

Development Banks' Best Practices on Green Financing for MSMEs

The Montreal Group's Perspective

Green Financing Working Group

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Abstract

This report, prepared on behalf of the members of The Montreal Group (TMG), provides a perspective on the role development banks* (DBs) play in green financing to support mitigation and adaptation activities for micro, small and medium enterprises (MSMEs). Based on member experience in different countries, with different levels of commitment to climate policy and extent of support for climate resilient measures, the report shows the unique position occupied by DBs in mobilizing public funds towards cost-effective measures in energy efficiency, renewable energy and green infrastructure projects.

The ability of DBs to leverage private sector funds through the strategic deployment of public funds in mitigation activities is demonstrated through a variety of Green Financing instruments used and the many success stories with significant impacts on the triple bottom lines of people, planet and profit. TMG has noticed that to have more impact on the climate finance landscape, DBs have to strengthen their framework for risk-rewards analysis as well as their capability to monitor, report and verify impacts on environmental, social and governance criteria together with standard profit criteria. In addition, the promulgation of transformation opportunities in MSMEs would allow for catalyzing synergistic benefits between mitigation and adaptation activities to make climate resilience more effective. Through leadership, innovativeness in tailoring financial lending and investment instruments, identification of winning projects through integration of sustainability in risk analysis, and formation of a strong alliance/network with technical and other partners, it is TMG's hope that the governments will see the benefits of using DBs in several roles. Such roles include being key advisors for climate compatible policy formulation and effective channels for disbursing public funds to stimulate private sector involvement and private capital in a cost-effective manner.

* Members of TMG are Development Banks as in "State-owned Financial Institution having a strong focus in supporting MSMEs"

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Introduction

THE CONTEXT OF CLIMATE CHANGE

The economic impact of climate change and its effect on drivers of growth, including labour, productivity and capital supply in different sectors across the world, is well elaborated in several reports and discussion forums. It is evident that significant investments are needed to support global transitioning to a low-carbon future that is climate resilient.ⁱ The requirement of new investments and other expenditures on a massive scale for decades to come was highlighted as early as 2009 during the United Nations Climate Change Conference in Copenhagen.ⁱⁱ Recently, in December 2015, countries across the globe stated their commitment to address climate change at the conclusion of the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP 21) in Paris through their Intended Nationally Determined Contributions (INDCs). These contributions outline national efforts to reduce greenhouse gas emissions and improve adaptation capacity.ⁱⁱⁱ

“In many economies, governments are relying on development banks to come up with innovative products and services to help implement climate change policies.”

The commitment of public funding is a major step, but experts in finance have shown that public funding alone is not sufficient to reverse climate change because private sector investment in clean technologies has to be unlocked. In this context, development banks are positioned to play a unique role because they have greater potential to take risks and are well positioned to use a variety of instruments in their toolkit to bring projects and companies to a state of investment readiness. In fact, in many economies, governments are relying on development banks to come up with innovative products and services to help implement climate change policies.

Research on the role of development banks and how public financing available from these banks could leverage investment in cleantech projects is ongoing. Experience and case study-based evidence indicate that development banks can provide instruments to meet the needs of a cleantech project in the early pre-investment stage through grants and technical assistance and, again, in the investment stage via funding subsidies or other financial structures that attract private capital. At its 2015 General Assembly in Paris, members of The Montreal Group (TMG) expressed interest in producing a report that would address green financing within the context of climate change, more specifically looking at best practices and risks associated with financing green projects by DBs.

Defining Green Financing

THE MONTREAL GROUP'S DEFINITION

Green financing is a broad term that can refer to financial investments flowing into sustainable development projects and initiatives, environmental products and/or policies that encourage the development of a more sustainable economy. The Business Development Bank of Canada (BDC), a member of TMG, defines green financing as sustainable lending, which involves both financing and consulting for firms focused on the triple bottom line (namely people, planet and profit) and businesses that want to integrate environmentally and socially responsible practices. In other words, the scope is not restricted to just green technology firms.

The Montreal Group has proposed a definition of green financing as:

Financial and non-financial products and services aimed at enhancing energy efficiency, reducing the use of fossil fuels, avoiding greenhouse gas emissions, complying with environmental standards/regulations, improving resource efficiency, adapting to climate change and contributing to the global commitment to combat climate change.

The definition by TMG reflects many of the elements included in the definitions of other development banks although each member has its own. It is in sync with the Small Industries Development Bank of India's (SIDBI) perspective, which defines green financing as financing of a "sustainable development project with an objective to reduce energy consumption and CO₂ emissions, enhance energy efficiency and improve the profitability of the Indian MSMEs in the long run."

With environmental concerns becoming a global priority, the ability of financial institutions to properly assess and manage green projects is critical. Currently, a working group within The Montreal Group is developing a shared understanding of green financing by learning from the experiences of each member development bank, with a goal of better helping MSMEs with these types of projects.

Drivers and Challenges of Green Financing

The key drivers and challenges of green financing as outlined by some members of TMG correspond to the drivers and challenges mentioned in literature on climate compatible development in various countries around the world.^{iv,v,vi}

DRIVERS OF GREEN FINANCING

The drivers of green financing stem from:

- **A significant acceptance of the negative impacts** of climate change at a national level and recognition of the need to adapt and mitigate climate change in order to bolster resilience, achieve growth and foster economic prosperity.
- **A willingness of governments with national commitments** to combat climate change (COP21) to implement policy and programs to foster innovation and economic activities that help in the mitigation and adaptation processes e.g., commitment to increase the share of renewable energy and local laws to implement government programs.
- **A growing social awareness** of the need to preserve our environment and sustain our planet through "green" measures, innovation and products that would provide clean energy, air and water for all.
- **Depletion of fossil energy sources** (oil, gas, coal, etc.) as well as instability surrounding their supply levels and prices.
- **Increasing economic opportunities** for businesses and entrepreneurs investing in innovation and processes for conserving energy, providing alternative/renewable energy sources and introducing new technologies to provide cleaner environments and water.
- **Cost savings for energy intensive businesses to promote sustainability** and greater competitiveness through changes to materials or processes and the adoption of new measures to save energy, lower emissions, etc.
- **The desire of financial institutions to pursue green financing** as a product that has to be strategically configured with changes to risk tolerance levels and the introduction of new types of instruments to assist players in the cleantech industry.

- **The unique role that development banks could play**, depending on government policy, to increase an appetite for the cleantech sector among private businesses and investors.
- **The ability of development banks to assist MSMEs** in both the early and later stages of their growth cycle through financing instruments and advice.

CHALLENGES OF GREEN FINANCING

While the landscape for green financing is promising, there are several challenges to be faced:

- **High opportunity costs** are a significant barrier in implementing government policies; for example, the fossil fuel companies will be economically affected if a government supports renewable energies to a great extent.
- **Major economic shifts in global trade and the balance** between producing countries and consuming countries will be affected by climate compatible changes in policy.
- **Lobbying groups are extremely opposed** to some of the government interventions because it affects their interests. The public could be swayed by these lobbyists to the detriment of projects that are climate compatible. This happens in the case of wind farms, solar farms, and heavily polluting industries.
- **Government bodies are stretched** in terms of effecting long-term policies in a new area that has a lot of economic impact.
- **Weak and short-term government policies subject to change** have a negative impact on the risk perception of entrepreneurs and financial investors / institutions that are considering venturing into climate compatible projects.
- **Green financing investors and institutions are not equipped to weigh uncertainties regarding opportunities and risks** of green projects. Investors are faced with many decelerating factors. Such factors include low policy incentives, lack of technical know-how, high upfront costs for projects without a strong short-term business case, no guarantee as to the accruing climate resilient benefits to society (and economic benefits to corporations and individuals), expectation of lower interest rates, higher risk perceptions and cumbersome reporting requirements for green lending products.
- **The development banks are not sure of their role** and do not have a fully developed evidence-based strategy on how to identify winners and support them over the long term, especially as the needs of MSMEs shift from their technology initiation stage to their pre-commercialization and post-commercialization stages.
- **Energy efficiency**, even among energy intensive businesses, is not financially attractive due to falling oil prices.
- The pace of **renewable energy** in Europe is maintained through policy interventions, but it is not attractive to commercial banks due to growing risk and lack of interest.
- Last but not least, **MSMEs** do not have the conviction to make investments based on ecological considerations due to lack of awareness and incentives to motivate them.

“Countries that are more polluting, and therefore more polluted, are usually dealing with high pressures from their respective governments to develop green financing products and services.”

HOW TO BENEFIT FROM DRIVERS TO MEET CHALLENGES

Because the green financing landscape is faced with both drivers/enablers and challenges/disablers, it is important for development banks to carve out their role to try and accelerate the drivers/enablers while working hard to remove some of the disablers/challenges. While this process must begin using the data gathered so far, building evidence via shared case studies and experience will provide a distinct positioning for development banks in this complex landscape. TMG members have also observed that countries that are more polluting, and therefore more polluted, are usually dealing with high pressures from their respective governments to develop green financing products and services. They also receive incentives from climate finance policies.

