

# THE ROLE OF MULTILATERAL DEVELOPMENT BANKS IN GREEN FINANCE

*An analysis of their current practice & recommendations  
for future engagement, based on multilateral develop-  
ment bank characteristics and green finance challenges*

2018



## The International Institute of Green Finance (IIGF)

The IIGF is an independent and non-profit think tank established in China in September 2016. It conducts research on green finance on a wide array of topics such as credit, bonds, funds, insurance, carbon-trading, local pilots, international cooperation, ESG rating, as well as risk assessment. The IIGF is specialized in Chinese green finance at national and local level and additionally conducts research on green finance internationally.

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## Abbreviations

AAAA	Addis Ababa Action Agenda
ADB	Asian Development Bank
AfDB	African Development Bank
AIIB	Asian Infrastructure Investment Bank
BRICS	Brazil, Russia, India, China, South Africa
CAB	Climate Awareness Bond
CIF	Climate Investment Funds
COP	Conference of the Parties
CPI	Climate Policy Initiative
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EU	European Union
FSB-TCFD	Financial Stability Board's Taskforce on Climate-related Financial Disclosure
GCF	Green Climate Fund
GCoM	Global Covenant for Mayors for Climate and Energy
GEF	Global Environment Facility
GFCF	Green Finance Catalyzing Facility
I4CE	Institute for Climate Economics
IaDB	Inter-American Development Bank
IBRD	International Bank for Reconstruction and Development
IDFC	International Development Finance Club
IFC	International Finance Corporation (WBG)
IIGF	International Institute of Green Finance
IMF	International Monetary Fund
IsDB	Islamic Development bank
KfW	Kreditanstalt für Wiederaufbau
MDB	Multilateral Development Bank
NDB	New Development Bank
NDC	Nationally Determined Contribution
OECD	Organization for Economic Cooperation and Development
PPP	Public-private partnership
REDD+	Reducing Emissions from De-forestation and Forest-Degradation
SDGs	Sustainable Development Goals
SECCI	Sustainable Energy and Climate Change Initiative
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WBG	World Bank Group
WEF	World Economic Forum
WRI	World Resources Institute

## Preface

Green finance can be understood as financing towards environmental purposes, within the broader context of sustainable development. These benefits include both climate change mitigation and adaptation, as well as pollution control and environmental preservation. It is estimated that the green finance industry will require tens of trillions of dollars in investments in the coming decades, to meet global environmental ambitions.

As momentum is growing in mainstreaming green finance into the architecture and practice of financial and capital markets, progress is being made in areas of policy, regulations, standards, guidelines, principles, and fiscal incentives. The current challenge is to take the groundwork that has been laid and turn it into real and significant flows of private and public capital to investments that both support sustainable development objectives and bring secure long-term prospects for investors. This paper aims to provide a piece to this puzzle regarding the role of Multinational Development Banks (MDBs). The purpose of this paper is to assist MDBs in developing their role and potential in green finance, by providing an understanding of MDB characteristics and how these can be used to address challenges associated with scaling up green finance.

This research on MDBs in green finance is a strategic research priority of the International Institute of Green Finance. The paper gathers input from a wide range of sources such as a selection of MDBs themselves, governments, research institutions, and financial institutions. This ensures that the paper is rooted deeply in current practice and discussions on the topic, ultimately improving the practical applicability of the recommendations put forward. Based on the overarching understanding of the role of MDBs in green finance laid out in this paper, the IIGF will carry out MDB focused research in narrower topics such as in the Belt & Road Initiative, in green bond development, and local green finance development.

The target audience of this paper can be categorized into four different groups. First, the paper aims to provide valuable information to MDBs themselves, which can be turned into concrete actions. Second, the paper aims to assist stakeholders working with MDBs in understanding the role of MDBs in their respective fields. Third, the paper aims to contribute to the academic understanding of MDBs, inspiring further research on the topic. Lastly, in shining light on this specific aspect of green finance, the paper aims to incite further research in numerous other aspects of green finance by related stakeholders.

