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Leading From the South

Development Finance Institutions and Green Structural Transformation

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Through the Sustainable Development Goals (SDGs) and the Paris Climate Agreement the vast majority of the world's nations, especially emerging market and developing nations, have come to a consensus on an agenda to transform the world economy into one that is both low-carbon and socially inclusive. However, such structural transformation will not happen on its own. The nation states that committed to these goals will have to lead the way for the marketplace to follow.

A specific investment that is core to achieving green structural transformation will need to be in low-carbon energy finance—into energy efficiency and a variety of renewable and clean energy sources. According to the Global Commission on the Economy and Climate, USD 1 trillion is needed in annual investments into low-carbon energy in order to achieve these broader goals by 2035, but governments and markets currently invest less than one third of that amount (Zuckerman et al., 2016).

The private marketplace is not equipped to make such investments on its own, and thus Development Banks arguably have the most important role in triggering a low-carbon transformation of the world economy, for at least five reasons:

- Scaling-up green energy investments requires long-term patient capital to push market boundaries and create new space for private capital to play a more vibrant role. Without initial investments by public sector entities to incubate and lead markets, commercial finance will be reluctant to finance energy transitions at the massive scale needed in a short time.
- Policy uncertainty is a major hindrance to private sector investments in the sector of green energy. The periodicity of the regulatory cycle is often shorter than the investment cycle required for demonstrating commercial viability. Mitigating policy risks in the field of green energy requires publicly-owned development banks to send a clear reputable signal to the market.

- National government budgets continue to be strained in the wake of the global financial crisis, with many countries engaging in austerity policies that are not conducive to reliable long-run investment in energy finance.
- Private capital markets are not fully developed in emerging and developing countries, and when they are they tend to be pro-cyclical and favor short-term investment opportunities over long run investments in energy and infrastructure.
- There are a number of policy impediments, such as the enormous amount of fossil fuel subsidies in the world economy, which do not give the proper incentives for the private market alone provide to cleaner energy financing.

While these impediments have become largely recognized, the majority of the discussion around development banking focuses on the World Bank and related family of multilateral development banks (MDBs) such as the Inter-American Development Bank and the Asian Development Bank where more advanced developed economy countries tend to dominate decision-making and governance. Southern-led development banks or financial institutions (SDFIs)—development banks with origins and majority membership from emerging market and developing countries—have received relatively less attention. The scant attention paid to SDFIs stands in sharp contrast with their immense scale of operations. The five Western-led MDBs collectively hold approximately USD 1 trillion in assets in comparison with the over 250 developing country-led development banks that collectively hold roughly upwards of USD 5 trillion in assets (Gallagher and Kring, 2017).

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Southern-led development banks are making deep inroads into low-carbon energy finance, but face some unique challenges that they are attempting to address. In order to accelerate the roll out of development bank financing platforms for green energy, these banks will need to set stronger and clearer targets for clean energy financing consistent with their sovereign's commitments at the United Nations, engage in creative development banking to come up with innovative financial instruments, incubate new market spaces to incentivize commercial financial players by making green energy more financially and commercially viable, work together to foster mutual learning on how to solve sector-specific binding constraints in green energy investment and how to tailor financing strategies in line with different development stages, and collectively address some of the constraints they face that suppress their potential for promoting green structural transformation .

Clean Energy Entrepreneurs from the South

To help fill the knowledge gap on Southern-led development banking, the Center for New Structural Economics at Peking University and the Global Economic Governance initiative (GEGI) at Boston University's Global Development Policy Center (GDP Center) convened a June 2017 Beijing workshop of senior development bank officials from 6 SDFIs to assess the extent to which development banks are becoming catalysts for achieving a climate friendly and more socially inclusive economy and to learn from each other's experiences.

Our workshop drew from a regionally representative set of SDFIs from across the world-- the Islamic Development Bank headquartered in Saudi Arabia, the New Development Bank (NDB) currently governed by BRICS countries and the Asian Infrastructure Investment Bank (AIIB), started by China but now consisting of 80 countries including major advanced economies except the United States and Japan. As for national development banks, we have selected China Development Bank (CDB) from

Asia, Development Bank of Southern Africa (DBSA) from Africa, and Nacional Financiera (NAFINSA) from Latin America.

In addition to some basic background information about each bank, participants were asked how their bank defines green energy, how such projects are identified and prioritized, the extent to which their bank blends various financial instruments and leverages commercial capital into green energy projects, what challenges their bank faces, and the extent to which they collaborate with other Southern-led financial institutions.