The Role of Development Banks (DBs) in Green Financing

AS A CLIMATE CHANGE POLICY INSTRUMENT

As shown through available studies on green financing, it is evident that private sector investment is necessary in order to scale up mitigation and adaptation initiatives that are climate resilient. In this regard, DBs could play an important role in channeling public sector finance into effective programs that have high yield in terms of fulfilling:

- Mitigation goals to encourage technological change and substitution that reduce resource inputs and emissions per unit of output.
- Adaptation goals to promote initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects.^{vii}

“Development banks have proven that smart public financing can spur local and international private sector investments and meet the growing demand for energy and climate resilience.”

Ban Ki-moon UN Secretary-General Washington DC, 13 October 2013

DBs have a dual role to play as a key influencer of government policies and programs on the one hand, and as a catalyzer of private sector investments on the other. The dual role is possible because DBs can serve as a strategic link between:

- The government that formulates green policies and programs; and,
- The private sector projects of various actors and players in the climate resilient landscape that are willing to innovate and adapt for the triple benefits of people, planet and profit.

A few examples of DBs’ dual roles are elaborated below:

- By ensuring public sector financing of broader transformational programs, DBs can leverage private sector investment through their expertise. For example, energy conservation programs have the benefits of lowering carbon emissions and, at the same time, helping the private sector, which designs innovative products to lower energy consumption. A major success builder of these programs could be the advice and guidance given by DBs to entrepreneurs.
- Based on their hands-on experience with the private sector, DBs can identify the types of projects that are more likely to yield high benefits to society while fulfilling the private sector’s profit goals. If DBs have evidence to prove societal benefits, they will be in a position to influence programs that would yield significant benefits in mitigation and adaptation. Through examples from different countries, it is evident that DBs can contribute ideas on how to operationalize government funds and ensure that they are diverted to sustainable and environmentally friendly ideas and projects in a broad spectrum of sectors.

- In some countries, DBs have proposed a strategic partnership with the Green Climate Fund (GCF)*, which would provide support, technical know-how and ideas for governance of the fund. In addition, by using their experience in leveraging and delivering resources to end users, they have shown how they could act as accredited entities that implement the fund to improve effectiveness.^{viii}

AS A BANK SUPPORTING MSMEs

The competitive advantage of DBs in channelling green finance to private sector MSMEs and leveraging the overall effectiveness of public and private sector investment in green projects arises from their extensive knowledge of the firms on the ground, especially for direct-intervention DBs. Based on their relationship with MSMEs, as well as networks that influence MSMEs, they are in a position to act as:

- **Long-term financial institutions** with a mandate to promote economic development in special sectors or regions where private investors are hesitant to participate. DBs can assist private actors with long-term investments for sustainable projects promising substantive returns with respect to mitigation or adaptation goals.
- **Mobilizers of finance**, by working with other financial intermediaries to get the best mix of funds to match the needs of MSMEs. In this role, they can educate other financial intermediaries and leverage private sector investors.
- **Project developers**, by assisting MSMEs to structure projects in a way to attract capital, for example they can use market analysts and business planning consultants to provide a sound business case for a project that is based on a winning value proposition.
- **Creative financiers**, by providing innovative financing packages that use various instruments in their toolkit to make them attractive for MSMEs.
- **Entities with higher risk tolerance**; DBs would be willing to finance projects that other financial institutions may reject.
- **Promoters of innovations among MSMEs**, by providing the necessary mix of financial and non-financial support for innovation, from the technology initiation phase to the product commercialization phase.
- **Risk evaluators** between the government and the private sector. DBs can evaluate the environmental impact of MSME projects.
- **Technical and business advisors**, by providing nonfinancial instruments to assist MSMEs in their growth cycle, from technology incubation to commercialization.
- **Assessors of green outcomes and business outcomes**, by ensuring that the MSMEs who obtain green financing have the potential to provide a greener, cleaner, less polluting and energy efficient solution to meet both climate resilient goals and profit objectives.
- **Policy influencers**, by, over time, shaping programs and policies for a win-win situation with the government and the MSMEs.

“The strength of TMG members lies in leveraging their relationship with MSMEs to increase awareness and interest in green projects.”

THE UNIQUE STRENGTHS OF DBs IN GREEN FINANCING AND THE ROLE OF TMG

The Montreal Group is well aware of the unique strengths of DBs to assist in the channeling of green financing to appropriate projects of MSMEs. TMG’s strategy will continue to focus on sustaining climate resilient goals of mitigation and adaptation through appropriate evaluation of environmental benefits, while assisting MSMEs in reaching their business goals. The strength of TMG members lies in leveraging their relationship with MSMEs to increase awareness and interest in green projects. In addition, they are well positioned due to their experience in providing the right mix of financing instruments and non-financial technical and business advice. Furthermore, through accumulated, shared experience demonstrated via case studies, TMG can vet the appetite for private investors to finance green projects, thus leveraging the overall financial resources available to mitigate and adapt to climate changes.

* The GCF mission is to expand collective human action to respond to climate change. The Fund aims to mobilize unprecedented levels of funding to invest in low-emission and climate-resilient development. [GCF Website]

Financing Green Projects

WHAT CONSTITUTES A GREEN PROJECT

The profile definition for a green project is tied to the definition of green financing. The members of TMG have a variety of green projects that they have supported in different areas of mitigation, and a few in the area of adaptation:

- Energy efficiency
- Renewable energy
- Waste reduction and management
- Waste to energy
- Cleaner production methods
- Green buildings
- Pollution control equipment, technologies and projects
- Green transport
- Water resources
- Adaptation and other projects and activities that address environmental issues and helps in sustainable development.

CASE STUDIES OF GREEN PROJECTS

Energy Efficiency	<ul style="list-style-type: none"> ▪ Entrepreneurial eco-credit for SMEs with the support of financial Intermediaries (NAFINSA). ▪ Subsidized eco-friendly loan for energy efficiency projects from firms in all sectors (Bpifrance). ▪ Focus on non-trade enterprises, institutions that are introducing innovations as well as implementing projects designed to boost energy efficiency (VEB).
Renewable Energy	<ul style="list-style-type: none"> ▪ Loan guarantees, direct model (first tier bank), promotes renewable energies such as wind farms, photovoltaic, hydroelectric and geothermal energies (NAFINSA). ▪ Finance for companies producing renewable energy from wood, waste or forest residuals (FINNVERA).
Waste Reduction and Management	<ul style="list-style-type: none"> ▪ Loans for a commercial composting facility that has the capacity to treat up to 40,000 tons of organic food waste (BDC).
Cleaner Production Methods	<ul style="list-style-type: none"> ▪ Loan for replacement of old machinery in a tire plant with energy efficient roto-cure machine, which requires less time to heat the rubber, thereby increasing the production rate (500 tires/ day) of the unit and reducing 72.25 tons of CO₂ equivalent (SIDBI).
Green Buildings	<ul style="list-style-type: none"> ▪ Technical and financial support for green buildings, improvement of energy efficiency and optimization of energy (SIDBI/AFC). ▪ Loan for renovations to projects aimed at bringing their buildings up to LEED (Leadership in Energy and Environmental) standards (BDC).
Green Transport	<ul style="list-style-type: none"> ▪ Funds earmarked for projects that contribute to reducing greenhouse gas emissions and local pollutants in collective urban passenger transport, and to improve urban mobility in metropolitan regions (BNDES).
Water Resources	<ul style="list-style-type: none"> ▪ Financing support to the No.2 water recycling plant of Beijing Drainage Group (CDB). ▪ Environmental guarantees as security for credits given to finance environmental protection investments such as water protection (FINNVERA).
Adaptation	<ul style="list-style-type: none"> ▪ Loans for adaptation of vehicles to climate conditions and Brazilian roads and highways (BNDES).

“The technical capability of development banks allows them to identify and encourage the most deserving green projects that will produce environmental benefits for society as well as profits for the respective entrepreneurs.”

FINANCING INSTRUMENTS

DBs have the flexibility to offer a variety of instruments, which makes them efficient green financing institutions, linking the environmental goals of green finance to the profit goals of enterprises. Evidence gathered from various projects carried out by TMG members and other DBs suggests that through deployment of appropriate financing instruments, DBs can leverage the use of public funds to stimulate private sector investment. Currently, a number of instruments are being deployed by TMG members to reduce capital costs and risks to secondary lenders and private sector players, including MSMEs and Energy Service Companies (ESCOs). In addition to offering financial services, DBs are also focusing on strengthening their technical guidance and advisory capacity to assist investors in gauging the risks and benefits of green projects. The technical capability, in addition to financial risk assessment, allows DBs themselves to identify and encourage the most deserving green projects that will produce environmental benefits for society as well as profits for the respective entrepreneurs. A variety of financing instruments with common definitions are listed in **Table 1**.