## Executive Summary

Multilateral development banks (MDBs) are encouraged by the UN to examine their role to increase their contribution within sustainable development. Given their mandate, size, and influence MDBs play a critical role in reaching the Sustainable Development Goals (SDGs), including on environmental aspects. This outset highlights the relevance of this research paper, which uses the lens of an objective third party to carry out such an examination of MDBs, as called for by the UN, within the specific field of green finance. As such, the purpose of the paper is to analyze how MDBs can use their characteristics to address the challenges associated with scaling up green finance. While much literature exists on the surrounding fields, limited research has been done within this specific area.

As basis for the analysis the paper identifies five characteristics of MDBs, as based on Addis Ababa Action Agenda from the third United Nations International Conference on Financing for Development. These are: 1) Long-term & stable, 2) counter-cyclical, 3) concessional, 4) know-how and technical assistance, 5) private capital mobilization. Furthermore, the paper develops four main categories of challenges associated with scaling up green finance by combining a broad variety of relevant literature, namely: 1) institutional environment, 2) project financiers, 3) project owners, 4) financial markets. This methodology takes a comprehensive approach to both MDB characteristics and green finance challenges, rather than being centered around specific aspects of each through a narrower scope.

In climate financing alone, in 2016 all MDBs together provided over \$27bn, of which 77% were labelled as mitigation and 23% as adaptation<sup>1</sup>. In the 2013-2015 period MDB climate finance amounted to over one third of developed countries climate financing support to developing countries, working to fulfil the 2020 promise of \$100bn under the UNFCCC<sup>2</sup>. Based on their commitments, MDBs will provide 40% of global developed to developing country climate flows by 2020<sup>3</sup>. While the cumulative numbers are large, it is critical to view these as a proportion of total MDB financing, as well as consider the greenness of MDBs non-climate and non-green portfolio. It is further important to consider the overall greenness of MDBs portfolios. Comparing MDBs current portfolios with a 2-degree warming scenario, the WRI concludes that 17% of financing is aligned with a 2-degree pathway, 57% is conditional, 22% is controversial, and 3% are misaligned<sup>4</sup>. This provides an indication that MDBs need to change business-as-usual to be aligned with green policy objectives.

In analyzing MDBs current role in green finance, the paper finds that MDBs are 1) increasing prioritizing green and climate issues in mandating and strategic documents, 2) have substantial differences in their approach and definition of green, 3) their combined efforts address most of the challenges to green finance, but at varying extent and by different means, 4) have degrees of overlap between financing solutions, potentially leading to duplication and less efficient use of resources, 5) while applying similar finance mechanisms, do not agree on the value and necessity of using green bonds to raise capital.

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1 MDB Joint Report (2016). *Joint Report on Multilateral Development Banks Climate Finance*

2 OECD & CPI (2015). *Climate Finance in 2013-14 and the USD 100 billion goal*. Paris, France: OECD

3 OECD (2017). *Investing in Climate. Investing in Growth*. Paris, France: OECD

4 WRI (2017). *Financing the Energy Transition: Are World Bank, IFC, And ADB Energy Supply Investments Supporting A Low-Carbon Future?*. Washington DC, USA: WRI

