



“ESTABLISHING A GREEN BANK OR GREENING OF EXISTING BANK?”

The recent proliferation of green finance facilities by public sector players – at the national, subnational, regional and municipal level – is a response to the massive gaps between available funding and demand for funding for climate-friendly projects, and the vital need to mobilize private sector finance to meet international obligations of the Paris Agreement.



This paper examines the relative merits of starting a de novo Green Bank compared to “greening” an existing National Development Bank (NDB). The report starts with a brief analysis of the general problem that demand for financing of green investments exceeds existing supply, including a description of key financial and non-financial barriers to investment. It then presents the question of whether to green existing NDBs or grow a de novo Green Bank, and identifies criteria from institutional, government, and economy-specific perspectives to help inform the decision. Finally, this paper outlines a basic process for how to ‘green’ a NDB, should that path be chosen.

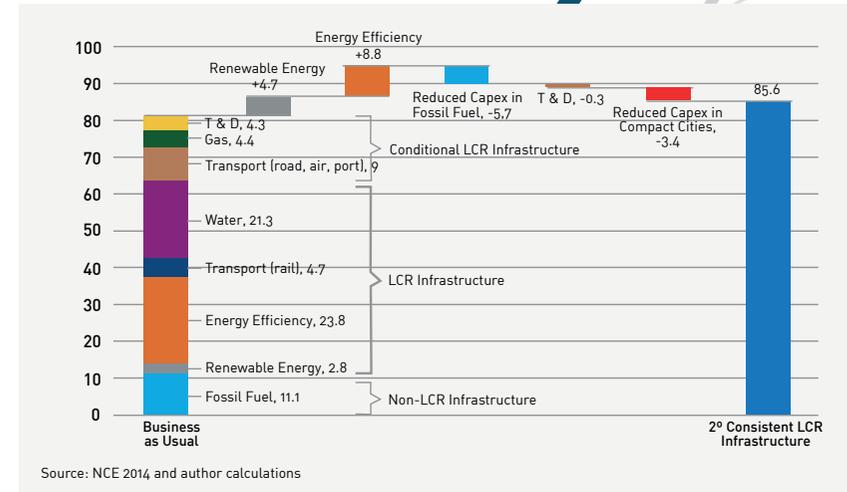
1. INTRODUCTION

In all countries – from highly industrialized to least developed nations – the size and scale of the financing needs to support climate-friendly investments and to meet Paris Agreement commitments are significant. The need for low-carbon investments in infrastructure and other sectors is described in plans developed at the national level. These plans define the sectors in which a country will invest towards meeting the goals of the Paris Agreement, which are then published as Nationally Determined Contributions (NDCs).

At the sub-national levels, the impetus for using public funds for low carbon and climate resilient (LCR) projects can derive from national obligations that have cascaded down or, more often, a genuine bottom-up desire by financial and non-financial actors to support the greening of their systems. Even those jurisdictions at the sub-national level – such as municipalities, counties and provinces – feel both the burden and responsibility to develop innovative financing solutions to address gaps that will, for example, decarbonize the electricity grid, optimize energy efficiency in buildings, enable next-generation mobility and improve waste management (McKinsey, 2017). However, public funds are not sufficient and need to be used wisely to mobilize private capital and optimize impact.

Figure 1 defines the global scope of LCR investments required to be consistent with the below 2-degree Celsius climate goal of the Paris Agreement. This shows that Investments under the business as usual (BAU) scenario from 2015-2030 would likely include significant investment in LCR infrastructure in the range of \$53-\$70 trillion. Global LCR infrastructure needs consistent with the Paris Agreement, however, would require additional investments of \$13.5 trillion in renewable energy and energy efficiency, for a total of some \$85 trillion. In Latin America and the Caribbean (LAC) countries, the financing gap stands at more than US\$175 bn per year (Abramskiehn et al. 2017).

Figure 1: Global LCR Investments Required to Achieved -2o Celsius Reduction



Source: NCE 2014 and author calculations

Source: Brookings Institution, 2018

Box 1: Definition of LCR

The concept of low-carbon, climate-resilient (LCR) development has emerged as a way of framing policy and action to address climate change, capturing the need for both mitigation and adaptation efforts to be fully integrated into development planning and implementation. LCR infrastructure focuses on power, transport, water/sewage, and investments in energy efficiency.

Barriers to investment and scaling up can be significant. There are both financial and non-financial barriers, summarized in Table 1. Examples of financial barriers include a lack of long-term funding for productive LCR investments that sufficiently cover the payback period of LCR projects due to the current asset-liability match of commercial financiers¹. LCR investments also tend to have high upfront costs due to investment in design and physical capital. Additionally, LCR investments are typically novel or ‘innovative’ technologies that subsequently have a higher perceived risk, with a resultant higher cost of capital where risk tolerance exists at all.

Meanwhile, key challenges in terms of non-financial barriers include a lack of experience with LCR projects by commercial banks, SMEs, and project financiers. These challenges lead to insufficient or inadequate project development and implementation on the demand-side and, and on the supply side, a limited ability or willingness to provide financial solutions that support LCR projects effectively. Linked to this is a lack of trust related to new technology, weak enabling environments (such as immature regulatory frameworks) and lack of prioritization by governments to take account of the true ‘negative externality’ costs associated with existing non-LCR technologies.