Table 1: Financing Instruments Deployed by DBs to Leverage the Sustainability of Green Projects and to Attract Private Sector Investment

Instruments	At least one TMG Member	DBs in Literature	Definitions
Channeling Government Grants	✓	✓	Grants include cash or in-kind support for which recipients incur no legal debt. Grants reduce upfront layout in project investment costs.
Technical Assistance	✓	✓	Usually DBs pay external consultants for technical assistance and the cost could be shared with the channel or a grant. Very often, the technical or engineering assistance is critical for the end client who wants to know how much energy can be saved in an EE project.
Direct Loans	✓	✓	DBs lend directly to green projects.
Indirect Loans	✓	✓	DBs lend indirectly to green projects.
Long-Term Investment Loans	✓	✓	Usually the long-term loans have typically longer term than what is available in the market.
Short-Term Working Capital Loans	✓	✓	Favourable terms, grace periods and low interest rate loans, for example credit lines for working capital.
Bridge Loans	✓	✓	A bridge loan is interim financing for a green project, say by an SME, until permanent or the next stage of financing can be obtained. Money from the new financing is generally used to close out the bridge loan.
Concessional Loans	✓	✓	More favourable terms and conditions for green financing. Sometimes the interest rates are lowered, the loan periods are longer and the grace periods are favourable.
Guarantees to Banks and Commercial Entities	✓	✓	DBs act as a disbursement channel for climate finance, and reduce risks for the financial sector by providing loan guarantees or partial risk / credit guarantees with a risk-sharing component with the funding channel, another bank or commercial entity. This is a support mechanism used to encourage financial institutions to overcome hurdles in financing green projects for the end client.
Soft Loan	✓	✓	Sometimes in developing countries, loans are given without interest or at a below market interest rate. Soft loans may also have a longer grace period or a different amortization schedule that makes repayment easier. This is also called soft financing.
Direct Equity	✓	✓	Direct investment in a green project.
Quasi Equity	✓	✓	Mezzanine finance provides a hybrid of equity and debt, and gives the lender rights to convert outstanding debt to equity.
Partial Risk Sharing	✓	✓	DBs share risk with a borrower or another lender. Collaterals are sometimes used to protect lenders in case of default.
Eco-credit	✓		Eco-credits are sometimes loan guarantees provided to a tier 2 lender to promote

Instruments	At least one TMG Member	DBs in Literature	Definitions
			energy efficiency projects, for example energy efficient industrial and commercial refrigerators in SMEs.
Co-Financing	✓	✓	DBs can agree to lend with another financier under the same documentation and security packages but may have different interest rates, repayment profiles and terms.
Lending to ESCOs	✓	✓	A DB can use energy service performance contracting delivered through Energy Service Companies (ESCOs) to encourage increased EE investments by the private sector.
Management	✓	✓	For example, BNDES is the manager of the concessional loans of the National Climate Fund in Brazil.
Credit Analysis	✓	✓	Some DBs are adept at credit analysis. Sometimes, this would involve a technical person able to assess credit risks.
Insurance	✓	✓	At times, DBs can provide political or policy risk insurance to protect private sector investment in new green technologies. This will cover changes to feed-in tariffs, licensing arrangements, etc., and thus mobilize private sector investment in green projects.
Foreign Exchange/ Liquidity Facilities		✓	DBs can protect green projects from exchange fluctuations by providing cross-country loans in local currency.
Revolving Credit	✓	✓	It is also called open-end credit or a revolving line of credit. DBs offer this to firms that need money for operations "on and off" and need the flexibility to pay off the credit when they have money.
Debentures	✓	✓	DBs sometimes offer green financing to an SME through fixed-interest loans secured against the firm's ASSETS. In some cases, the company may offer a specific asset as security for the loan (fixed charge); in other cases, lenders are offered security by means of a general claim against all company assets in the event of default (floating charge). Most debentures are redeemable by the borrower at a future specified date, say 10 or 15 years from the date of issue.
Green Bonds	✓	✓	DBs sometimes issue Green Bonds. They fund projects that have positive environmental and/or climate benefits. The majority of the green bonds issued are green "use of proceeds" or asset-linked bonds. Proceeds from these bonds are earmarked for green projects but are backed by the issuer's entire balance sheet. There have also been green "use of proceeds" revenue bonds, green project bonds and green securitized bonds.

The instruments described in **Table 1** are aimed at making the risk-reward profile of green projects attractive for the tier 2 lenders and the private sector due to the flexibility, lower cost of capital, sharing or lowering of risks and availability of guidance and advice, thus providing enabling conditions for green projects.^{ix} Some of the success stories, in which these financial instruments are used with other strategies, are described in the next section.

BEST PRACTICES: THE MONTREAL GROUP'S PERSPECTIVE

"Development banks allow for a less risky, more informed landscape, in which private sector investment and participation in climate resilient projects become attractive."

Members of TMG are very involved in learning from each other's experiences. They seek commonalities and best practices in spite of the fact that the actual strategies of each development bank will be tempered by the political, legal, economic, geographic and cultural infrastructure under which they operate. As a major operator in green financing, DBs have to balance the social good with the economic realities which they face each day. By being collaborative and innovative, they are in a position to pull various players together in a joint activity to achieve both the individual and societal goals of a sustainable and climate compatible environment. Their role is to support and stimulate projects that will achieve the environmental and ecological goals while satisfying participants' profit goals. In addition, DBs allow for a less risky, more informed landscape, in which private sector investment and participation in climate resilient projects become attractive. In pursuing this overall mission, the members of TMG have had the

opportunity to record success stories as well as some lessons on “what should and should not be done” in their journey towards achieving the dual goals.

In the following paragraphs, we provide a few select examples of success stories and their key features. It is important to note that there are many success stories to be shared among the TMG members, but only a few are given as examples to emphasize specific underlying factors leading to success.

Success based on a strategic and holistic approach to sustainable development

Members of TMG have success stories that relate to strategic partnerships and to a vision that includes the success of all stakeholders, including society as a whole. An example is cited by the Brazilian Banco Nacional de Desenvolvimento Econômico e Social’s (BNDES) approach to green finance. BNDES has a holistic perspective of green financing, which employs the use of environmental criteria along with business success criteria to finance projects that will serve the objectives of people, planet and profit. Based on a comprehensive approach to financing, BNDES promotes sustainable development and builds an integrated concept of economic, social, environmental and regional dimensions in all of its operations.

BNDES’ support for smart grid projects is a strategic focus that combines climate compatible project financing with economic, social and regional development, including support for local businesses. Ecil Informática, an enterprise specialized in providing equipment to automate and maintain electric grids, was approved for an innovative project in the energy sector by BNDES. Ecil’s project met the criteria of Fundo Clima, a green climate fund, and had several potential economic benefits stemming from the concept of sustainable cities^{*.x}

Lessons learned: Development of an integrated credit risk model embedded with green parameters provides many benefits. The environment and social risk as well as business risk should be considered to meet the good of society and the entrepreneur.

Success based on identifying barriers and configuring a service to break barriers

Members of TMG understand that leveraging private sector investment in energy efficiency (EE) often fails because the private sector is not able to weigh the risks and benefits of EE measures. Sometimes, the lack of technical know-how among MSMEs and their inability to secure financing at lower rates and risk present insurmountable hurdles to the adoption of energy efficient changes to processes, equipment, buildings, etc. Based on public policy vision, MSMEs in India are supposed to achieve “zero defect zero effect” within the next few years. This means that 45 million enterprises have to deliver quality products and, at the same time, adopt environmentally sustainable business methods. If energy efficiency measures are adopted by the MSME segment, it is expected that there would be approximately 45,900 GWh of energy saved.

SIDBI took a novel approach to encourage MSMEs to undertake energy conservation measures. It launched an innovative product called End to End Energy Efficiency Solutions (4E Solutions) to provide both technical solutions and financial support to MSMEs in the form of a soft loan product. Technical support, which includes walk through audit, detailed energy audit, implementation support and advisory services, is offered through one of SIDBI’s associate institutions, India SME Technology Services Ltd. (ISTSL). MSMEs are now able to see improvements to their bottom-line by reaping the benefits of EE measure implementation and a shorter payback period, thus making 4E solutions a success story.

“Leveraging private sector investment in energy efficiency (EE) often fails because the private sector is not able to weigh the risks and benefits of EE measures.”

* A sustainable city or eco-city (also “ecocity”) is a city designed with consideration of environmental impact and is inhabited by people dedicated to minimizing required inputs of energy, water and food, and waste output of heat, air pollution CO₂, methane and water pollution.