## Comparison of MDBs Engagement in Green Finance

MDB	Respective definition of “green” or “green finance”	All current green / climate financing & 2020 target	Green bond issuance: First year Nr. of times Total volume	Green Bond Use of Proceeds categories
<b>African Development Bank Group (AfDB)</b>	Green growth priorities: Resilience to climate shocks, sustainable infrastructure, ecosystem services, and efficient and sustainable use of natural resources	Climate: Today: \$1bn 9% 2020: 40%	2013 Seven rounds \$3.5bn	Low- carbon development or climate- resilient development
<b>Asian Development Bank (ADB)</b>	Green within sustainable infrastructure, natural capital investment, environmental governance and management, as well as climate change as a stand-alone and crosscutting issue	Climate: Today: \$3.7bn, 11,7% 2020: 30%	2015 Three rounds \$3.05bn	Climate change mitigation and adaptation
<b>Asian Infrastructure Investment Bank (AIIB)</b>	Financing infrastructure that is environmentally friendly and socially sustainable, and it will support members in their transition towards a low-carbon energy mix	No accumulative official numbers. Numerous projects within green definition.	N / A	N / A
<b>European Bank for Reconstruction and Development (EBRD)</b>	Climate change mitigation and adaptation, sustainable use of resources, protection of natural assets, and rehabilitation of environmental damage	Green: Today \$5.1bn, 43% 2020: 40%	2010 62 individual bonds \$2.9bn	Climate and sustainable resource usage
<b>European Investment Bank (EIB)</b>	Climate change mitigation and adaptation, transport, environment protection, biodiversity, de-pollution, water, circular economy and waste management, disaster risk, energy production and use.	Climate: Today, \$22.3bn, 26% 2020: 25%	2007 30 rounds \$22,3bn	Renewable energy and energy efficiency
<b>Inter-American Development Bank (IaDB)</b>	Climate change mitigation and adaptation, sustainable infrastructure, sustainable urbanization, as well as natural capital	Climate Today: \$2.6bn, 22% 2020: 30%	N/A	N/A
<b>Islamic Development Bank (IDB)</b>	N/A	N/A	N/A	N/A
<b>New Development Bank (NDB)</b>	Infrastructure and non-infrastructure aligned with the Green Bond Principles	Green: Today: \$2,3bn, 68% Future: 60% renewable energy	2016 One round \$441mn	Green Bond Principles & PBOC Catalogue
<b>World Bank Group (WB)</b>	Climate change mitigation, climate change adaptation, sustainable natural resource management (including oceans, lands, and forests), and clean development (soil, water, air)	Climate: Today: \$10.4bn, 17% 2020: 28%	2008 135 transactions \$10.2bn	Climate change mitigation and adaptation

## Recommendations for MDBs to improve engagement in green finance

### ○ **Prioritization of Private Capital Mobilization**

MDBs can play a critical role in mobilizing the private capital required to finance environmental sustainability. It is acknowledged that the private sector will provide the main proportion of financing for sustainable development and that MDBs historically have one of the highest capital leveraging abilities. According to the MDB's From Billions to Trillions report mobilization rates of MDBs are often between \$2-5<sup>5</sup>, which is substantially higher than estimates of other sources such as North to South climate financing<sup>6</sup>. While some MDBs do so already, this paper recommends MDBs to prioritize capital mobilization as basis for all operations.

### ○ **Promotion and Development of Green Standards**

Given their authority in development finance, joint MDB action on green standard setting can be influential in setting global standards for all stakeholders. In order to be able to compare definitions of green finance by different stakeholders, MDBs can use their authority in developing consensus-based standards such as with the MDB-IDFC Common Principles for Climate Mitigation Finance Tracking<sup>7</sup>. Such standards can be used both at project level or as green bonds, green credit, green insurance, as well as in organizations' green finance reporting.

### ○ **Extend Individual and Joint MDB Green Finance Reporting**

Transparent and comparable individual and joint reporting by MDBs on green finance would clarify their cumulative role. Today, MDBs jointly report on their climate financing, but not on green financing. On the contrary, the International Development Finance Club (IDFC) reports specifically on their members' green financing<sup>8</sup>. Using a similar methodology to their current joint climate finance reporting, MDBs can apply the same scope as the IDFC, disclosing both climate and green financing separately in the same report. With momentum developing for expanding climate reporting through the Financial Stability Board's Task Force on Climate Related Financial Disclosure, MDBs can develop reporting from being climate focused to include more green factors<sup>9</sup>.