There is clearly a need for smart and wise public support to mobilize private capital and optimize impact, while safeguarding the social good and not crowding out commercial banks. However, public capital/budgets are not sufficient to finance it all. The imperative to leverage public funds is therefore strong. Mobilizing private sector sources is therefore the priority for governments at all levels, creating the conditions to attract private investment through a combination of enhancing the enabling infrastructure (making it easier to do business) as well as offering incentives to entice investors, through financial and non-financial services, in addition to critical technical assistance for project development, structuring and capacity building across

Table 1: LCR Sector Financial and Non-Financial Barriers for Green Finance

Financial barriers for green finance	<ul style="list-style-type: none"> • Limited access to longer-term financial resources (maturity mismatch) • Higher upfront capital costs (technology-related) • Limited availability of local currency financing • Financial/Macro/Country risks
Non-financial barriers for green finance	<ul style="list-style-type: none"> • Lack of priority • Lack of trust and access to new technology • Lack of institutional capacity and experience with new technologies • Weak project and pipeline identification • Ineffective Environmental and Social Governance Systems • Lack of systems for monitoring, reporting and verification of results

Source: Magallon et al, (2016: p. 3) and Granoff, Hogarth, and Miller (2016)

the financial and LCR project sectors. There is no one solution or perfect model for channeling public money to mobilize private capital towards LCR projects. Each jurisdiction must define the best strategy and instrument for delivery, taking into account its own unique set of circumstances, imperatives, pressures, barriers and opportunities. In countries with existing National Development Banks (NDBs), these public financial intermediaries can be the vehicle for effectively catalyzing private capital towards LCR projects to address the financing gap and achieve Paris Agreement goals. This paper explores the role of public financial intermediaries in the context of the decision to set up a new public bank with a green mandate, or choose to ‘green’ an existing

¹Commercial financiers, especially in emerging economies, often cannot provide medium to long-term loans as the liabilities e.g. deposits they hold are short term. 3

NDB. In other words, the decision to 'build' or 'renovate'. Best conditions under each scenario are laid out and considered using dialectic methods. Exploring more deeply the scenario of 'greening' an existing NDB, this paper then illustrates an appropriate process to be undertaken, defining a "green maturity ladder" from initial recognition of the potential role the NDB could play through to becoming a fully-fledged green financial institution. Examples are referenced from the LAC and globally, to illustrate various scenarios and considerations.

2. APPROACHES TO CATALYZING PRIVATE INVESTMENT THROUGH PUBLIC FINANCIAL INSTITUTIONS

The mechanisms that governments use to drive market adaptation to low carbon, climate resilient sectors, are varied. In all cases, however – the objectives are the same: reduced emissions, clean water, clean air, and minimizing the burden on the taxpayer. In all cases as well, the government (whether national or sub-national) makes a decision that there is a need for more investment in LCR infrastructure and technology and ideally defines a budgetary allocation.

Establishing a new Green Bank

Some countries and sub-sovereign entities, predominantly in developed economies, have recently chosen to establish a Green Bank, broadly understood to be a publicly capitalized entity established specifically to facilitate private investment into domestic LCR infrastructure. The OECD defines Green Banks as a "...public, quasi-public or non-profit entity established specifically to facilitate private investment into domestic low-carbon, climate-resilient infrastructure²" (OECD, 2015)

Green Banks are designed to address local market and policy failures. The core objective of a Green Bank is not only to increase private sector

investment in domestic LCR infrastructure, but to do so efficiently to leverage limited public capital. These dedicated green investment entities have been established at the national, state, county and city levels.

According to the Green Bank Network, which has adopted the OECD definition of a Green Bank, more than a dozen Green Bank and Green Bank-like entities have been established. Since the inception of the Green Bank Network through mid-2018, its members collectively have committed about USD 11 billion for projects with a total value of more than USD 41 billion.

Box 2: Members of the Green Bank Network (7)

- The Clean Energy Finance Corporation, Australia
- Green Investment Group (formerly UK Green Investment Bank)
- NY Green Bank
- Green Finance Organisation, Japan
- Connecticut Green Bank
- GreenTech, Malaysia
- Rhode Island Infrastructure Bank

Greening an existing Development Bank

In other countries, a different approach has been taken to ensuring green finance offerings are available. In some cases, existing and well-established public development banks which have a broad development mandate have been “greened”. This is often at the behest of their government authorities, but sometimes is self-driven through recognizing they can have a significant role to play within their own national ecosystems as catalysts of change. These NDBs have been typically capitalized by governments and offer a range of financing instruments. They have mandates to be self-sustaining and are usually well-positioned to be conveners of all main actors within the system, as is depicted in Figure 2.

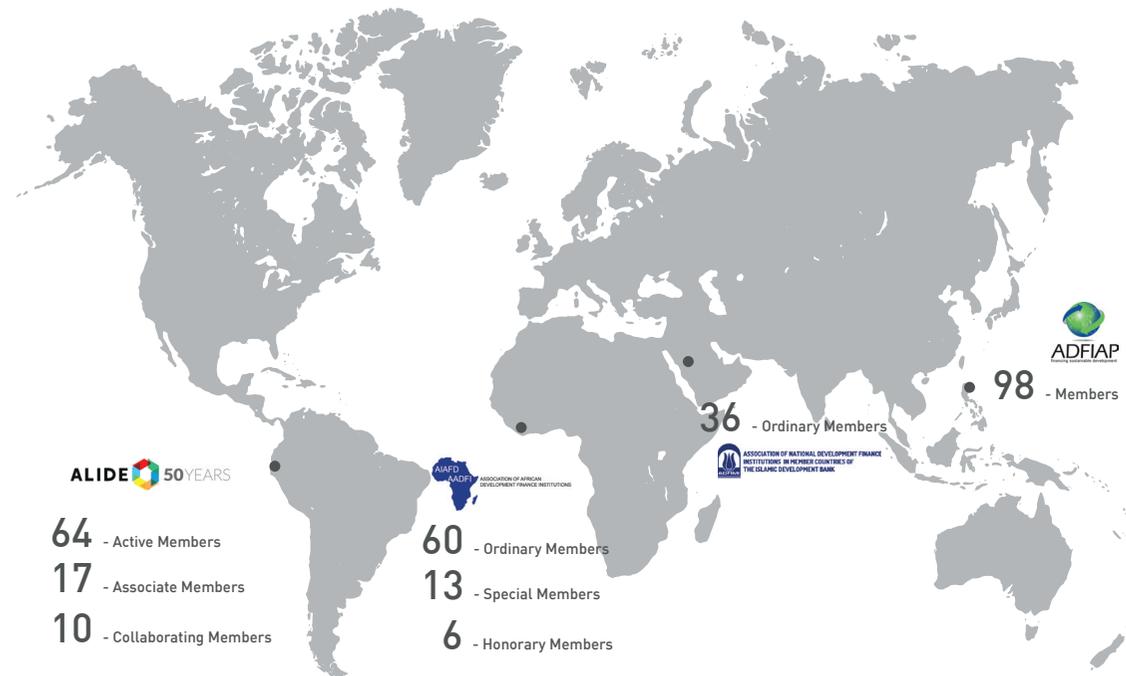
Figure 2: Role of National Development Banks