Lessons learned: *The barriers facing the MSME market have to be understood to create the right approach. Advisory services provided by a trustworthy entity help the MSMEs understand the benefits of energy conservation. The financing solutions should not be based on assets alone (balance sheet loans); instead, the projects' cash flow should be taken into consideration. Therefore, a soft loan or mezzanine loan product is sometimes the best fit.*

Success based on focus and specialization

TMG members' success stories illustrate carefully conceived strategy and product development for extending green financing options to specific target markets. A case in point is Mexico's *Nacional Financiera* (NAFINSA), whose focus is to direct international green finance flows towards projects maximizing energy conservation and/or reducing greenhouse gas (GHG) emissions, by promoting the adoption of clean technologies or renewable energies.

NAFINSA's green financing addresses two areas:

- Financing for renewable energies; and,
- Financing for energy efficiency.

Both areas are supported by multilateral and bilateral credit lines from the Inter-American Development Bank (IDB), KfW and World Bank, which serve as implementing agencies of the Clean Technology Fund (CTF). Four successful green programs / products are available:

- Electric Appliances Replacement Program, which provides loan guarantees to other banks to promote energy efficiency through the replacement of refrigerators and air conditioning in SMEs.
- Entrepreneurial Eco-credit, which provides loan guarantees to other banks to promote energy efficiency through the installation of efficient lighting, electric engines, air conditioning, electric sub-stations, and industrial and commercial refrigerators in SMEs.
- Business Training, which offers courses directly to SMEs to make them understand measures that would yield energy savings, and economic and environmental benefits from saving energy.
- Renewable Energy Program, which provides direct loans to priority projects in order to promote renewable energies such as wind, photovoltaic, hydroelectric and geothermal.

In the case of the Entrepreneurial Eco-credit program, NAFINSA found that the Trust Fund for Energy Saving (FIDE), the main partner in the program, could become the technical evaluator as it has already gathered a large set of technical data for electrical equipment and could expand on that. This partnership was very helpful in convincing lenders and clients of the benefits of EE measures.

Lessons learned: *It is very efficient for a DB to include a key working partner who has technical expertise to help clients through technical energy audits, evaluations and other advice. Their expertise can help second tier lenders or SMEs understand the precise benefits of implementing specific EE measures.*

Success based on a niche strategy of funding scalable ventures

BDC is aware that Canada has an opportunity to be a leader in the clean technology domain. Given venture capitalists' aversion to investing in long-term, capital intensive infrastructure projects like solar and wind farms, BDC Capital has decided to adopt the strategy of investing in scalable, capital-efficient ventures focused on more efficient use of resources.

BDC Capital's Industrial, Clean and Energy Technology (ICE) Venture Fund will support Canadian ventures that have the potential both to commercialize scalable, clean and energy technologies and to generate significant returns. Given BDC's 15 years of experience in a variety of subsectors in energy and clean technology, ranging from smart grid, energy storage, green IT, building energy management, energy-efficient lighting and water treatment technology sectors, the fund will continue to build commercial successes. Some examples of current projects are D-Wave Systems, a quantum computing company based in Burnaby, British Columbia, and Encycle, a Toronto-based provider of energy-reduction solutions for commercial, industrial, institutional and multi-residential facilities.

Examples of successful exits from the ICE Venture fund are Xantrex, Satlantic, Pyrophotonics, Welaptega Marine, Ballard Power and Cellex.

Lessons learned: Cleantech offers many opportunities for MSMEs venturing into scalable projects that do not have a major capital outlay. Some DBs may find opportunities in niche marketing.

Success based on DBs offering guarantees for export of renewable energy and environmental technology

Finnvera contributes to the development of Finland's environmental sector and its growth and internationalization. In fact, one of Finnvera's key strategic goals is to apply means of financing to promote the use of clean renewable sources of energy in order to mitigate climate change. Finnish SMEs that have technological know-how, for instance, in the sectors of renewable energy, energy conservation or waste processing, are well supported by Finnvera. Cleantech is also the spearhead theme for Team Finland's export promotion. Trade missions were organized and visibility was sought around this theme in international forums in 2014. The purpose of these measures is to strengthen Finland's image as a cleantech pioneer. Enterprises in the cleantech sector are usually start-ups with potential to compete in global markets. Finnvera carefully assesses their potential and selects those for which it can assume greater risks in financing them. Finnvera, the Ministry of Employment and the Economy, ELY Centres, Tekes and Finpro have expanded their mutual dialogue so that more comprehensive service can be offered to environmental enterprises. Finnvera has granted financing for projects where companies have exported environmental technology. Besides loans intended for SMEs, Finnvera can grant environmental guarantees to large enterprises.

Lessons learned: DBs can work with government agencies or departments in their countries to promote exporting of clean technologies to other countries.

Success based on creative financing of low-cost debt for large renewable energy projects

The China Development Bank (CDB), a state bank in China, is the largest development bank in the world and has supplied over US\$80 billion to renewable energy projects.^{xi} Under administrative direction, the Bank uses subsidized, low-cost debt to finance renewable energy projects in its own domestic markets. As of 2012, 87% of wind projects and 68% of solar projects in China were built and owned by state-owned enterprises (SOE) and their subsidiaries. The projects are success stories because they had access to capital at low, administered interest rates. The combination of CDB debt, SOE equity funded by retained earnings and secure power

purchasing agreements in administered markets has created a climate for the highly capital intensive projects to thrive. Furthermore, they are supported by an active reform movement in China. This success story illustrates how strong development banks in middle income countries with government support can change the availability of low-carbon debt financing for renewable energy projects.

CDB supports energy infrastructure projects using certain criteria that take into account the environmental and ecological implications of these projects, such as improving and protecting the ecological environment, properly exploring and utilising resources, and reducing poverty while facilitating a balanced growth model among regions and between rural and urban areas.

***Lessons learned:** In middle income countries, where government and other low-cost climate funds are available, it is prudent for DBs to sponsor large renewable energy and infrastructure projects with built-in criteria for environmental and social benefits.*

Success based on DBs acting as a co-financier for target financing of energy efficiency projects

The Vnesheconombank (VEB) in Russia has developed a program for target financing of energy-efficiency and resource-saving projects. The program provides opportunities for raising loans from the International Bank for Reconstruction and Development (the IBRD) in the amount of US\$300 million for a period of 18 years against a full sovereign guarantee from the Russian Federation. A condition for VEB's participation in the program is that the bank provides co-financing in the amount comparable to borrowed funds. Due to the relatively low cost of raising funds from IBRD, it is expected that a portfolio of projects can be financed at relatively low costs.

The program also provides for a grant from the Global Ecological Fund (the GEF) in the amount of US\$25 million for technical assistance in providing information and analytical support for pursuing a policy of energy conservation and efficiency in the Russian Federation. Project initiators, who are VEB's customers, will benefit from:

- Financial resources from three sources, namely VEB, the World Bank and the Global Ecological Fund in order to implement energy-efficiency projects in Russia.
- Technical assistance from the World Bank and other international financial institutions in preparing and implementing energy-saving and energy efficiency projects with due regard to sector specifics surrounding their enterprise or industry.
- Business experience and expertise of the Russian Energy Agency in conducting expert examinations and providing organizational and technical assistance in selecting energy saving and energy efficiency projects.

One of VEB's success stories in the energy sector is the construction of the Boguchany HPP to which VEB contributed RUB 28.1 billion out of a total of RUB 72.5 billion. The Boguchany HPP has increased the share of renewable energy generated in Russia. The project involves cutting-edge technologies that minimize its environmental footprint, including a 350 km long water reservoir built in the valley of the Angara River. The project initiators ran its social and environmental evaluation in line with the requirements of Russian laws and international standards, including the Equator Principles and the IFC's and World Bank Group's guidelines.

VEB's interventions demonstrate that public funds can be successfully used to stimulate investment in energy efficiency projects through strong central policy.

The issuance of the first Mexican Green Bond by NAFINSA, in 2015, is another example of how strong public policy can give access to a variety of funds for meeting environmental goals.

NAFINSA was the first development bank in Latin America to issue this kind of bond, which obtained the Climate Bond Certification and a second-party review from Sustainalytics. The transaction was well received by international markets. The proceeds from the bond are expected to be focused on wind energy projects located in the states of Oaxaca, Nuevo Leon and Baja California.

***Lessons learned:** Strong public policy that gives access to a variety of funds as well as the expertise of different government departments to help in planning and implementing energy efficiency projects are key to stimulating the interest of private sector participants. The public funds can be successfully employed to leverage private investment through supportive public policy that educates private sector participants and provides risk-benefit analysis and business training.*

Success based on a government subsidy with a combination of financing instruments suited for SMEs

Bpifrance has a green soft loan (**Prêt Vert**) that provides up to 3 million euros over seven years to SMEs at a subsidized interest rate, with no security necessary. The loan helps SMEs to integrate more efficient equipment and cleaner or leading eco-efficient products into their industrial manufacturing process, from a competitiveness and growth perspective. The loan is co-financed and is stipulated at one green euro for one euro from another lender or equity investment in the company. It also provides guarantees up to 80%. The combination of this green loan has attracted several SMEs, and because it asks for another loan of equal size or equity in the company for energy saving measures, it has a leveraging effect.