### ○ **Implement Internal Carbon Pricing**

Since external carbon pricing is not applied in all countries, MDBs can use internal carbon pricing to increasingly internalize externalities and mitigate physical and transition risks in project financing. Depending on the method of internal carbon pricing this can directly impact project bankability or at the minimum provide a basis for discussing the carbon footprint of each project. To be compatible with the Paris Agreement, the Carbon Pricing Leadership Coalition suggests a \$40-\$80 range by 2020<sup>10</sup>. While internal carbon pricing can provide a direct cost incentive in project evaluation, it can also be used in tandem with improved environmental risk assessment methodologies to comprehensively capture environmental factors on both the project cost and project risk side.

### ○ **Focus on Targeted Rather Than Broad Concessional Support**

While MDBs' concessional financing can incentivize financing towards certain policy objectives, such support may have adverse market distorting effects. This report

5 MDBs (2015). *From Billions to Trillions: MDB Contributions to Financing for Development*

6 OECD & CPI (2015). *Climate Finance in 2013-14 and the USD 100 billion goal*. Paris, France: OECD

7 MDB-IDFC (2015). *Common Principles for Climate Mitigation Finance Tracking*

8 IDFC (2016). *IDFC Green Finance Mapping Report 2016*

9 FSB-TCFD (2017). *Recommendations of the Task Force on Climate-related Financial Disclosures*. Basel, Switzerland: FB

10 Carbon Pricing Leadership Coalition (2017). *Report of the High-Level Commission on Carbon Prices*.

suggests that within green finance, MDBs carefully target their concessional support rather than provide broad subsidies, along the guidelines of the Development Finance Institutions' recommendations<sup>11</sup>. In many aspects of green finance there is a clear business case, suggesting that rather than long term concessional financing, stakeholders need short-term concessional interest or tenor as well as technical assistance from MDBs.

- **Enhance Environmental Risk Assessment**

Despite the financial experience of MDBs, the rapidly changing environmental circumstances presents challenges to current methodologies of risk assessments. In addition to classical project internal financial properties and external risk factors, MDBs have to use new methods for including physical climate risks and transitional environment-related risks as highlighted by the 2017 G20 Green Finance Study Group<sup>12</sup> and the Financial Stability Board's Task Force on Climate Related Financial Disclosure<sup>13</sup>. Such methodologies should adequately include asset-level data, impact measurement, potential scenarios, management implications, and other case-specific variables.

- **Expand MDB Cooperation for Economies of Scale**

MDBs can increase the efficiency of their green financing by merging together a number of financing solutions across MDBs. While MDB competition on policy advice, pricing, and financing modalities can be healthy it can also lead to a suboptimal outcome for the development finance system<sup>14</sup>. While it is critical for financing solutions to be tailored to local environments, the paper identifies a number of overlapping financing solutions. The fundamental argument for this recommendation is that if enough characteristics of MDBs financing solutions overlap, increased efficiency can be achieved through economies of scale. This is ultimately towards the fulfillment of the 'partnership' principles of the Busan Partnership for Effective Development Co-operation<sup>15</sup>.

- **Extend Reapplication of Non-Green Financial Solutions as Green**

A number of non-green financial solutions have potential to be modified or replicated to be green. As MDBs are increasingly emphasizing financing for climate and other green areas, existing successful financing solutions targeted at other priorities can in some cases be effectively revised to include green finance. Such an update on policy and practice towards the post-2015 development agenda is directly encouraged by the Addis Ababa Action Agenda<sup>16</sup>. Each MDB can analyze their respective financing solutions, to identify their respective low-hanging fruits for scaling up green financing towards their goals.

As MDBs across the board are scaling up green financing, an effective and efficient approach to this effort is critical. This paper has found that MDBs can benefit from greater coordination of their approaches, methodologies, and practice, while maintaining their individual unique features required by their local environment. Through the above recommendations, MDBs can work towards realizing their potential and expectation to providing a critical piece in the puzzle for meeting the global green financing need.