One key finding is that there is a significant variety in the way that 'green' energy finance is defined across development banks. For some banks green energy means renewable energy of many different kinds, others include energy efficiency. Other banks use the term "clean energy" and include renewable energy and nuclear power in this definition. Others prefer to refer to 'cleaner' energy that includes more efficient combustion of fossil fuels.

Table 1: Southern-led Multilateral Development Banks, 2016

Name	Islamic Development Bank (IsDB)	Asian Infrastructure Investment Bank (AIIB)	New Development Bank (NDB)
Headquarters	Jeddah, Saudi Arabia	Beijing, China	Shanghai, China
Founding Year	1973	2016	2014
Mandate	The purpose of the Islamic Development Bank, shall be to foster economic development and social progress of member countries and Muslim communities individually as well as jointly in accordance with the principles of the Shari'ah.	The purpose of the AIIB shall be to: (i) foster sustainable economic development, create wealth and improve infrastructure connectivity in Asia by investing in infrastructure and other productive sectors; and (ii) promote regional cooperation and partnership in addressing development challenges by working in close collaboration with other multilateral and bilateral development institutions.	The NDB was formed to support infrastructure and sustainable development efforts in BRICS and other underserved, emerging economies for faster development through innovation and cutting-edge technology.
Ownership Structure	100% member countries owned top 5 shareholders: 1. Saudi Arabia USD 15.99 billion , 23.50% 2. Libya USD 6.41 billion , 9.43% 3. Iran USD 5.61 billion , 8.25% 4. Nigeria USD 5.21 billion , 7.66% 5. United Arab Emirates USD 5.11 billion , 7.51%	100% member countries owned top 5 shareholders: 1. China USD 297.80 million , 32.97% 2. India USD 83.67 million , 9.26% 3. Russia USD 65.36 million , 7.24% 4. Germany USD 44.84 million , 4.96% 5. Korea USD 37.387 million , 4.14%	100% member countries owned with equal shares among five members: 1. China USD 10 billion , 20% 2. India USD 10 billion , 20% 3. Russia USD 10 billion , 20% 4. Brazil USD 10 billion , 20% 5. South Africa USD 10 billion , 20%
Total Assets	USD 25.95 billion	USD 17.80 billion	USD 10.05 billion
Total Equity	USD 11.23 billion	USD 17.79 billion	USD 9.61 billion
Total Gross Loan Portfolio	USD 2.71 billion	USD 1.73 billion	USD 1.56 billion

Source: Annual reports and/or financial statements of the IsDB, AIIB, and NDB.

An example of pioneering work on green energy finance is that of the Islamic Development Bank (IDB). In the IDB's green energy policy or the IDB, green energy finance is defined as financing for certain types of renewable energy--wind, solar, biomass and biogas, hydrogen, waste-to-energy, and run-of-the river hydroelectric power. Twenty-seven percent of the IDB's portfolio, or USD 54 billion goes into energy financing, 28 percent of all energy finance is for green energy, or USD 4 billion and mostly in hydro, solar, and wind power projects. While USD 4 billion is not a large amount given the size of the IDB balance sheet but the IDB has managed to leverage its financing by more than a factor of three, to USD 15 billion in total green energy financing through its activities. Examples of such projects are on-lending to Turkish national development banks for renewables and energy efficiency, solar rooftop programs in Bangladesh, wind power in Pakistan, and more.

Despite the fact that the New Development Bank and the Asian Infrastructure Investment Bank (AIIB) are newcomers to the world of development finance in general and green energy in particular, both have made initial strides in this area. In 2017 the New Development Bank pledged to devote two-thirds of its entire portfolio to sustainable infrastructure finance, which includes clean energy. Thus so far the bank has provided USD 1.6 billion in loans with six of the seven loans in renewable energy such as solar power in China, and wind and solar projects in Brazil and India. What is more, the bank has raised part of these funds through issuing RMB-denominated 'green bonds' in the Chinese capital markets.

The AIIB's newly approved energy sector strategy officially states that it is guided by the Sustainable Development Goals and the Paris Accord, and that it will emphasize clean energy (defined as solar, wind, geothermal, hydroelectric power and energy efficiency) and de-emphasize nuclear power and fossil fuels such as coal, though the latter may be financed to replace old and inefficient plants on a case by case basis. Implementation of this strategy will be the next challenge for the AIIB.

