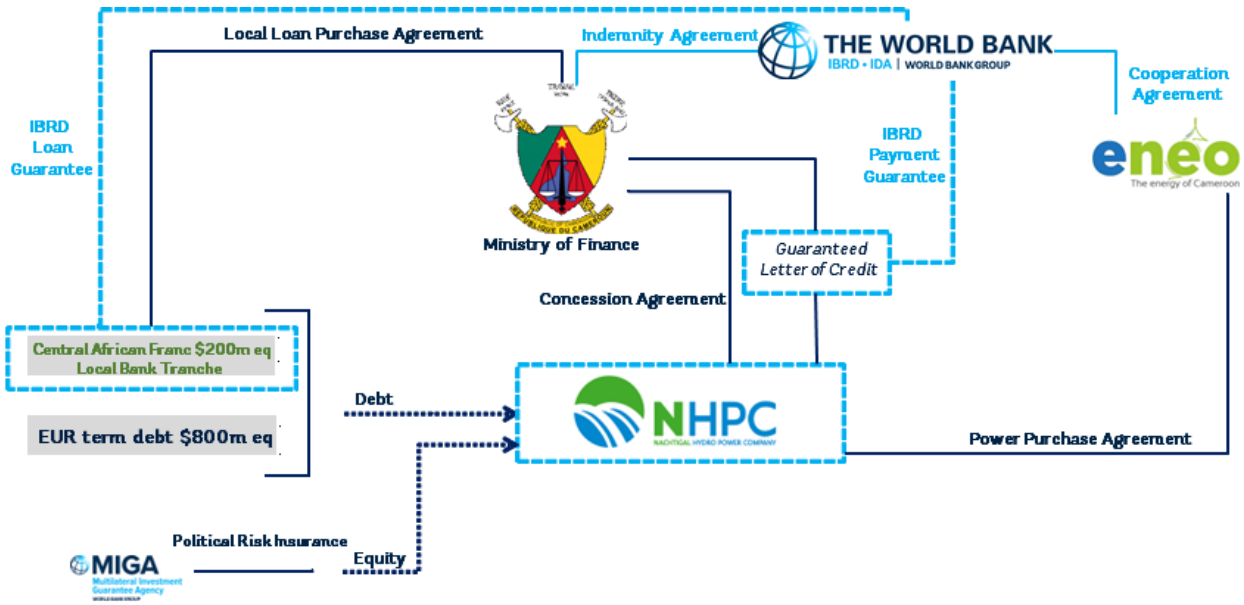
Climate finance: Local, national, or transnational funding from public, private, and alternative sources aimed at supporting actions to mitigate and adapt to climate change. This study focuses on commercial debt finance and does not delve into carbon markets.