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11 Development Finance Institutions (2017). *DFI Working Group on Blended Concessional Finance for Private Sector Projects*.

12 G20 Hamburg (2017). *G20 Green Finance Synthesis Report 2017*. Hamburg, Germany: G20

13 FSB-TCFD (2017). *Recommendations of the Task Force on Climate-related Financial Disclosures*. Basel, Switzerland: FB

14 Brookings (2018). *The New Global Agenda and the Future of the Multilateral Development Banking System*. Washington DC, USD: Brookings Institution

15 OECD (2011). *The Busan Partnership for Effective Development Co-operation*. Retrieved from: <http://www.oecd.org/development/effectiveness/busanpartnership.htm>

16 Addis Ababa Action Agenda (2015). *Addis Ababa Action Agenda (AAAA) of the Third International Conference on Financing for Development*. Addis Ababa, Ethiopia: United Nations.

## I. Introduction

“We encourage the multilateral development finance institutions to establish a process to examine their own role, scale and functioning to enable them to adapt and be fully responsive to the sustainable development agenda.” Addis Ababa Action Agenda (2015) of the Third International Conference on Financing for Development, United Nations (2015)<sup>17</sup>.

MDBs are encouraged by the UN to examine their role in reaching the Sustainable Development Goals. As such, given their mandate, size, and influence MDBs play a critical role in the reaching the SDGs, including on environmental aspects. This outset highlights the relevance of this research paper, which uses the lens of a neutral third party to carry out such an examination of MDBs, as called for by the United Nations (UN), within the specific field of green finance. As such, the purpose of the paper is to analyze how MDBs can use their characteristics to address the challenges associated with scaling up green finance. While much literature exists on the surrounding fields, limited research has been done within this specific area.

In the global economy, capital naturally flows to where return is the highest. Simply put, the unmet need for green financing is therefore a sign of a lower return on investment from a combination of actual and/or perceived lower revenues and higher costs – as based on numerous factors inside such calculations. This situation has led to the current shortage of green finance. With total infrastructure investment needed to support global growth amounting to \$5tn a year, an additional \$700bn has to be added to ensure environmental sustainability<sup>18</sup>. Consequently, this report analyzes how MDBs can contribute to achieving the \$700bn need for green finance. Fundamentally, green finance can be incentivized from three directions, ultimately making green investments more profitable than the alternative. This includes mechanism both inside financial markets and in the economy as a whole:

- 1) Increasing profitability of green finance: Examples include feed-in tariffs, green product subsidies, tax reductions, and concessional terms for project financing. MDBs can provide the latter within sustainable development in general, and green finance in particular.
- 2) Decreasing profitability of brown finance: Examples, include hard regulations on pollutants, carbon pricing as tax or tradable credits, emission pricing for pollutants in air, water, & soil, as well as fines for environmental spills and other ways of internalizing negative environmental externalities<sup>19</sup>. These are traditionally outside the mandates of MDBs.
- 3) Reducing transaction costs associated with green finance: Examples include availability of green financial tools such as loans, bonds, equity, collateral debt obligations, insurance, public-private partnerships (PPPs), guarantees and more. It further includes an efficient green financial system regarding standards, processes, regulations, information disclosure. Lastly, it includes the understanding and expertise of financial stakeholders. MDBs have historically been active in most of these areas.