***Lessons learned:** Strategic green financing product development that meets the needs of MSMEs in terms of lowering risk and increasing benefits is crucial to success in this sector.*

THE BALANCING ACT OF DBs

All of the above success stories indicate that DBs within TMG have demonstrated innovative ways to provide green financing to stimulate interest in the private sector and draw MSMEs to invest in climate resilient projects. In addition, DBs also provide technical guidance and advice to MSMEs and help them understand that energy efficiency measures have positive impacts on the environment, business profits and growth and the economy. In each case, DBs have taken a risk stance that is lower than that of the commercial banks to leverage private sector investment. In many cases, they have also offered stimulus or guarantees to other lenders participating in the projects. The next section explains the type of risk analysis and measures that DBs have taken to support sustainable projects. These measures are aimed at striking the balance between social good and the participant's profit, as well as the balance between benefit and risk from both the DB's and the private sector's perspective.

Managing Risks in Projects

BEST PRACTICES IN RISK MANAGEMENT

Types of risks and de-risking mechanisms

Green financing faces several types of risks and are widely discussed in literature together with some of the de-risking measures taken by DBs to attract private investment.^{xii} They could be classified by the risk source, such as:

- Changes in economic conditions, commodity prices, and interest and exchange rates.
- Political risks that could be due to civil unrest or a change in government, laws or priorities.
- Policy risks mainly due to regulatory changes, such as those to feed-in tariffs or fossil fuel subsidies that can impact the viability of a green project.
- Technology-related risks, which could be due to performance, reliability, cost, lack of market acceptance or absence of a reliable supporting infrastructure, for example, electrical and water grid networks.
- Capacity risks where institutions and governments are unable to ensure funding is disbursed to projects and utilized.^{xiii}

The type of support available to MSMEs for some of the risks above is rare; for example, The World Bank Group's Multilateral Insurance Guarantee Agency (MIGA) covers political risks only for a few large investments in the "green" sector. With respect to policy risk, especially the ones with respect to feed-in tariffs and the revocation of licenses or permits, The US Overseas Private Investment Corporation (OPIC) provides investors with financing, guarantees, political-risk insurance and support for private equity investment funds. Guarantees and political risk insurance are helpful in ensuring that there is a level playing field for nonconventional technologies such as renewable energies. These examples are indicative of the unleashed potential of guarantees and insurance, which combined with other instruments, can provide impetus to climate resilient private sector investments.

There is significant potential for public sector and public financial institutions to provide more guarantees for higher-risk investments but guarantees alone cannot improve the commercial viability of all investment types. A combination of de-risking instruments is needed to bring investment risk down to acceptable levels.

Source: Adapted from World Resources Institute, 2012

In the area of general business risks related to technology, the economy, and innovation of clean technologies, some domestic governments and development finance institutions like DBs have been successful in de-risking the playing field for MSMEs. Those DBs, which are experienced in green financing, employ strategies to lower the inherent risks through targeted support of projects satisfying social/environmental criteria while promising economic viability. The various innovative green financing instruments used by the members of TMG, and DBs in general, have been described in Table 1 and under "Best Practices." They include loan guarantees and partial risk/credit guarantees, and other "on-lending" arrangements whereby commercial banks or state utility companies providing the loan are guaranteed payment in full or in part by the DBs or the government.

To assist MSMEs in securing capital investment, some of the members of TMG assist MSMEs by finding direct and indirect equity for green projects. At times, they use venture capital funds.

“Green Financing options help shift the risk-reward equation for investors in favor of more climate friendly investments.”

Instead of using collateral (also known as the balance sheet approach), DBs sometimes offer assistance based on the MSME’s projected cash flows.

In the area of promoting the adoption of energy efficiency measures by MSMEs, some members of TMG have included non-financial services in their lending practice, such as energy audits, guidance and business planning to demystify the inherent risk of green projects, as well as to quantify the benefits of energy efficiency measures. These technical advisory services are often rendered in partnership with a trusted third party, partner, government agency or institution.

Another effective mechanism to lower risk to businesses and consumers and help them adopt energy efficiency measures is for DBs to use ESCOs as a disbursement channel. Under this arrangement, ESCOs provide energy-saving solutions to customers through energy performance contracts. The end user under each contract is given a payment schedule to pay the ESCO a fixed amount over a fixed period based on energy savings achieved. The ESCO provides turnkey solutions to consumers, companies or municipalities, for example, energy auditing, engineering design, installation, maintenance and financing of energy saving measures. The end user is in a low risk situation because there is no upfront cost and there is a contract with the ESCO that guarantees energy savings for a fixed fee for a fixed period, after which the end user retains the installed equipment. The advantage of this strategy is that ESCOs are already in a business relationship with end users. It is being tried by TMG members and other DBs to promote the adoption of energy efficiency among end users. There are several ways in which the DBs can help the ESCOs undertake this responsibility and the instruments vary from ESCO to ESCO.

Another mechanism which is used by DBs experienced in managing green financing risk is to join forces with other financial institutions to jointly provide financing to mitigate risks. Usually, in such cases, a trust fund is created to serve as a contingent line of credit. NAFINSA has adopted this strategy, and has made specific arrangements in credit agreements for sustainable projects to mitigate credit risks. For example, it has special purpose vehicles to capture and disburse generated flows under a waterfall payment system in which principal and interests are paid first and any kind of dividends are paid afterwards. Sometimes, payments to investors are subject to financial covenants. NAFINSA has also incorporated into the analysis factors such as insurance coverages, land tenure and participants’ track record. Other DBs have introduced a waterfall payment system using a special purpose vehicle by which higher tiered creditors receive interest and principal payments, while the lower tiered creditors receive only interest payments. When the higher tiered creditors have received all interest and principal payments in full, the next tier of creditors begins to receive interest and principal payments.

Many DBs hire consultants to identify and measure risks associated with sustainable projects, and some, like SIDBI, create a forum to improve internal processes and gain knowledge on how to manage risk with sustainable projects.

The key point with all of the above green financing options is that they help shift the risk-reward equation for investors in favour of more climate friendly investments.

Integrating sustainability in risk analysis

Members of TMG are keen to incorporate sustainability into their operations as well as create stakeholder value through integrating sustainability in risk analysis. For example, SIDBI has developed and pilot tested an “Integrated Credit Risk Rating Model embedded with Green parameters” which incorporates energy, and environment, social and governance (ESG) parameters in the existing credit risk model. The UN Secretary General’s report^{xii} has cited the success story of the “Yes Bank” in India, which created a working team with the mandate to set and drive the bank’s strategy based on a triple bottom line of financial, social and environmental returns. The bank has succeeded well and has set up a Sustainable Investment Banking group, which serves as a conduit for foreign and multilateral funds (for example, the Global

Environment Fund), thus allowing investment in a broader set of opportunities.

DBs in some countries, for example CDB (China), BNDES (Brazil) and VEB (Russia), are heavily involved in infrastructure projects. The impact of including ESG criteria in authorizing infrastructure projects could add a lot of momentum to the greening initiatives of governments and public policy makers. When a DB's lending for infrastructure projects involves changes to planning processes to prioritize the identification of low-carbon, climate resilient infrastructure, it becomes extremely effective in achieving environmental, ecological and social benefits. However, to implement this would require a strong technology team with an integrated risk model to draw up contracts with the private sector for integration of sustainability considerations into strategies and projects.

The efforts of TMG to integrate social and environmental risks in its analysis is likely to gain momentum because investors, like Aviva, are also pushing the frontiers with the private sector to fully integrate ESG issues into all asset classes across all regions. This was driven by the conviction that long-term returns could be improved by better incorporating climate change and broader sustainability considerations into investment decisions. It also identified fund managers and analysts within each investment desk to facilitate integration. In 2015, Aviva also commissioned a study that, for the first time, estimated "Value at Risk" from climate impacts and outlined a set of policy recommendations to help avert these impacts.

A particularly important trend in the secondary markets has been increasing investor awareness of the carbon asset risk challenge. If investors are made to realize that future climate change action will erode the capital value of carbon-intensive assets and that this, in turn, could be a risk to financial stability, then there will be a mass influx of investors to green assets that are free from climate risks. The growing interest in this field has led to the development of new indices that reduce investor exposure to carbon intensive companies and assets. These indices exclude fossil fuel companies and have greater holdings of companies that score more highly on environmental or ESG criteria, and green thematic indices which focus on companies involved in climate change mitigation and adaptation strategies.

Another example of integrating sustainability in risk analysis is AP₄, which is responsible for ensuring strong and stable returns for Sweden's pensioners. It factors in underlying drivers of risk and return over a long-term horizon of 30–40 years. In 2010, AP₄ concluded that CO₂ emissions were significantly under-priced by the market and began to consider investment strategies that could improve the long-run risk-return profile of its portfolio by lowering the carbon exposure, while achieving the same or better performance compared to their benchmark indices. AP₄ has a deep technical know-how of factoring ESG criteria into the risk-return profile of holdings in the various indices. Its experience and technical knowledge has gathered support from a coalition of interested partners including Amundi, United Nations Finance Program Initiative (UNEP-FI), and the renowned CDP*. The general thrust of the new initiatives can be seen in the following statement by CDP.