ANNEX 3: WORLD BANK GROUP SOLUTIONS SUPPORTING LOCAL CURRENCY FINANCING

(i) World Bank Guarantee – Extending local currency loan tenor

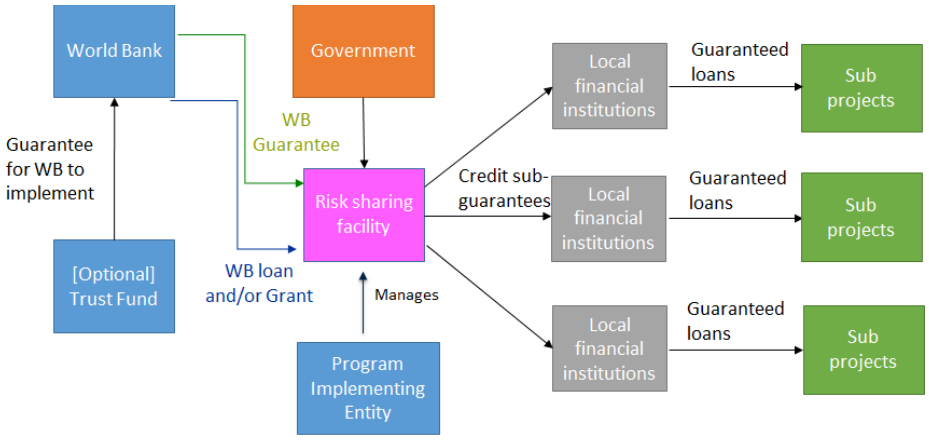
Cameroon Nachtigal Hydro Power Project

- The 420 MW Nachtigal HPP is a greenfield hydropower project that reached financial close in December 2018. Project construction commenced in 2019 and is at an advanced stage.
- The project cost was estimated at $1.38 billion, to be financed with $1.01 billion of debt (USD 200 million equivalent in Central African franc debt and USD 810 million in euro term debt) plus the balance in shareholders' equity and tax receipts.
- There is a $200 million IBRD loan guarantee to facilitate the participation of local banks to offer Central African franc debt, effectively reducing the FX risks for the project company as well as the country. In addition, there is a $100 million IBRD payment guarantee to backstop payments under the power purchase agreement. MIGA provides political risk insurance for private equity investors, and IFC provides euro term debt and equity investment.
- The local bank tranche provides effectively 21-year tenor local currency loan to match the long economic life of the underlying hydro assets.
    - To accommodate the local market loan conditions, local banks have the option to exit the loan facility at year 7 or 14. This option allows local banks to extend loan tenor beyond the regulatory restrictions imposed by the Bank of Central African States.
    - If a local bank decided to exit the loan facility, the project company will have an obligation to use reasonable efforts to find another eligible lender to purchase the loan. Otherwise, the government will be obligated to purchase the loan.
    - IBRD guarantees enabled the 21-year tenor by guaranteeing the potential government's failure to purchase a local lender's loan.



(ii) Risk Sharing Facilities – mitigating risks for local financial institutions

- India Partial Risk Sharing Facility for Energy Efficiency Project (PRSF, approved 2015) and Vietnam Scaling up Energy Efficiency Project (approved 2019) are examples of World Bank-supported risk sharing facilities that provide risk mitigations to scale up financing by local financial institutions and private equity. While these projects support energy efficiency investments, the risk sharing facilities can be designed to support other infrastructure and climate investments as well.
- Both projects provide World Bank partial guarantees, through risk sharing facilities, that in turn provide risk mitigation for local financial institutions (covering as much as 80% and 50% of their loans to sub-projects).
- The World Bank's exposure (guarantees and grants) will be leveraging over three times of local debt from local financial institutions and private equity in local currencies.
- India PRSF is supported by the Clean Technology Fund, while the Vietnam EE is supported by the Green Climate Fund. With the support of these trust funds, the World Bank guarantees under these projects did not require the host governments to counter-indemnify the World Bank as is the case for IBRD or IDA guarantees in general.



	India Partial Risk Sharing Facility for Energy Efficiency	Vietnam Scaling Up Energy Efficiency
1st Loss Capital	$12 million	$1 million
2nd Loss Capital (through World Bank)	$25 million (CTF)	$75 million (GCF)
Recycled Exposure from Project	$11 million	$24.4 million
Total Guarantees Issued	$48 million	$100.4 million
Total Debt Raised (% Guarantee)	$89 million (54%)	$200.8 million (50%)
Required Equity investment	$38 million	$50.2 million
Total Private Capital Mobilized	$127 million	$251 million
Total leverage ratio	127/37 = **3.3x**	251/76 = **3.3x**