Source: The Role of National Development Banks in Catalyzing International Climate Finance, Smallridge et al., March 2013

Most countries, particularly in emerging markets, have government-owned or backed National Development Banks. The memberships of the Development Finance Institution (DFI) Associations of Latin America and the Caribbean (ALIDE), Asia-Pacific (ADFIAP), Africa (AADFI) and Member Countries of the Islamic Development Bank (ADFIMI) span the globe, with very few developing countries that do not have a dedicated National Development Bank. Figure 3 below illustrates the 300+ DFI membership globally, across four regional associations reflecting a powerful potential resource, if harnessed through collaboration aimed at supporting LCR initiatives and Paris Club goals.

Figure 3: List of National DFI Associations' Membership



Source: ALIDE, ADFIAP, AADFI, ADFIMI websites

These NDBs vary in mandate, focus and distribution channels by which they deliver development finance. Tier 1 NDBs provide direct lending, credit enhancements, and non-risk financial services and technical assistance, typically through their own branch network. Tier 2 NDBs channel their loan and technical assistance products via the distribution network of local commercial banks or other local financial institutions (LFIs) such as microfinance institutions (MFIs) or housing finance corporations. Many NDBs also offer both Tier 1 and Tier 2 facilities.

Tier 1 banks have the advantage of full discretion over the types of clients they lend to and, therefore, can address the low risk appetite for new technologies of private sector finance by supporting LCR investments according to its acceptable financial, risk and development profile. However, these institutions also then carry the full risk of their portfolio.

Tier 2 banks on the other hand can lean on the distribution capacity of a commercial bank network and, therefore, can generate a catalytic effect and scaling, once a product or programme has proven profitable/bankable for the private sector actors involved. Indeed, Tier 2 banks typically embrace the concept of risk-sharing, co-financing and the use of guarantees as effective tools to more broadly catalyze private capital, and especially for smaller, regional projects and initiatives. Tier 2 facilities are also considered less susceptible to political interference, and as a result, many NDBs and particularly in the LAC region have moved towards Tier 2 lending structures. Of note, however, is that Tier 2 banks may be less well positioned to optimize development outcomes given the lack of development orientation and culture of typical commercial banks, reflected, for example, in the absence of development impact performance measurement systems in place.

3. CONSIDERATIONS FOR 'BUILD OR RENOVATE' DESIGN OPTIONS

Key considerations for planning whether to build a new green bank or work with an existing institution cover a wide range of issues, the most critical of which is whether there already exists a public National Development Bank within the country or jurisdiction. Where one exists, the obvious first question becomes “why not ‘green’ it?”

Australia and the UK each set up new Green Investment Banks when a government-owned development bank did not already exist. As a result, there was no real option to “green” an existing government-owned financial institution that had a proven track record of performance.

Box 3: UK's Decision to Establish the Green Investment Bank

The UK government set up the world's first Green Investment Bank (GIB) in 2012, reflecting the government's commitment to setting the UK firmly on course towards a green and growing economy, while also delivering long-term sustainable growth; it was subsequently, however, privatized when sold to the Macquarie Group in 2017, a decision largely driven by political pressures to achieve declassification status in order to reduce public debt. It should be noted the decision to establish GIB was made in the absence of an NDB. The British Business Bank was established in 2014.

In other countries, such as Japan and Malaysia, decisions were made to establish new Green Banks notwithstanding the presence of long-established National Development Banks. Japan's Green Fund commenced operations in July 2013, and was managed by the Green Finance Organisation (GFO), rather than the existing Development Bank of Japan (DBJ) or Japan Bank for International Co-operation, each of which have established green mandates. Malaysia established the Green Technology Corporation, rather than give the mandate to any one of the existing six development banks in Malaysia.

As the OECD notes in its 2015 paper (see Box 4), while some countries have decided, for various reasons, to set up new Green Banks, there may be solid grounds for greening an existing NDB rather than creating a start-up Green Bank, with all its incumbent costs and risks.

The case for choosing an existing over a de novo institution is not a simple one, however. The OECD argues on the one hand, that establishing a new institution could be costlier and create some duplication as compared to greening an existing institution. The OECD paper then suggests, however, that a new green bank with autonomy from government and the flexibility to focus on market-based solutions, is preferable to an institution that could suffer from political interference. The paper further argues that green banks with an independent status can provide flexibility to experiment, innovate and adapt to market developments. In the case of the UK's GIB, however, the presumed net benefits of creating a new Green Bank were ultimately disproven, providing a salient case to consider 'lessons learned'.

The traditional notion of NDBs, and particularly Tier 1 banks, that they are ineffective because they are potentially subject to interference and could be used for political purposes, is no longer a tenable argument. Certainly, this still remains the case in some countries. However, many countries have evolved their NDB models over the last 25 years to create organizations that deliver their public mandate effectively. Indeed, significant efforts in many countries have been made to immunize NDBs against inappropriate meddling by elected officials. Examples of

Box 4: OECD's Analysis of "Greening" Existing Institutions

To mobilise private investment in domestic green infrastructure, "greening" existing institutions may be preferable to creating new institutions when the necessary institutional and political support exists. For example, many countries have National Development Banks (NDBs) (or public investment, infrastructure or industrial development banks) which focus on domestic investment. While many NDBs are less focused on mobilising green investment than GIBs, some NDBs have been providing financing for low-carbon projects for many years. For example, Germany's KfW has been investing in environmental protection domestically and internationally since the 1980s, and invested approximately USD 58 billion in domestic low-carbon projects in 2010-12.