It is clear that through their characteristics, MDBs can play an important role in green finance through these three mechanisms. MDBs bridge the gap from public to private by directing

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<sup>17</sup> Addis Ababa Action Agenda (2015). *Addis Ababa Action Agenda (AAAA) of the Third International Conference on Financing for Development*. Addis Ababa, Ethiopia: United Nations

<sup>18</sup> WEF (2013). *Green Investment Report*. Geneva, Switzerland: WEF

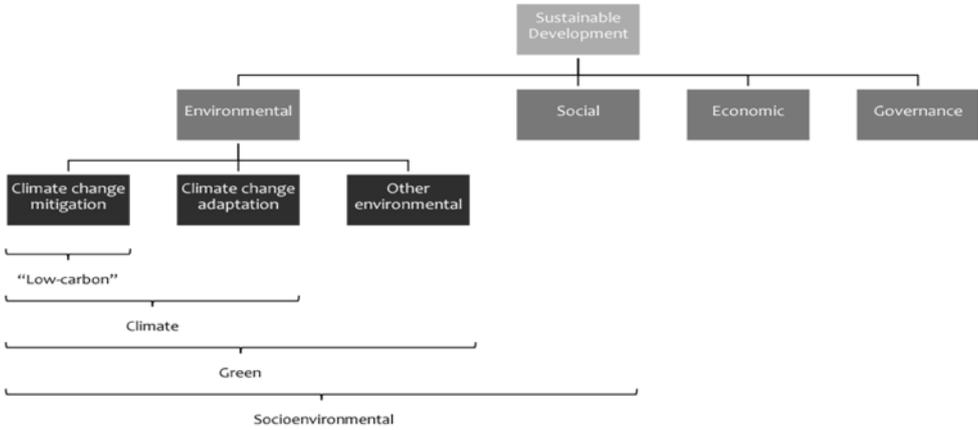
<sup>19</sup> IRENA (2016). *The True Cost of Fossil Fuels*. Abu Dhabi, UEA: IRENA

for-profit driven financial markets towards policy objectives<sup>20</sup>. Through their characteristics, they can incentivize and demonstrate the feasibility of certain methods, sectors, or geographies, that other investors may not otherwise be inclined towards. Working towards policy objectives, MDBs have increased their involvement in green finance both by scaling up climate investments and by integrating environmental issues into their general financing requirements as a cross-cutting issue. In climate financing alone, in 2016 all MDBs together provided over \$27bn, of which 77% were labelled as mitigation and 23% as adaptation<sup>21</sup>.

To increase these efforts the G20 Leaders Statement in Hamburg calls for MDBs to enhance climate activities<sup>22</sup>. Furthermore, MDBs issued a joint statement at the One Planet summit in Paris in December 2017, promising to align their financial flows with the Paris Agreement<sup>23</sup>. As a rough estimate of the current performance towards this target, the World Resources Institute has analyzed the financing by the World Bank (WB), International Finance Corporation (IFC), and Asian Development Bank (ADB) (accounting for 1/3 of MDB financing). They conclude that 17% of financing is aligned with a 2-degree pathway, 57% is conditional, 22% is controversial, and 3% are misaligned<sup>24</sup>. Despite the study’s narrow coverage, it provides an indication that MDBs need to change business-as-usual to be aligned with green policy objectives.

Since there exists no definition of ‘green’, while MDBs provide financing that could be labelled ‘green’ it is difficult to accurately calculate such contributions. For the purpose of this paper, ‘green’ is defined as including climate change mitigation and adaptation as well as ‘other environmental’ issues as shown in figure 1 below. While different definitions exist, there is a general consensus that ‘green’ is centered around 1) clean energy, 2) energy efficiency, 3) clean transport methods, 4) pollution, waste, & water, 5) sustainable land use, and 6) low-carbon infrastructure.