IFC Local Currency Facility – Airtel Africa

- To support universal and affordable broadband access in Africa, and the opportunities that come with increased connectivity, in June 2024, IFC signed a $200 million equivalent debt package for Airtel Africa to support operations in the Democratic Republic of Congo, Rwanda ($60 million equivalent in RWF), and Kenya. This new debt package follows a $224 million equivalent debt package provided to Airtel Africa for seven of its African OpCo's in FY 2023.
- The financing facility is a repeat transaction to upsize the existing debt commitments with Airtel and has a tenor of eight years. It will be used to support Airtel Africa's operations and investments in the Democratic Republic of Congo, Kenya, and Rwanda, where the banking landscape and access to local funding remains largely underdeveloped. The previous financing also covered operations in Madagascar, Niger, Republic of Congo, and Zambia.
- IFC's loan is supported by co-financing from institutional investors through IFC's Managed Co-Lending Portfolio Program (MCPP). IFC's loan in Zambia, Chad, and Rwanda are supported by the Local Currency Facility of the IDA's Private Sector Window. In Kenya, the local currency loan was procured through a borrowing line with a commercial bank in Kenya, creating a back-to-back loan structure between the commercial bank, IFC, and Airtel, an innovative way of offering local currency (a first time for IFC in Africa and only the second time for IFC overall).

(iv) MIGA guarantees in local currencies – Financiera de Desarrollo Territorial S.A. (Findeter) and Banco de Comercio Exterior de Colombia S.A.

- MIGA can provide guarantees in freely convertible currencies such as Colombian pesos, Kenyan shillings, or South African rand either through supporting locally denominated loans or through long-term swap arrangements.
- In November 2022, MIGA issued a guarantee to JPMorgan Chase Bank N.A. amounting to 877 billion Colombian pesos ($201 million) to cover a loan to Financiera de Desarrollo Territorial S.A. (Findeter), a development bank that is majority-owned by the government of Colombia. The three-year guarantee protects the bank against the risk of non-payment of the loan, which will be made in Colombian pesos. MIGA's guarantee will also be denominated in the local currency. Findeter will use the loan's proceeds to finance its lending operations in Colombia. A major portion of the loan will go to climate finance projects that will contribute to Colombia's objectives of diversifying its energy mix and fostering a green economic recovery. The loan will also support investment projects in the key strategic social sectors of education and health, which were severely impacted by the effects of the COVID-19 pandemic.
- In December 2022, MIGA issued a guarantee totaling $546.8 million to JPMorgan Chase Bank N.A. covering their three-year loan to Banco de Comercio Exterior de Colombia S.A. (Bancoldex). MIGA's coverage has been sought in relation to a Non-Honoring of Sovereign Financial Obligations by a State-Owned Enterprise (NHSOE) guarantee for a 1.423 trillion Colombian peso-denominated debt financing. The MIGA-guaranteed loan will be used by Bancoldex to on-lend through financial intermediaries to support the liquidity of Micro, Small and Medium Enterprises (MSMEs) in Colombia and thus support the restoration of economic activity as part of the post COVID-19 recovery phase. Bancoldex will also use the funds to provide direct financing to MSMEs or refinance existing MSME loans currently on their books.
- For IDA countries, the MIGA Guarantee Facility (MGF) expands coverage through shared first loss and risk participation via MIGA reinsurance. MGF provides coverage for a combination of political risk insurance (PRI) products, covering non-commercial risks such as expropriation, currency transfer restriction and inconvertibility, war and civil disturbance, and breach of contract on key project agreements covering government (sovereign and sub-sovereign/SOE) obligations.

ANNEX 4: PROJECT CASE STUDY — LOCAL CURRENCY FINANCING FOR AN INFRASTRUCTURE AND CLIMATE PROJECT

Project Case Study – Local currency financing for an infrastructure and climate project 150 MW geothermal power project or IPP in Kenya

- This case study aims to illustrate to World Bank sector teams scenarios and key enabling factors to mobilize LCF for an infrastructure/climate project.
- In many World Bank client countries, the nominal cost of LCF can be higher than those in hard currencies (e.g., USD, EUR, JPY) especially at the time of project preparation leading up to financial closure. Moreover, infrastructure/climate projects usually have the cost component denominated in hard currencies, thus requiring funding in hard currencies.
- Inflation differentials, interest rate differentials, and the resulting exchange rate movements, could evolve such that the cost of LCF will not always be higher than hard currencies, especially over the long life of an infrastructure/climate asset. Global experiences have shown that as the LCF market deepens, and macro-economic fundamentals improve, the cost of LCF can be competitive and very well complement hard currency financing.
- At the same time, many countries face constraints in accessing hard currencies. Using LCF for capital-intensive infrastructure/climate projects can spread out the need for hard currencies over multiple years during their construction period and reduce the need for hard currencies during their operating life.