Source: OECD 2015

such efforts include central bank and superintendent regulatory supervision, along with strengthened systems of governance which incorporates best practice principles such as independent boards of directors and binding codes of corporate governance to ensure transparency and best practice risk management systems. In this regard, funders such as the MDBs and the bilateral DFIs have played critical roles in promoting such good practices as a prerequisite for additional funding lines.

Another argument posed by the OECD in favour of building a new Green Bank is that NDBs lack a clear mandate to drive the climate agenda. However, there are a number of NDBs now mainstreaming climate across their business. As an example, the Development Finance Corporation (DFC) of Belize is seeking to achieve environmental resiliency in all its programs and operations, and undertook a comprehensive and intentional strategic planning exercise specifically for this purpose. The mere presence however, of a policy-led institution, or state-backed bank, should not suggest to policymakers that such an institution would be eligible to successfully carry forward a 'green' mandate.

The OECD paper also argues that financing by NDBs is largely in the form of concessional loans, while Green Banks tend to be more oriented toward accelerating risk-taking by investors, through demonstration effects, co-investment and sharing risks with investors using guarantees and other risk mitigants. At the same time, it is acknowledged that some NDBs develop and use innovative tools to scale up private finance from multiple investor classes, while some Green Banks make extensive use

Box 5: Vision Statement for the DFC, Belize

“The Development Finance Corporation empowers the Belizean economy to be economically, socially and environmentally resilient through the provision of world-class, high-impact, innovative, inclusive and accessible financial products and services.”

of concessional loans.

Best practice NDBs are not providing concessional loans, but rather are focusing on offering extended terms, earlier stage investments, and technical assistance for project development and structuring to match demand with the supply of finance. NDBs can be an important mechanism for addressing challenges such as access to long-term and lower-cost funds (as compared to local private market rates where even available) to provide longer-term financing. They can also play an important role in opening the LCR market by providing technical assistance to commercial banks, project financiers, etc. and by using their public-sector position to advocate at a policy level on behalf of demand and supply-side actors for a more conducive legal-regulatory environment.

Box 6: An example of a Green Development Bank

The North American Development Bank, celebrating its 25th year in 2019 and owned by the Mexican and US governments, is both a Green Bank and a Development Bank, as all its activities are to focus on LCR investments. “The primary objective of NADB is to facilitate financing for the development, execution and operation of environmental infrastructure projects located in the U.S.-Mexico border region and certified by the Border Environment Cooperation Commission (BECC). In accordance with its charter, NADB may provide loans for infrastructure projects with a demonstrable and reasonable assurance of repayment.” All projects must be certified by the Chief Environmental Officer.

4. DECISION-MAKING PROCESS

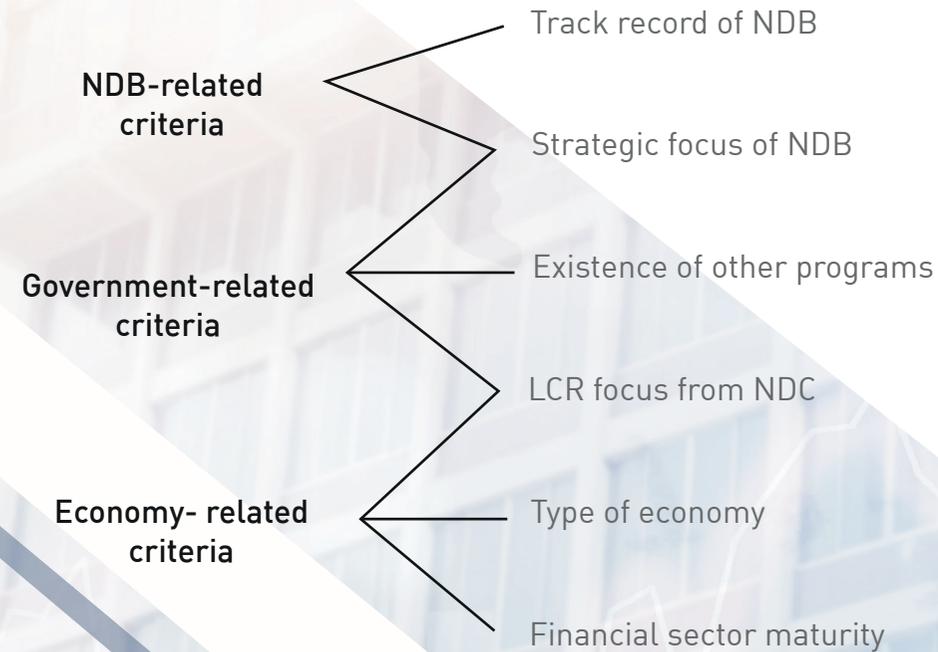
Where the option exists to consider greening an NDB, key criteria for policy-makers to evaluate in the decision to green an existing NDB as compared to establishing a new Green Bank, can be organized under three categories: (i) NDB-related criteria, (ii) Government-related criteria, and (iii) economy-related criteria, as summarized in Figure 4.

Criteria related to the NDB include looking at their track record and reputation, as well as a strategic focus to determine if they are an appropriate platform upon which to build a green finance program. Other criteria consider the broader government approach in terms of whether the government has given the NDB a mandate conducive to the green agenda, and whether there are other programs that could be brought into a new or existing institution. A government’s assessment in determining its NDCs is moreover a function of the nature and type of economy within the country, as well as the maturity and structure of the financial sector. This will inform the extent to which an existing or new instrument can be expected to catalyze local sources of capital.

All of these factors should come into consideration when deciding in a country that has an NDB, whether it is preferable to set up a de novo institution or seek to green the existing institution. While political decisions can override the preferred technical solution, policymakers are obliged to present the best options. To do this, they need an effective set of technical / analytical tools and guiding criteria.