"The first step towards managing carbon emissions is to measure them because in business what gets measured gets managed. CDP has played a crucial role in encouraging companies to take the first steps in that measurement and management path."

- Lord Adair Turner

The experience of some TMG members in incorporating ESG criteria in risk-return analysis could be honed in through sharing experience and practices for the benefit of all and to gain credibility

* The CDP (formerly the "Carbon Disclosure Project") is an organization based in the United Kingdom that works with shareholders and corporations to disclose the greenhouse gas emissions of major corporations.

with their respective governments and climate fund organizations, while positively motivating the private investors to green investments.

The role of public policy

The report on private sector trends in climate financing, which provides the latest data on the advances being made by different players, indicates that the public sector policy is probably not accomplishing enough in the way of accelerating green investments. In fact, some of the existing rules could, inadvertently, hold back allocation of capital to low-carbon and climate-resilient investment opportunities. Stronger integration between climate and financial stability policy is necessary. This calls for a long-term perspective and the integration of relative risk profiles of low-carbon and climate resilient versus high-carbon alternatives. A balanced, long-term outlook on people, planet and profit will allow for a recalibration of governance to reflect on long-term environmental and economic impacts of policy.

ADAPTATION OPPORTUNITIES AND THE ROLE OF DBs

“Governments, development banks, other financial institutions and MSMEs should be more involved in seeking opportunities to include adaptation activities as part of climate resilience measures.”

Nearly 94% of Global Climate Finance funding is mainly directed towards mitigation measures. Of the 94% of climate finance funding flowing towards mitigation, approximately 83% is used for “green energy finance,” primarily in renewable energy and energy efficiency projects. Adaptation activities only occupy about 6% of the total Global Climate Finance funding.^{xiv} This lack of balance between funds directed towards mitigation activities, compared to adaptation activities, has been receiving attention among those involved in climate policy initiatives. Accordingly, there is a consensus that governments, DBs, other financial institutions and MSMEs should be more involved in seeking opportunities to include adaptation activities as part of climate resilience measures.

The definition of adaptation is not quite clear and agreed upon. The following is a popular definition that is supported by TMG and literature.^{vii}

Adaptation means anticipating the adverse effects of climate change and taking appropriate action to prevent or minimize the damage they can cause. Examples of adaptation measures include using scarce water resources more efficiently and adapting building codes to future climate conditions and extreme weather events.

Given the lack of a well understood and publicized definition of adaptation activities, it has become difficult to track and report approaches for adaptation finance by developmental financial institutions and the private sector. Since players do not often know which interventions qualify for adaptation activities, there is a huge gap in reporting the course of adaptation finance and its impacts. At this time, most institutions do not have a methodology to measure and capture risks and rewards of adaptation. The situation is improving because many measures to protect against natural disasters through adaptation activities are being quantified in an experimental approach through, for example, activities that ensure water supply, flood prevention, forest damage, livestock and agriculture protection. The World Bank^{xv} attributes the lack of knowledge and interest in adaptation measures to the following:

- It is not possible to explicitly attribute many observed changes in weather, wind, storms, etc., at local and regional levels to climate change.
- The impacts and vulnerabilities across countries and within countries vary widely.
- There is a significant gap in data available to gauge the impacts, their cause and costs as there is not sufficient research in the area.

Adaptation priorities are best described in the observations of Parry et al.^{xvi}. They have shown the impact of warmer and more frequent hot days and nights, warm spells or heat waves, heavy precipitation, drought increase, intense tropical cyclones, incidence of extreme high sea levels, etc. on agriculture, forestry and

ecosystems, water resources, human health, industry, settlement and society. The authors' in-depth work on adaptation shows that this is a very complex area because impacts are inter-related and are also region or locale specific.

Recently, a Boston University study^{xvii} has made a list of climate adaptation projects that are aimed at greening the Americas, such as:

- Adaptation Program and Financing Mechanism for the Pilot Program for Climate Resilience (PPCR) in Jamaica.
- Climate Resilient Infrastructure in Belize.
- Support for Agriculture to Fight Climate Change in Mexico.
- Program to Reduce Vulnerability to Natural Disaster and Climate Change in Panama.
- Strengthening Social Resilience to Climate Change in Mexico.
- Natural Disaster Prevention Program in Bolivia.
- Caribbean Natural Catastrophe Insurance in St. Lucia.
- Natural Disaster Management of the Kingston Metropolitan Area Drainage Rehabilitation Work in Jamaica.

A number of examples of adaptation options that create opportunities for MSMEs stem from impacts of climate change and the need to buffer against the impacts, for example:

- **Drying or drought** would require an improved water supply system, soil moisture conservation, ground water conservation, development of drought resistant crops, hydroponic farming, safe drinking water provisions, etc.
- **Increased rain or flooding** would require improved flood protection infrastructure, flood hazard mapping, disaster warning, disaster preparedness, flood forecasting, improved drainage etc.
- **Warming or heat waves** would require technological change, assistance to vulnerable groups, surveillance for diseases, health systems to handle emergencies, water management, sustainable water use awareness and education, heat resistant crops, pest control and surveillance, etc.
- **High winds** would require more resilient infrastructure, emergency preparedness, warning systems, coastal defence design, protection of water supply from pollution, wind resistant crops, etc.

Given that climate impact specialists and governing bodies are aware that adaptation should receive more attention, the need for government policy and DBs to bolster their approach to adaptation is imminent. Increased awareness, publicity and financing of adaptation would result in a balanced approach to arrive at cost-effective measures for climate resilience. By specifying adaptation priorities to all sectors of society, significant losses stemming from society's lack of preparedness to climate change impacts can be avoided. In this context, some suggestions have been made to study the interrelationship of mitigation and adaptation measures. UNDP, from its experience, provides examples of how the most cost-effective climate change measures are invariably those that deliver both mitigation and adaptation benefits (end note vii)

Adaptation: "Enacting new building codes to improve the energy efficiency (EE) of buildings also provides an opportunity to increase the resilience of communities to extreme weather events (e.g., heat waves, cold spells, storms, earthquakes, etc.), as the improvement required in building design and construction to improve their thermal efficiency are very similar to those needed to increase their resilience to extreme events. Increasing the resilience of buildings to extreme events can appear prohibitively expensive in the face of uncertainty about future climate conditions. The case becomes much more compelling once energy savings are considered."

Source: Catalyzing Climate Finance

Some TMG members are already involved, or are planning to be involved, in adaptation projects. BNDES already funds projects aimed at adaptation to weather changes, reforestation, building sustainable cities, and adaptation of vehicles to climate conditions and Brazilian roads and highways. The Government of India's Ministry of Environment, Forests & Climate Change (MoEFCC) has nominated SIDBI as National Implementing Entity (NIE) for accreditation with Green Climate Fund (GCF). This accreditation is expected to lead to several opportunities for adaptation and mitigation projects.

The focus of TMG is specifically on the adaptation options available to industry, particularly MSMEs. In this respect, research undertaken in U.K. on "Building Adaptive Capacity of SMEs" by the Sefton Council^{xviii} has made some relevant findings, such as:

- SMEs are quick at identifying the risks of extreme weather to property, logistics and supply chains.
- The key drivers for SMEs taking adaptive actions are minimizing the costs of disruption to operations, logistics and supplies.
- SMEs are able to identify opportunities to develop products that are more suited to extreme weather conditions and other climate disasters.
- SMEs see benefits in sourcing sustainable raw materials, reliance on new technologies and assistance through public sector procurement.
- SMEs are already engaged in a variety of actions, which they do not necessarily recognize as climate change adaptation; for example, obtaining raw materials from local or sustainable sources, developing new products that are more resistant to temperature, winds, etc., closely monitoring world markets and supply chains, storing data systems off-site and organizing communication systems in the event of natural disaster.

The results of the Sefton Council's study on SMEs indicate that while these businesses are already trying to be adaptive, they are not aware of their adaptive capacity and the overall benefits of adaptation measures.

TMG'S POSITION ON PROMULGATING THE ADAPTIVE CAPACITY OF MSMEs

Members of TMG will develop a strategic approach to inform and guide MSMEs to harness their potential for adaptations. This will also lead to research on finding ways to finance adaptation projects. As in the case of mitigation projects, TMG will develop a strong risk analysis system and a measuring, reporting and verification (MRV) framework to support their endeavour. Robust MRV systems are paramount to tracking whether environmental results, including mitigation of greenhouse gas emissions, and adaptations to vulnerabilities are being achieved. Such MRV systems will also help in identifying where progress could be made and demonstrate accountability.