Project Costs

Base project costs are estimated to be $150 million, of which around 60 percent are in dollars (USD) and the remaining in Kenyan shillings (KES). The estimated breakdown of costs is provided below.

	Shilling (million eq USD)	USD (Mil.)	USD Equivalent (mil.)
EPC contract costs	15	60	75
Other hard costs	15	10.5	25.5
E&S costs	12	3	15
Pre-construction development costs	7.5	7.5	15
Base contingency costs	1.5	3	4.5
Interest During Construction	9	6	15
Total	**60**	**90**	**150**

$1 = ~ 84 Kenyan shilling (June 2013); 149 KES (October 2023)

Financing Scenario 1 – The typical scenario, financing mainly in USD

- The currencies of debt, equity (or counterpart financing) versus project cost currencies is closely matched, and to be disbursed during implementation/construction phase.
- During project operation phase, revenue cash flows would need to cover as much as two-thirds of base finance USD exposure (33% debt and possibly 33% equity/counterpart financing), plus some return on USD equity/counterpart financing.

	Shilling (mil.)	USD (mil.)	USD total (mil. eq)	Percentage
A. Base Finance				
Base Project Debt (USD)	-	50	50.0	33.3%
Base Project Debt (Shilling)	4,200	-	50.0	33.3%
Base Equity/Counterpart financing	0	50	50.0	33.3%
Total Base Finance	**4,200**	**100**	**150**	**100.0%**

Enabling factors for this scenario:

- As much as two-thirds of tariff portion to be denominated in USD or indexed to USD to cover base finance.
- KES debt could be supported by a guarantee to extend maturity or to ensure a roll-over of tenor (in case KES debt is shorter than the required repayment cash flows).

Financing Scenario 2 – Larger financing portion in Kenyan shilling than the project costs

- Higher portion of debt/equity (counterpart financing) in KES (compared to project cost currencies), to be disbursed during implementation/construction phase.
- During the project operation phase, revenue cash flows only need to cover 17.5%–34% of base finance USD exposure (17.5% debt and possibly 16% equity), plus some return on USD equity/counterpart financing.

	Shilling (mil.)	USD (mil.)	USD total (mil. eq)	Percentage
A. Base Finance				
Base Project Debt (USD)	-	26	26.3	17.5%
Base Project Debt (Shilling)	6,195	-	73.8	49.2%
Base Equity/Counterpart financing	2,100	25	50.0	33.3%
Total Base Finance	**8,295**	**51**	**150**	**100.0%**

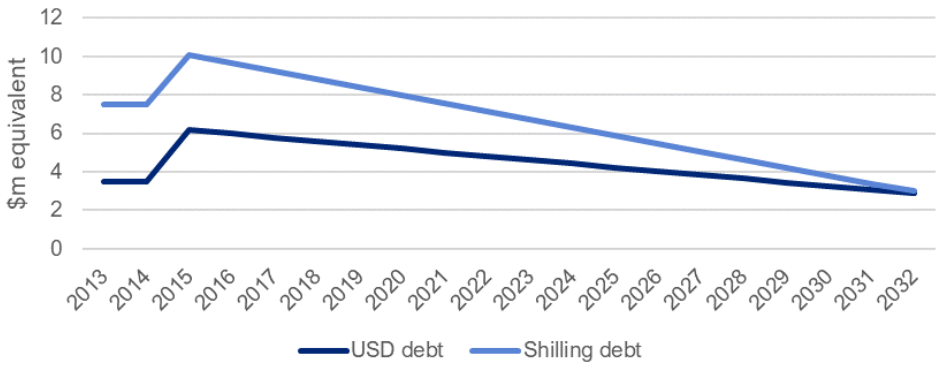
Enabling factors for this scenario:

- During construction phase, the ability to convert KES into USD (here $99 million) to pay project USD costs.
- As much as ~66% tariff portion could be denominated in KES. A smaller tariff portion ~34% to be denominated in USD or indexed to USD.
- KES debt could be supported by a guarantee to extend maturity or to ensure a roll-over of tenor.
- Some forms of interest rate subsidy could be selectively targeted for KES debt, to buy down the KES financing cost.
- Domestic pension funds could provide KES or USD debt and/or equity. They could be guaranteed by institutions like GuarantCo. In turn, Guarantco could be backed by a World Bank guarantee (or utilize a first and second loss structure) to increase its capacity.

Financing Scenario 2 (larger financing portion in Kenyan shilling) can add value and should be considered for future infrastructure and climate projects:

- We use a hypothetical Kenyan example of a $150 million geothermal project commencing in 2013.
- Scenario 2 assumes that the project is financed with $50 million of equity and $100 million of 20-year debt ($50 million of USD debt and $50 million equivalent of KES debt), with a two-year grace period before straight-line amortization commences, during which interest during construction is paid.
- We assume an all-in interest rate on USD debt of 7.0% and 15% on shilling debt – a nominal difference of 8 percentage points.
- Figure 1 shows the implications of these assumptions for annual interest and amortization payments over the 20-year period. As can be seen, there is a significant difference in cash outflows.
- It should be noted that if the shilling debt had been shorter tenor, the difference in cash flows to pay interest and amortization on USD vs shilling debt would have been even more pronounced.

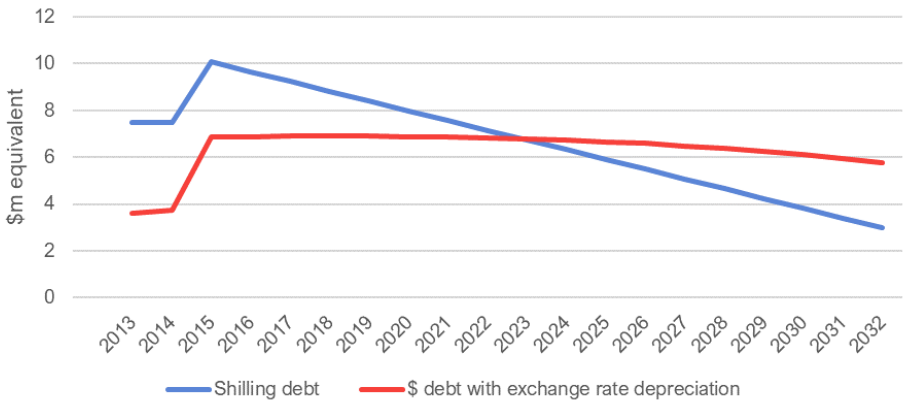
Figure 1 – Cash flows for USD and KES project debt (fixed exchange rate at financial close)



In Figure 2, we add the impact of nominal exchange rate depreciation to show the impact on the interest rate differential.

- We take average per annum nominal depreciation in the USD/KES exchange rate in the period 2013 to 2022 of 3.55% and then extrapolate this into the future.
- It is possible to see how the nominal interest rate differential between USD and shilling debt is substantially offset after the initial years of the project, in terms of the dollar equivalent KES amounts that need to be paid out to debt providers.
- While in the early years KES finance would have had a much larger claim on project cash flows than USD finance, this is no longer true after 2023.

Figure 2 – Cash flows for USD and KES project debt (with nominal exchange rate movement)



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