The key criteria summarized in Figure 4 are further elaborated upon as follows:

Figure 4: Key Criteria for Deciding to Build a new Green Bank or Renovate an Existing Bank



Track Record and Reputation of the Existing National Development Bank

An existing NDB will already have a public-policy mandate from the government, a customer base, and an operating and governance framework. However, policymakers must evaluate the overall health of existing institutions to inform the feasibility of greening it. A well-functioning NDB will find a financially sustainable way to balance the needs of its stakeholders—shareholders (governments), clients, private sector intermediaries and taxpayers—while accomplishing its ultimate goal, which is meeting its public policy objective. It will carry certain attributes across several dimensions of institutional ‘health’ — governance, financial and operational

health, and development impact (Smallridge and Olloqui, 2011). Where there are significant shortcomings across one or several dimensions of a NDB’s health, it stands to reason that the cost, time and cultural change required to bring an institution to sufficient health and pivot towards green investment might be prohibitive.

Dysfunctional NDBs will exhibit certain characteristics across these dimensions which would hinder them from effectively executing their public policy mandate. Broadly, institutional deficiencies that policymakers need to take into account, include: issues around the NDB’s corporate governance such as political interference or inadequate oversight; limited or weak managerial, financial and operational skills and lack of proper incentives; poor development outcomes and impact measurement; high losses/non-performing loans (NPLs); persistent needs for recapitalization or subsidies; weak debt recovery; credit misallocation and politically motivated lending; among others. On the topic of capitalization as a key health indicator, there has been a case in a LAC country, for example, where a political decision was taken to create a green bank/ facility, but the facility was then funded with very low resources, which critically undermined the sustainability of the new institution; an open question is whether this could have been avoided under the alternative of greening an existing public bank.

Depending on the health prospects for the existing NDB, policymakers ultimately need to decide if it is practical and feasible to strengthen the bank’s institutional capacity and then seek to “green” the bank, or whether it is better to start fresh.



Strategic Focus, Operations and Mandate of the Existing National Development Bank

While the NDB has a mandate from government, it may be a narrower or more specific mandate than what might be required to be a full-fledged Green Bank. For example, in Malaysia, with multiple national DFIs with different policy thrusts, policymakers felt it made more sense to establish a new facility/corporation. In Germany, KfW's central role in the domestic economy made it perfectly suited to carry out the green agenda of the government.

NDBs that focus exclusively on one market segment (housing, trade, MSMEs, industry, infrastructure etc.) may find themselves somewhat more limited in their ability to ensure their investments appropriately align with the LCR sector(s) as defined by the NDC. This is because there may also be the expectation that the bank continue to support the more traditional demand for finance in that sector, which could precipitate conflicts of interest.

On the other hand, it is possible that a NDB's singular sector expertise may be uniquely suited to effectively mobilize LCR investments for that sector, as illustrated by the example of SHF in Box 7

An exclusively Tier 2 NDB might also be at a disadvantage

as a green bank, as it faces a challenge to track and ensure end beneficiaries are generating green results as the Tier 2 bank is further removed from the outputs of its funds. This is the challenge in accessing all types of impact data for Tier 2 banks, and more attention is being directed to this issue as MDB and external funders are increasingly requiring results information systems to reflect beneficiary level impact data.

Box 7: Support for NDBs to develop green finance strategies

The IDB supported Sociedad Hipotecaria Federal (SHF) in a successful triangular collaboration between IDB, SHF, and Kreditanstalt für Wiederaufbau (KfW) to develop a financial strategy for energy efficient low-income housing. By June 2018, the program had financed 55,312 energy-efficient EcoCasas and benefited 216,000 persons in 22 Mexican states, and mitigated 1.76 million tons of CO₂ (Barbosa, 2018).



Existence of other programs/incentives provided by government

Critical in the decision-making process is whether there are other relevant programs or incentives provided by the government. The existence of such programs could lean the decision towards either greening an existing bank or creating a de novo institution. For example, the government might have an existing program/institution that can provide shared-services in the early stages of starting a new green bank; or a special funding window for green investments through a department might already exist that could be merged into a new or existing bank. Policymakers should also ask where they can create incentives for private sector institutions to compete with each other through innovation and be encouraged to create or enter new 'green markets'.

What is the LCR Focus of a Country?

Within the universe of LCR sectors there could be multiple areas of focus for a country—renewables, energy efficiency, water, sanitation, and other environmental activities, etc. The suitability of an existing NDB to effectively accommodate a country's stated LCR focus as reflected by NDCs, is an important consideration. If there is a significant renewable energy focus in the NDC, for example, and no dedicated financing institution with expertise in financing IPPs, there may be a stronger case to set up a new institution. On the other hand, NAFIN is an example of an NDB with a revised

mandate that successfully re-oriented its operations as a Tier 2 bank to create new institutional capacity to develop project finance expertise for wind projects.

As well, it is understood that LCR sectors are more than just infrastructure; within NDCs, there is significant scope in the agriculture and corporate sectors to reduce emissions. These sectors require smaller investments and are often better served through Tier 2 facilities, working through local financial institutions that are closer to the beneficiaries and have lower operating costs. Effectively serving these LCR sectors may then influence the choice to 'build or renovate' if one is more conducive to a Tier 2 LCR lending structure.

Type of economy

The selection of the best institutional solution to catalyze green investment also relies on consideration of the nature and structure of the economy in which a given institution (de novo, or existing) would be working. Whether the economy is highly industrialized, commodity based, resource rich, a small island state (SID), or perhaps a net importer or exporter of fossil fuels, are all important considerations in determining the optimal institutional mechanisms for green investment. For example, the choice to develop a new institution might be pertinent if the economy is a major fossil fuel exporter with existing institutions providing

support for businesses in that sector; the addition of a green mandate to an existing NDB could represent too much of a conflict with their current portfolio and lack credibility.

Financial sector maturity

Understanding the landscape and maturity of the existing financial sector is the next natural level of analysis in the progression from considering the type of economy that policy makers are operating within. Questions must be asked, by policy-makers, as to who the 'supply-side' players are, what their focus is, and how they are playing. For example:

- Are there existing vehicles and channels for funding key sectors, such as: infrastructure, MSMEs, manufacturing or agriculture?
- Have any existing institutions established a successful track record in mobilizing private sector funding? What are their challenges?