From a holistic perspective of effective and efficient financing of sustainable adaptation and mitigation activities, the next section provides recommendations for DBs in general and TMG in particular.

Conclusions and Recommendations

CONCLUSIONS

TMG members have illustrated that their knowledge of the challenges and drivers of green financing have helped them in their mission to be an advocate of policy change in the public sector and, at the same time, support MSMEs to innovate and launch products and services that have synergistic goals of profits, as well as environmental, ecological, and societal benefits.

The experience has been quite rewarding as it required knowledge of entrepreneurs and what will catalyze private sector investment in climate resilient activities. Succeeding in green finance also involves the development and use of innovative financing instruments that are long term, affordable, flexible and capable of allowing green projects to meet environmental, social and governance parameters, while at the same time making them capable of producing profits. Success stories are built on a combination of factors like partnering with other financial institutions and lowering their risks through concessional loans, guarantees, insurance, measures to stabilize currency fluctuation, as well as involving third parties, like engineers, to train MSMEs in energy audits or ESCOs in delivering energy efficiency contracts to end users. There is also a predominant trend to assist MSMEs involved in innovative, scalable cleantech and energy conservation technologies to be funded through direct equity or indirect equity. This approach called the cash flow approach is of particular help to companies that are not lush on their balance sheets and, therefore, cannot offer collaterals.

The landscape for green financing appears more favourable than before and is marked by success stories among players. According to the United Nations Secretary General's report,^{xii} the inflection points, indicative of a bigger momentum and deep shift in attitudes in the climate finance sector, are evident on a number of factors related to targets, commitments, adoption of internal carbon prices by businesses, increase in investor interest and scaling up of insurance sector efforts. The trend is best described as follows.

The finance community is emerging as a partner in the challenge of responding to climate change: policy makers have an opportunity to both deepen and broaden this partnership.

In this promising landscape, the role of DBs has to be even more significant and results bearing, and the following recommendations appear to be in order.

RECOMMENDATIONS

It is recommended that members of TMG:

1. Engage in networking activities with climate policy influencers, financing institutions, government policy advocacy groups, ESCOs, and MSME associations.
2. Find ways to influence public policy, advocacy groups, financial institutions, private lenders and investors in effective and efficient practices that promote sustainability.
3. Create a commonly shared framework for the integration of ESG criteria along with profit criteria. This agreed upon framework should be used, along with necessary customization that is transparent to all members, in funding mitigation and adaptation projects.

4. Develop a standard template that would be used by all members to report on characteristics of each project, the partnerships involved, the financial and non-financial support provided, the risk-rewards criteria used at the beginning of the project, impacts of each project and their quantification.
5. Create and use a commonly accessible database to share knowledge and learn from each other's experience of enablers and disablers in green financing with respect to both mitigation and adaptation projects.
6. Develop an internal team of financial analysts to monitor trends and best practices, specifically with respect to various types of instruments being used, and to disseminate information to members on an ongoing basis.
7. Focus on direct and indirect equity financing to help innovators who are trying to spawn new cleantech products and services, incubate renewable energy ideas, identify new technologies for energy conservation and launch adaptation measures to reduce CO₂ emissions and greenhouse gases. This would mean a shift away from balance sheet lending and collateral practices and a move towards cash flow based investments (equity financing based on projection of projects' net present values) to encourage venture capital funding.
8. Study the advantages of green bonds and "YieldCos" to assist MSMEs to use them in their structure.
9. Take a strategic approach to encouraging and promoting adaptation measures among MSMEs.
10. Launch a newsletter to report on various activities that are interesting from policy and project perspectives.

About The Montreal Group



Micro, small and medium-sized enterprises (MSMEs) face ongoing challenges. In response, governments have developed schemes to help remedy market deficiencies where private sector sources are unable or unwilling to operate, by creating public development banks.

The Montreal Group is a forum of such State-Owned Banks that have a strong focus in supporting MSMEs. The forum was created in 2012 to foster peer group exchanges, identify best practices and innovative solutions on issues/products such as loan guarantees, financing intangible projects, consulting services, global business matching or governance, to name but a few. Accompanying the MSMEs is at the heart of any exchange.

Head office is located in Montreal, Canada.

www.themontrealgroup.org

MEMBERS OF THE MONTREAL GROUP



Business Development Bank of Canada (BDC)

The only financial institution in Canada dedicated exclusively to entrepreneurs.

Their mission is to help create and develop strong Canadian businesses through financing, consulting services and securitization, with a focus on small and medium-sized enterprises.

Through their subsidiary—BDC Capital, they also offer a full spectrum of specialized financing, including venture capital, equity as well as growth and business transition capital.

- BDC supports entrepreneurs in all industries and at all stages of development from more than 100 business centres across Canada and online at bdc.ca.
- They're committed to the long-term success of Canadian entrepreneurs and have the tools and experience to help make it happen.
- They complement the role played by private-sector financial institutions and have been serving Canadian entrepreneurs since 1944.
- With BDC, entrepreneurs have the peace of mind that comes with having an experienced, knowledgeable and committed adviser in their corner.
- They understand that a business is more than just dollars and cents. That's why they look at it as a whole, including the owner's vision for the future.
- They are a financially sustainable Crown corporation and we operate at arm's length from our sole shareholder, the Government of Canada.
- They've been profitable every year since 1998, paying \$417 million in dividends to our shareholder.¹



Brazilian Development Bank (BNDES)

The Brazilian Development Bank (BNDES) is the main financing agent for development in Brazil. Since its foundation, in 1952, the BNDES has played a fundamental role in stimulating the expansion of industry and infrastructure in the country. Over the course of the Bank's history, its operations have evolved in accordance with the Brazilian socio-economic challenges, currently including support for exports, technological innovation, sustainable socio-environmental development and the modernization of public administration.

The Bank offers several financial support mechanisms to Brazilian companies of all sizes as well as public

¹ <http://www.bdc.ca/EN/about/who-we-are/Pages/default.aspx>

administration entities, enabling investments in all economic sectors. In any supported undertaking, from the analysis phase up to the monitoring, the BNDES emphasizes three factors it considers strategic: innovation, local development and socio-environmental development.

With its extensive knowledge, stemming from its vast experience allied with the technical capacity of its workforce, the BNDES is an important partner for investors to be able to understand and access opportunities offered by the Brazilian economy.



Bpifrance

Bpifrance helps companies to see greater and further and bring out the champions of tomorrow. From start-up to stock exchange listing and credit to equity, Bpifrance offers funding solutions for every stage of your business life in your area:

- Business support in their first investment needs: start-up, guarantee, innovation;
- Support the growth of SMEs throughout France: venture capital and development, "build-up", financing, guarantees;
- Strengthen mid-sized companies in their development and internationalization: development capital and transmission, co-financing, export credit support;
- Participate in the outreach of large enterprises and stabilization of their capital: capital transfer, export credit financing, accompaniment.

Strategic actions Bpifrance

- Accompany the growth of SMEs
- Prepare for future competitiveness
- Contribute to the development of a favorable ecosystem to entrepreneurs

Bpifrance works in partnership with private actors in financing such investments. It acts as a catalyst and causes a ripple effect to strengthen the investment capacity of businesses throughout their life cycle. As a tool for economic competitiveness, it is in support of public policies pursued by the State and the Regions.

Bpifrance plays a key role in the revitalization of territories and invests in the development of growth sectors such as environmental technologies, biotechnology and digital, but also in all industrial and service sectors.

Bpifrance also funds the development of the social economy and social innovation as well as tools dedicated to the financing of business projects that address social or societal needs.

With Bpifrance, companies benefit from an engaged intermediary, closer and more effective to meet all their financial needs, innovation and investment.

Main role of Bpifrance

- Funding for short, medium and long-term partnership with banks
- Guarantee of financial assistance
- Financing innovation
- Investments in equity
- Financing needs of companies for export²

China Development Bank (CDB)



China Development Bank (CDB) provides medium- to long-term financing facilities that assist in the development of a robust economy and a healthy, prosperous community. It aligns its business focus with national economic strategy and allocates resources to break through bottlenecks in China's economic and social development.

² <http://www.bpifrance.fr/Bpifrance/Notre-mission>

CDB carries out its mission by:

- Financing
- Supporting the development of national infrastructure, basic industry, key emerging sectors, and national priority projects;
- Promoting coordinated regional development and urbanization by financing low-income housing, small business, agricultural/rural investment, education, healthcare, and environment initiatives;
- Facilitating China's cross-border investment and global business cooperation.

CDB is committed to market-based practices that stimulate solid performance, innovation and sustainable growth.³



FINNVERA (Finland)

Finnvera is a specialised financing company owned by the State of Finland. It provides its clients with loans, guarantees, venture capital investments and export credit guarantees. Finnvera is the official Export Credit Agency (ECA) of Finland.