**Figure 1. Categories within sustainable development**



Source: UNEP Inquiry (2016). *Inquiry Working Paper 16.13*. Geneva: UNEP, p. 11

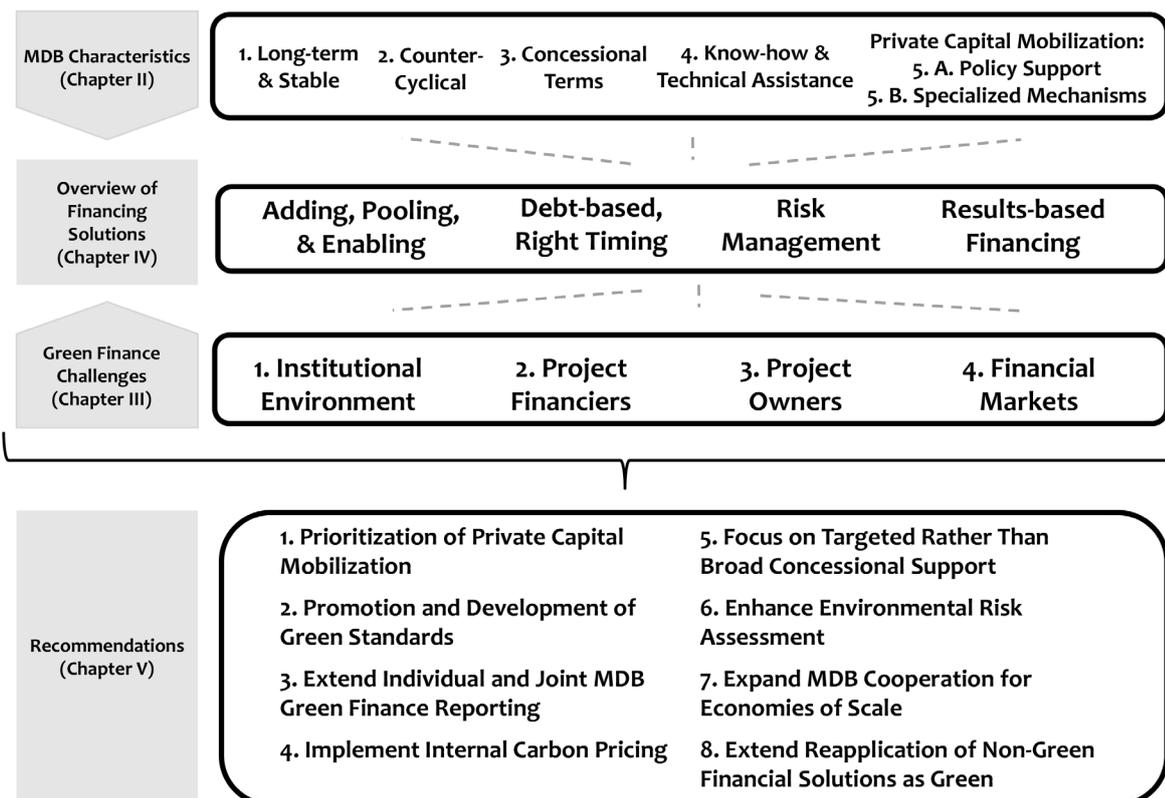
The line of argument of the paper is based on 5 chapters. Following the 1st introductory chapter, chapter 2 provides a general, non-green finance specific overview of the characteristics of MDBs and their advantages, inside and outside green finance, as highlighted in a number of UN and MDB conferences and papers. The 3rd chapter presents the general, non-MDB centered current challenges and limitations associated with scaling up green finance, summarizing existing analysis from academic and grey literature. Based on this, the analysis of chapter 4 & 5

20 MDBs (2015). *From Billions to Trillions: MDB Contributions to Financing for Development*  
 21 MDBs (2016). *Joint Report on Multilateral Development Banks Climate Finance*  
 22 G20 (2017). *G20 Leaders Statement ‘Shaping an interconnected world’*. Hamburg, Germany: G20  
 23 MDBs (2017). *Joint Statement by the Multilateral Development Banks at Paris, COP21*. Paris, France: MDBs  
 24 WRI (2017). *Financing the Energy Transition: Are World Bank, IFC, And ADB Energy Supply Investments Supporting A Low-Carbon Future?* Washington DC, USA: WRI



brings the prior two chapters together in analyzing how the identified characteristics of MDBs can be used specifically to overcome the challenges for developing green finance. This is done first in chapter 4 by approaching four types of financial solutions of MDBs individually, identifying concrete current cases and reframing these directly to the characteristics of MDBs and challenges of green finance as identified in the previous chapters. This analysis allows chapter 5 to provide tangible recommendations on how MDB characteristics can be used in addressing the challenges looking forward, and where MDBs cannot adequately address the challenges. This structure is visualized in figure 2 below.