In most economies, there is likely to be a range of sources for financing business ideas and projects, including locally-owned or national commercial banks, international banks, Credit Unions, MFIs, and NDBs. The relative availability, reliability, and effectiveness of these sources of finance varies with the maturity of the financial market. In less mature markets, the availability of credit is limited. The standard indicators of banking sector depth of most African countries, for example, are low compared to the rest of the world: credit to the private sector is limited, assets are highly concentrated in a small

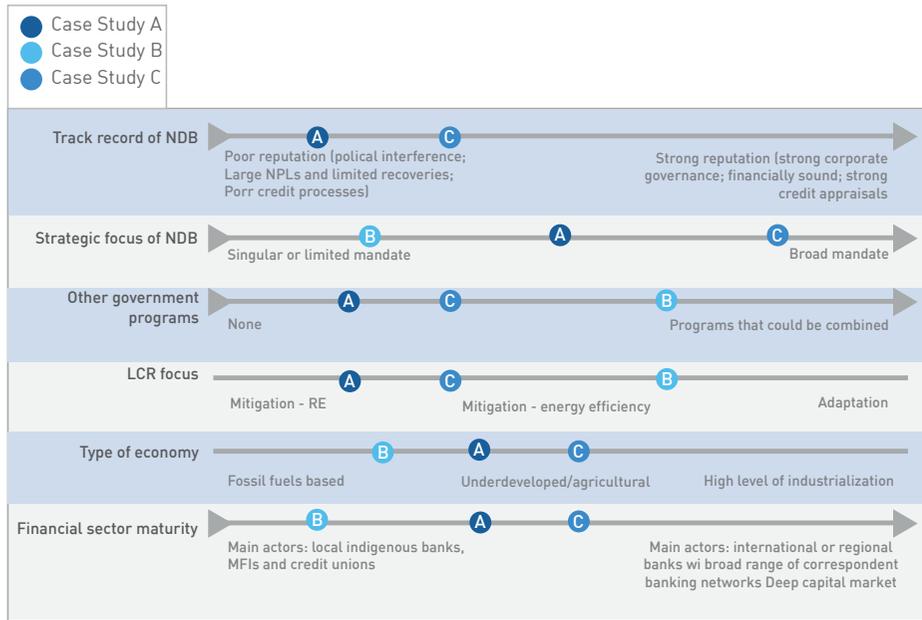
number of banks, and the total volume of assets is low. Of institutions that are active (both commercial and government-backed), it is likely they will have a fairly basic risk appetite/framework, be susceptible to economic volatility, face their own funding constraints, provide mostly plain-vanilla products, and utilize rudimentary risk-pricing methods.

Using a Tier 2 lending structure via a NDB with a capacity-building arm could alleviate some of the barriers created by financial sector immaturity.

Beyond the maturity of the financial sector, decision-makers must understand the specific supply-side factors impeding LCR investment. Generally, a lack of financing on appropriate terms and conditions from LFIs towards LCR projects is an important factor. For example, LFIs typically apply a traditional 'asset-based' corporate lending approach that is limited to their lending a maximum of 70 to 80 percent of the value of assets financed or collateral provided. Yet, in energy efficiency (EE) projects, there is often little or no collateral value in the EE equipment once installed in a facility; rather, the value is the cash flow generated from the equipment after installation. Similarly, LCR investment opportunities by nature are often innovative technologies and (regardless of whether they are greenfield or existing facilities) tend to be unfamiliar to LFIs. As such, there is a reluctance among LFIs to take risks. In other cases, the risks might be understood but the transaction is too small relative to the transaction costs.

Hence, prior to designing a new solution or making changes to existing institutions, it is crucial to understand in detail

Figure 5: Hypothetical Scenarios



Source: Developed for this Report

what specific issues are at hand in the market. This analysis must be aimed at assessing not only where the market gaps are, but why they exist and whether and how they can be addressed via financial and non-financial instruments, including technical assistance.

Against this backdrop, what is the right solution? Figure 5 illustrates a spectrum of situations or criteria that can be considered in the decision to build a de novo green bank or renovate an existing NDB.

In Case Study A:

- The NDB has a fairly weak track record of performance
- The NDB has different sectors of focus, but not a broad mandate
- The country itself has progressed little in addressing climate objectives, including the design and implementation of LCR projects, and
- The real focus of the NDC is a move towards adding incremental energy sources into the system, through renewable energy installation
- The economy is highly rural and agriculture-based, with some financial sector depth
- there might be scope to catalyze existing financial sector players into LCR investments.

→ Likely decision: Build a new Green Bank

In Case Study B:

- The NDB is well managed and credible
- The NDB has a broad mandate to address a variety of sectors and market gaps
- The government has established some other programs (such as energy retrofit subsidies for industrial buildings).
- The country's NDC is placing a lot of emphasis on adaptation as well as energy efficiency, as the energy mix is already highly concentrated on hydro power.
- There are also significant recently discovered oil reserves that are being readied for export and the NDB is the main financier of the oil sector, and is seen as such. The government also does not have a credible mandate to diversify significantly away from fossil fuels
- The banking system is still fairly incipient.

→ Likely decision: Build a New Green Bank

In Case Study C:

- The NDB has some limitations yet has the potential to be strengthened through an institutional development program.
- Given a broad mandate by government, the NDB can operate in all relevant LCR sectors by adding LCR components to existing products and developing new programs, and ensuring proper credit skills and analysis.
- The government may wish to implement or synchronize existing green incentive programs.
- Within the country, there is a significant emphasis on improving energy efficiency within existing installations, due to the fairly important (but dated) level of industrialization.
- Relatively speaking, the country's financial sector is developed so the private sector could be found to embrace investing in LCR sector with the right catalytic financial instruments, such as guarantees.