There are hundreds of national development banks (NDBs) in the global south, with the China Development Bank (founded in 1994) and its balance sheet of almost $2 trillion as one of the largest banks (public or private) in the world, with outstanding overseas loans to foreign governments that are larger than the portfolio of the World Bank. Other NDBs are much more modest, such as the Nacional Financiera in Mexico. Regardless of size, many of these banks is making considerable innovation in clean energy financing.

National development banks (NDBs) have a unique role to play with respect to fostering sustainable energy investment – even though they must also face their own significant challenges. NDBs are by definition embedded in local markets, and by having local knowledge NDBs are often poised to identify and mitigate various risks in the project cycle. NDBs are also poised to understand and assess the co-benefits of various sustainable infrastructure projects. By being tied to local credit markets, NDBs also help balance currency risks within particular projects financed. The China Development Bank has financed more than 12 GW of solar, such as the 200 MW Golmud Solar Park in Western China; and 40 GW of wind power projects, including overseas wind in Brazil, Ecuador, and Ethiopia. On a more modest level examples include the DFCC Bank of Sri Lanka's special 'renewable energy for rural economic development fund' and a similar program in the Malaysia Development Bank.

Table 2: Southern-led National Development Banks, 2016

Name	Nacional Financiera (NAFIN)	Development Bank of Southern Africa (DBSA)	China Development Bank (CDB)
Headquarters	Mexico City, Mexico	Midrand, South Africa	Beijing, China
Founding Year	1934	1983	1994
Mandate	NAFIN's objective is to provide affordable financing to Micro, Small and Medium Enterprises.	The Bank's mandate is to support the South African Government in implementing its national and continental infrastructure delivery objectives.	CDB provides medium- to long-term financing facilities that serve China's major long-term economic and social development strategies.
Ownership Structure	State/government: 99.5%, domestic private sector: 0.05%	100% state-owned	100% state-owned; its shareholders include the Ministry of Finance of the People's Republic of China (36.54%), Central Huijin Investment Ltd. (34.68%), Buttonwood Investment Holding Co., Ltd. (27.19%) and the National Council for Social Security Fund (1.59%)
Total Assets	USD 24.28 billion	USD 5.99 billion	USD 1.94 trillion
Total Equity	USD 1.29 billion	USD 2.13 billion	USD 164.84 billion
Total Gross Loan Portfolio	USD 10.34 billion	USD 5.06 billion	USD 1.42 trillion

* Notes:
a) The data on total assets, total equity, and total gross loan portfolio of China Development Bank is from the year of 2015, as its latest annual report in 2016 has not been released.

NDBs can play a strategic role in bringing low-carbon technologies through high-risk deployment stage towards low-risk diffusion where new market spaces can be created. Renewable energy finance is often characterized as high risk and high capital intensity, which often deters private capital constrained by short-term performance targets. While venture capital (VC) has helped to spur rapid commercialization of certain technologies such as communication networking, VC faces an important bottleneck when it ventures into the green energy sector, i.e., it is hard for VCs to exit their investments at the appropriate time. Why? Incumbents in the oil and power sector face little end-user pressure to adopt new technologies and feel less threatened by potential competition from these clean energy startups given their monopoly market position and prevalent subsidies in the energy sector (Ghosh and Nanda 2010). Given the binding constraint faced by VC in the green energy sector, development banks may be better positioned to incubate green technologies for scaling-up commercialization. Indeed, the gap between the unit cost of investment in green energy generation technologies and conventional technologies has been reduced. To further narrow down the gap, it is worth exploring how development banks can play a strategic role in the market incubation of high-risk and capital-intensive green technology.

NDBs can also play significant roles in leveraging finance from abroad and in crowding in local private sectors. The Development Bank of Southern Africa is guided by the nation's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), and leverages funds from the Green Climate Fund, and the World Economic Forum. Mexico's Nacional Financiera currently finances roughly 70 GW in green energy (which it largely defines as solar, wind, geothermal, and small hydroelectric plants) which represents roughly 32 percent of its energy portfolio. It has committed to reach 50 percent by 2030. To finance these projects, NAFIN has worked with the KfW (Germany's national development bank), the CAF, the Korean Development Bank and the Inter-American Development bank to leverage international financing, while also crowding in local financing. Seeing that the majority of the cost and risk is in the early part of the project cycle—construction, design and execution—NAFIN focuses on financing of that part of the project but then engages in refinancing projects when construction has occurred and risk and revenue are more certain.