Finnvera provides financing for the start, growth and internationalisation of enterprises and guarantees against risks arising from exports. Finnvera strengthens the operating potential and competitiveness of Finnish enterprises by offering loans, domestic guarantees, venture capital investments, export credit guarantees and other services associated with the financing of exports. The risks included in financing are shared between Finnvera and other providers of financing.

Finnvera is a specialised financing company owned by the State of Finland and it is the official Export Credit Agency (ECA) of Finland.⁴



Nacional Financiera (NAFINSA) - Mexico

Nacional Financiera is a Development Banking Institution that operates in accordance with the rules of its own Organic Law, in accordance with the Law of Credit Institutions, and the rules issued by the National Banking Securities (NBSC).

The objectives of Nafinsa are to promote the overall development and modernization of the industrial sector with a regional approach; stimulate the development of financial markets and act as financial agent of the Federal Government in the negotiation, contracting and management of credits from abroad.

Nafinsa carries out its operations in accordance with financing criteria applicable to development banks, channeling its funds mainly through commercial banks and non-banking financial intermediaries. The principal sources of Nafinsa's resources are loans from international development institutions such as the International Bank for Reconstruction and Development (IBRD) and the Inter-American Development Bank (IDB), lines of credit from foreign banks and the placement of securities in the international and domestic markets.⁵



Small Industries Development Bank of India (SIDBI)

History

Small Industries Development Bank of India (SIDBI), set up on April 2, 1990 under an Act of Indian Parliament, is the Principal Financial Institution for the Promotion, Financing and Development of the Micro, Small and Medium Enterprise (MSME) sector and for Co-ordination of the functions of the institutions engaged in similar activities.

³ <http://www.cdb.com.cn/English/Column.asp?ColumnId=99>

⁴ <https://www.finnvera.fi/eng/Finnvera>

⁵ <http://www.nafin.com/portalnf/content/otros/english.html>

Provision of Charter

SIDBI was established on April 2, 1990. The Charter establishing it, The Small Industries Development Bank of India Act, 1989 envisaged SIDBI to be "the principal financial institution for the promotion, financing and development of industry in the small scale sector and to co-ordinate the functions of the institutions engaged in the promotion and financing or developing industry in the small scale sector and for matters connected therewith or incidental thereto.

Business Domain of SIDBI

The business domain of SIDBI consists of Micro, Small and Medium Enterprises (MSMEs), which contribute significantly to the national economy in terms of production, employment and exports. MSME sector is an important pillar of Indian economy as it contributes greatly to the growth of Indian economy with a vast network of around 3 crore units, creating employment of about 7 crore, manufacturing more than 6,000 products, contributing about 45% to manufacturing output and about 40% of exports, directly and indirectly. In addition, SIDBI's assistance also flows to the service sector including transport, health care, tourism sectors etc.⁶

Vnesheconombank (VEB) - Russia



State Corporation "Bank for Development and Foreign Economic Affairs (Vnesheconombank)" operates to enhance competitiveness of the Russian economy, diversify it and stimulate investment activity.

Vnesheconombank is not a commercial bank, its activity is governed by special Law № 82-FZ which came into force on June 4, 2007.

VEB does not compete with commercial credit institutions and participates only in those projects that cannot receive funding from private investors. Under the Memorandum on Financial Policies, Vnesheconombank is to extend credits, guarantees and sureties under projects a payback period of which does not exceed 5 years and a total value is more than 2 billion rubles.

At present, Vnesheconombank Group* has been set up, it is comprised of VEB's subsidiary institutions whose activities are designed to implement various provisions of the Law "On the Bank for Development".

*This definition does not have a legal status and is not in line with the definition "the banking group" or "financial industrial group" in accordance with the Russian laws.⁷

⁶ <http://www.sidbi.com/?q=about-sidbi>

⁷ <http://www.veb.ru/en/about/today/>

MEMBERS OF THE GREEN FINANCING KEY TOPIC GROUP



Ajay Kumar Kapur, Deputy Managing Director
Small Industries Development Bank of India (SIDBI)

Ajay, 54 years, is a graduate in Industrial Engineering from IIT, Roorkee. He is currently the Deputy Managing Director of the Small Industries Development Bank of India (SIDBI). SIDBI is the apex financial institution in India for promotion, financing & development of Micro, Small & Medium Enterprises sector and coordinating the functions of similar institutions serving the sector.

Mr. Kapur started his career in 1980 as an Industrial Engineer. He switched to development financing in 1985 by joining Industrial Development Bank of India (IDBI), then a public sector financial institution, where he was involved in project financing in engineering, textiles, hospitality and other industries.

He has been working with SIDBI in various capacities since its establishment in 1990 in diverse areas such as SME credit, receivable finance, business process reengineering, HR, sustainable financing, etc. He also served as Chief Executive Officer of SIDBI Venture Capital (SVCL) from 2004 to 2009. Established in 1999 to manage ` 1 billion (USD 20 million) National Fund for Software & IT (NFSIT) with funds contributed by SIDBI, IDBI and Ministry of IT & Communications. SVCL raised its second fund – SME Growth Fund – with contributions from leading Indian banks with a corpus of ` 5 billion (USD 100 million). Under him SIDBI Venture established itself as leading VC / PE investor in the MSME space with many leading international investors making their entry into India picking SIDBI Venture investee companies for follow on funding. Most recently, he served as the Chief General Manager, International Consultancy Vertical(ICV) where he headed the International co-operation function in SIDBI before assuming his current role.



Felipe Calderon, Team Lead, Underwriting
Business Development Bank of Canada (BDC)

Felipe Calderon joined the Business Development Bank of Canada in 1994 and has held a variety of field and leadership positions. His extensive banking experience also includes syndicated lending and trade financing in the Philippines and Hong Kong.

Felipe is a Certified Management Accountant and holds a BSc in Agribusiness Management from the University of the Philippines and an MSc in International Banking and Financial Studies from Heriot-Watt University, Scotland. He obtained his PhD in Management from the University of St. Gallen, Switzerland. His dissertation topic was on the performance measurement and governance of sustainable lending. He is co-author of a research paper entitled "Dilemma of Sustainable Lending," published by the Journal of Sustainable Finance and Investment in April 2014. He is also concurrently an Adjunct Lecturer in Finance at the Vancouver campus of USA-based Fairleigh Dickinson University.



Evgeny Tcherbakov, Deputy Head of Government Programs Division, Department for SME Support
Vnesheconombank (VEB)

Evgeny graduated from Lomonosov Moscow State University (as Ecologist) in 1995, in 1999 - the Russian Foreign Trade Academy of the Ministry for Economic Development of the Russian Federation (as Economist).

In 1995-1997 worked for the Federal State Statistics Service, in 1999-2000 - the Central Bank of the Russian Federation, in 2005-2006 - the State Corporation Deposit Insurance Agency.

Since 2006 works for Vnesheconombank. As Deputy Head of Government programmes Division of the Department for SME support is responsible for development and realization of programmes for SME finance.

Expert of OECD Working Party on SMEs and Entrepreneurship.



Rodrigo Keller, Business Manager, International Division
Banco Nacional de Desenvolvimento Economico e Social (BNDES)

Rodrigo has been working at BNDES as a Business Manager since 2009 and holds a Master's Degree (M.Sc.) in Business Management with a specific focus on strategy and marketing.

During his career with the bank, he has already been a part of the President's Office Staff being involved in activities related to promoting, organizing and coordinating BNDES' participation in general events to disseminate the bank's programs and actions. During this period, he also had the opportunity to get engaged in the guidance of prospective BNDES customers about which financial products in the Bank's portfolio best suit their business needs.

As a member of the International Division team, he is now taking part in institutional relationship activities, between BNDES and other multilateral organizations, international agencies and government financial entities.

Rodrigo has a diverse experience of public and private sectors and began his career as a business management consultant, working on large global companies projects in several segments such as: oil & gas, mining and commercial services.



Jyrki Isotalo, Finance Manager
FINNVERA

Jyrki has about 20 years of experience of financing SMEs and biotech companies. He has worked in marketing and sale positions in the companies operating in biotech and since 2000 within Finnvera. He is currently specialized to finance for the clients operating in renewable energy business area in Finnvera. He is founding member of the Renewable Energy Team of Finnvera.

Jyrki holds a M. Sc. (Agricultural Economics) degree from University of Helsinki.



Ivan Cornejo, Project Manager
Nacional Financiera Banca de Desarrollo (NAFINS)

Ivan Cornejo is Manager of Projects Financed by International Financial Institutions at NAFIN. He joined the Institution in 2008, and has worked at the Direction of International Financial Institutions since 2010. Ivan is currently in charge of implementing priority programmes and projects that are in line with NAFIN's mission, as well as identifying technical assistance needs that allow the exchange and adoption of international best practices among development banks. He has experience in negotiating long-term credit lines with international institutions, and his work on the past years has been mainly focused on funding for renewable energy, energy efficiency, cogeneration and geothermal energy programmes. Ivan is also working on NAFIN's accreditation process as National Implementing Entity of the Green Climate Fund.

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