→ Likely decision: Green the existing NDB

These cases illustrate that the decision to 'build or renovate' is not straightforward and careful consideration is needed. The existence of an NDB does not automatically suggest that "greening" the NDB is the optimal path; nor is the creation of a new green bank the solution for every country.

5. THE GREENING JOURNEY OF NATIONAL DEVELOPMENT BANKS

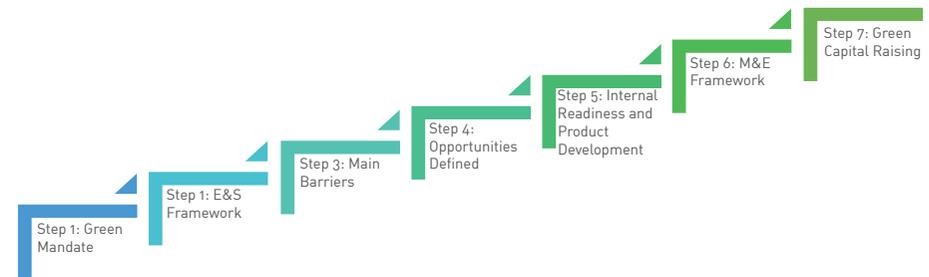
This section of the paper assumes the decision has been made in favour of greening an existing NDB. This decision may have been mandated by government policymakers through a specific policy directive, or taken strategically by the NDB itself.

NDBs from different continents have begun such a green journey. SIDBI (India), HBOR (Croatia), COFIDE (Peru) are just a few examples of NDBs with mandates to develop green products and mainstream green processes into their institutions.

The steps to greening an existing NDB can be standardized, although application of the journey needs to be tailored to each country's unique local context.

Figure 7 provides a summary of the green maturity ladder for NDBs.

Figure 7: The Green Maturity Ladder for NDBs



Source: Developed for this Report

Step 1: The NDB gets a Green Mandate from Government

Whether the decision to green the NDB comes as a directive from government, or the NDB chooses this strategic direction, it should be clear that the NDB has a written mandate from government and policymakers are in agreement, and that the mandate decision is stable over time.

Step 2: The NDB develops a greening strategy and establishes a sustainability framework, including an E&S Management system

A critical next step is for the NDB to strengthen its capacity to evaluate the environmental and social impacts of its investments. This requires a shift in institutional culture and its approach to clients, including the development of a sustainability policy and approach to identify, avoid and minimize harm to people and the environment. This then becomes part of the NDB's assessment of a project at the appraisal stage. The sustainability policy framework would normally include Economic, Environmental and Social impacts and requires the NDB to undertake an ex ante and ex post evaluation of projects as well as monitoring during projects' implementation and operating phases.

Step 3: The NDB has an understanding of the Main Barriers to LCR projects

It is important that the NDB has identified the main demand-side conditions that would otherwise constrain the optimal distribution of public goods (such as clean energy, lower carbon etc.) or the full functioning of market forces. It is

not just about unlocking sources of private sector finance towards the LCR sector; often there are legal and regulatory challenges and barriers on the demand-side that need to be understood before market gaps can be addressed. Deficits in knowledge and awareness around opportunities and barriers for investments in climate-related interventions tend to constrain demand. RE/EE and low carbon project proponents are often unaware of opportunities, do not fully understand the technology or economic benefits, or have trouble identifying project partners. As a result, they may not be able to structure a bankable project to present to local financial institutions.

Demand-side barriers can be from the perspective of all stakeholders from all levels of government, the project sponsors, and the beneficiaries such as energy off-takers, households, consumers, and companies.

In particular, the NDB needs to understand where in the project development cycle (from conceptualization through feasibility studies to preparation for financing), project proponents are limited in accessing finance. For example, for energy efficiency projects, the project proponent or end-user must usually bear the cost of completing an energy audit to establish a baseline against which to measure energy savings. The end-user may not understand or have confidence that sufficient energy savings can be realized to cover the cost of the audit and the cost of any energy savings measures that might need to be implemented. Hence, there can information gaps around investment risk and return.



Meanwhile, as a state-led institution, NDBs should leverage their unique position at the policy table to help remove any cumbersome legal-regulatory barriers for demand and supply-side actors in the LCR market.

Supply-side barriers are best identified by the LFIs themselves so that the NDB can understand the conditions under which an LFI would lend into LCR projects. Figure 3 summarizes the financial and non-financial barriers from both the supply and demand sides relating to LCR infrastructure projects.

Step 4: The NDB identifies opportunities

Prior to designing solutions in step 5, it is critical to assess where the market gaps are, why they exist and whether and how they can be addressed by the NDB. This step involves a deep dive into analyzing market developments and identifying specific opportunities for the NDB in the LCR sector. It requires defining the financing possibilities that could exist, as well as potential demand, leading to the NDB scoping out potential gaps that it could most usefully fill.

Understanding the green market opportunities, the NDB needs to consult first with potential project proponents and other stakeholders to help them imagine what could be done to develop LCR projects if they had capital, technical assistance, access to information of technology solutions, etc. It also means working with the local FIs and institutional investors to identify what would induce them to get involved in LCR projects.

Box 8: NDBs may influence public policy through facilitated discourse

The Laboratory of Financial Innovation (LAB) is a project of the Brazilian Development Association (ABDE), the IDB, and the Securities and Exchange Commission (CVM), launched in August 2017, which works as a multi-sectoral discussion forum. Its purpose is to promote dialogue between the public sector and to share experience among various agents of the economy to advance innovations in sustainable development in Brazil.

Box 9: Leveraging local commercial investment

NAFIN (Nacional Financiera) created a sustainable energy financing facility technical team to co-develop and implement the REEF program for the direct financing of local wind energy projects. Total financing resources amounted to US\$ 1.2 million. IDB provided US\$ 1.3 million for technical assistance, US\$ 370 million in IDB sovereign lending, NAFIN provided US\$ 798 million, and the Clean Technology Fund (CTF) provided another US\$ 70 million³. The combination of technical assistance for capacity building, concessional resources by CTF and sovereign lending by the IDB together leveraged considerable commercial sector investment totaling over US\$ 6 billion in wind technology investments. The installed renewable energy capacity increased from 250 Megawatt in 2009 eight-fold to 2 Gigawatt in 2014. This example indicates the possibility of using public funding to address demand in renewable energy technology transfer and financing.