There is also a significant amount of cooperation across Southern-led development banks as well. Two institutions, the World Federation of Development Finance Institutions (WFDFI) and its regional branches, and the International Development Finance Club (IDFC) have facilitated cooperation across development banks on green finance. The Secretary General of the Asian chapter of the WFDFI, the Association of Development Financial Institutions in Asia and the Pacific (ADFIAP), has recently proposed that all of its 106 banks across 39 countries reconsider making any financial commitments for projects that are not commensurate with a 2 degree world. The IDFC has made a collective goal to finance over USD100 billion in green finance (beyond energy) and serves as a platform for development banks to share best practices that has informally led to a number of co-financing arrangements on the project level. The IDFC has initiated the Green Finance Mapping to identify and categorize financial flows of its members to projects in the fields of green energy, adaptation and mitigation of climate change and the reduction of greenhouse gas emissions.

Challenges and Way Forward

While Southern-led developmental financial institutions are beginning to play leadership roles in green energy finance, they also face many challenges. Six key challenges face a range of SDFIs:

Lack of clear policy definitions, goals, and directives for green energy. Many regions lack comprehensive energy and infrastructure plans, especially plans that emphasize green energy. Moreover, many national governments lack overarching strategies as well. At the national level, programs such as South Africa's Renewable Energy Strategy help the DBSA prioritize green energy, and the energy plans for DFIs such as the IsDB and AIIB that emphasize clean energy finance and set goals to reduce reliance on fossil fuel finance can help fill gaps.

Limited capacity for green energy project preparation. Many host countries can prepare low quality feasibility studies and lack information about the green energy options. Moreover, in many instances the funds available by DFIs or host country borrowers for project preparation are limited and being depleted rapidly.

Barriers to blending instruments to make green energy financially viable. Some SDFIs do not have the full suite of financial tools available to them or are hindered by specific rules for the use of different tools. Only a few banks have the ability to blend non-concessional and concessional loan financing with equity and grant elements.

Insufficient capabilities to leverage international and local financing. Some DFIs lack the capacity to leverage with international institutions due to knowledge and personnel gaps and the potentially cumbersome entry requirements of some institutions. Moreover, some SDFIs face a lack of political will to crowd in commercial activities at all.

Policy uncertainty in the field of green energy deters long-term committed capital. While publicly-owned development banks may have information advantage compared with private sectors that enables them to better cope with policy shocks, they remain vulnerable to unpredictable policy changes. Since market incubation of high-risk green technology entails a sustained period of time, policy risks deter development banks from unleashing their full potential in incubating green technology to the point of widespread diffusion through market means.

Constraints from international rules and institutions. Credit rating agencies, especially in the wake of the financial crisis and new Basel rules, increasingly treat DFIs like commercial banks and thus stress what many see as an overly conservative and sometimes pro-cyclical DFI outlook on green finance

Much more discussion, research, and information sharing is needed to adequately address these challenges in order for SDFIs to address these challenges and maximize the opportunities ahead for financing green energy. However, three preliminary recommendations can be put forth:

Link national development strategies with Sustainable Development Goals (SDGs) to ensure clearly-defined targets for achieving long-term goals for green energy finance, using the SDGs of affordable and clean energy (#7) and climate action (#13) among others, as an overarching framework. Inspired by the broad vision set by the SDGs, developing country governments can formulate national strategies to set a clear target for development banks to achieve. Rather than pursuing profit maximization as commercial banks do, development banks are geared towards achieving public policy objectives. Well-defined targets can help to stimulate better performance and unleash the potential of development banks.

Establish platforms for fostering mutual learning among DFIs on how to solve sector-specific binding constraints in green energy investment and how to tailor financing strategies in line with different development stages. Such kind of peer learning is essential to greater synergies and better coordination. DFIs may take a step further to cooperate with each other by pooling resources for green energy project preparation and leveraging resources analogous to the Sustainable Development Investment Partnership for infrastructure.

Collectively address constraints posed by credit rating agencies and international banking rules on SDFI capacities to mobilize green energy finance. While not all DFIs are officially subject to BASEL accord depending on their domestic legal framework and banking regulation, the structural power of market force, reinforced by dominant credit rating agencies, may compel them to take an excessively conservative profile to the detrimental of green structural transformation. Looking ahead, DFIs can proactively devise collective self-disciplines to help unleash their potential for promoting green transformation while safeguarding themselves against imprudent financial practices.

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