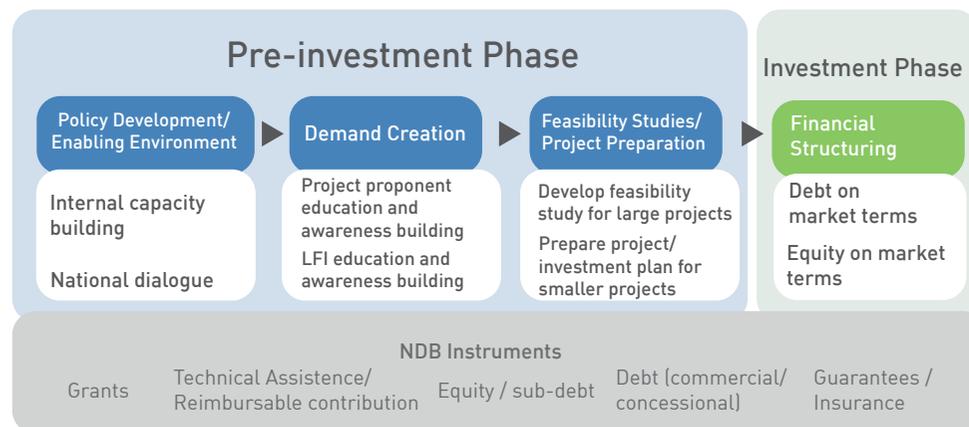
³ The conditions of the CTF loan channeled to NAFIN were as follows: Annual service fee 0.75 percent, MDB upfront fee 0.25 percent, 20-year maturity; 10-year grace period, 48-month disbursement period; principal repayment at 10 percent for years 11–20 (Smallridge et al., 2013).

Step 5: The NDB assesses its own internal readiness and its product development approach

To become a green champion, the NDB needs to then assess its own operations, preparing a risk management strategy and examining its existing portfolio for products that could be classified as green; to then develop a product strategy with the aim of deployment of financial instruments that can catalyze green investments.

Figure 6 looks at the various roles that an NDB could play and instruments to be deployed both in the pre-investment stage of projects as well as during the investment phase. It includes grants to build awareness and create capacity both within the organization and nationally. Additionally, technical assistance and/or reimbursable contributions can be used for project preparation. And finally, financial solutions, such as debt (on commercial or concessional terms) and equity, as well as guarantees/insurance for investments play an important role.

Figure 6: Possible Roles for NDBs



Source: Adapted from Smallridge et al., 2012.

Box 10: IDB supports improved performance management systems

In 2018, the IDB hosted a capacity building workshop to improve performance measurement and evaluation systems in public banks in Latin America

Box 11: IDB support for Green Bonds for LAC NDBs

In 2017, Bancoldex issued its first green bond and the first to be listed on the Colombian Stock Exchange for US\$ 67 million with an oversubscription factor of 2.5. FIRA, a Mexican agricultural national development bank, issued a green bond for US\$ 125 million in 2018. Global annual issuance of green bonds soared from US\$ 11 billion in 2013 to more than US\$ 150 billion in 2017. IDB currently works on additional green bond issuances for green infrastructure and SME financing with NDBs in Argentina, Brazil, Colombia and Ecuador. transfer and financing.

Box 12: IDB support for NDBs to access international funding:

In 2015 IDB hosted a capacity building workshop for NDBs on modalities, opportunities and lessons learned in accessing GCF and IGF funding.

Step 6: The NDB develops an M&E Framework to measure outcomes and impacts

Establishing a Monitoring and Evaluation Framework for the NDB to track results is a fundamental step. It is more than tracking emission reduction from projects and ensuring compliance with the local environmental and social requirements; it includes impact measurement for jobs created/maintained, energy savings, and increases in productivity etc. Tools need to be designed and developed to identify and record data, as well as analyze the evolution of the key technical and financial parameters of the projects.

If the NDB is providing Tier 2 lending, the NDB will need to ensure that the local financial intermediaries are able to track and supervise the implementation of Environmental and Social (E&S) Management by the sub-borrowers.

Step 7: The NDB shows success and raises more capital

Finally, with the successes that can be achieved and highlighted through the M&E system, the NDB can prove to international funding sources that it merits access to international capital, and additional scope is thus created for the NDB to realize incremental financial and development-impact dividends. Some NDBs are seeking accreditation from the GCF or GEF, while others work via accredited entities. Meanwhile, the possibility of issuing green bonds can also be explored.





6. CONCLUSIONS

The decision by governments to actively contribute to financing LCR projects and to catalyze private investment is obvious, based on the social, economic and environmental benefits. Less obvious is how best to pursue this.

The advantages of greening an existing bank are clear – it is highly efficient if the bank already has reliable systems in place, interacts with the relevant stakeholders, and is well-established. If the NDB faces issues, particularly governance challenges, and has a mandate that is limited in scope, there may be a preference to build a new bank over renovating an existing NDB. For countries without national development banks, establishing a new green bank may be the only option.

Regardless of which model to follow, each public bank needs to address similar challenges, such as a clear mandate, governance structure, strategy, risk management framework, and clearly defined success metrics and targets. Each of these might be easier or more difficult with either option. Risk management, for instance, might be difficult for a de novo Green Bank if the loan portfolio is not diversified, meaning the risk appetite of the Green Bank would need to be higher, as well as its capitalization to mitigate such risk. In this respect, a new Green bank is likely to require more capital than the amount required to augment an existing NDB, and depending on the sources of capital (public or private), it might be more challenging to secure the necessary capital. It might also take time to (re-) build trust in the market that the risk management / environmental and social safeguards system works. This may be true for both options.

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