**Figure 2. Visualization of structure of paper.**



Source: Authors

This methodology applies a comprehensive approach to both the MDB characteristics and the green finance challenges, at the cost of a higher level of details on specific aspects of each through a narrower scope. To ensure the practical applicability of the paper’s conclusions, the analysis is rooted in concrete examples of MDB projects and initiatives, combining a top-down approach of using general financial and MDB concepts, with a bottom-up use of cases of MDBs and financing solutions.

## II. Characteristics of MDBs

Following Monterrey, Mexico, 2002, and Doha, Qatar, 2008, the third United Nations International Conference on Financing for Development was held in Addis Ababa, Ethiopia in 2015. This event brought together a wide array of stakeholders to discuss how to finance the SDGs, which were being settled around the same time in a parallel process. Participants at the event included more than 50 heads of state and 200 ministers, UN and other intergovernmental institutions such as the WTO, prominent businesses, civil society organizations and other stakeholders. The outcome of the document was the Addis Ababa Action Agenda (AAAA). As a product of this process, the AAAA provides the most applicable reference point for understanding financing for development, and this is the reason this paper uses it as baseline for understanding the characteristics of MDBs.

In contributing to sustainable development, the AAAA highlights five primary characteristics of MDBs<sup>25</sup>, namely 1) long-term & stable, 2) counter-cyclical, 3) concessional terms, 4) know-how & technical assistance, 5) as well as private capital mobilization. The 5<sup>th</sup> characteristic differs from the above four as it is a *result* of MDB project involvement, rather than a characteristic of the type of involvement. However, as the AAAA represents the UN members official consensus of the role of MDBs, this paper applies this framework of characteristics as a basis of its analysis. Private capital mobilization is consequently considered as constituting financial policy support and financial mechanisms, while being closely related to the other four characteristics. While the AAAA merely mentions the characteristic with limited details, the below paragraphs provide a clarifying description of each. To ensure that the five categories below provide an exhaustive coverage of MDB characteristics, the content of each category is a combination of literature from a wider range of sources.

### 1. Long-term & stable

From a development perspective, there is a clear advantage to the MDBs' more stable and long-term approach to financing, compared with other investors. As an illustrative example on equity investment, many investors today are seeking short-term profit, being fearful of unpredictable events and volatility, resulting in an average share holding time of 3-4 months, by some estimates<sup>26</sup>. In particular, long-term lending has seen a substantial decrease since the financial crisis<sup>27</sup>. This kind of investor behavior makes many economies increasingly vulnerable to disrupting events as they can have sudden and radical effects on financial markets and the economy as a whole. MDBs are in a unique position to provide long term financing possibilities under circumstances where no other financing available on such tenor<sup>28</sup>. In such a case, long-term and stable MDB financing reduces the vulnerability of projects to market fluctuations. While using a longer time horizon than many other investors, different estimates exist on the average MDB loan maturity and grace periods, usually putting them about 20-30 years.<sup>29,30,31</sup>

25 Addis Ababa Action Agenda (2015). *Addis Ababa Action Agenda (AAAA) of the Third International Conference on Financing for Development*. Addis Ababa, Ethiopia: United Nations

26 Forbes (2017). *Stock Market Becomes Short Attention Span Theatre of Trading*. Retrieved from: <https://www.forbes.com/sites/greatspeculations/2011/01/21/stock-market-becomes-short-attention-span-theater-of-trading/#1878478a703e>

27 Chelsky, J., Morel, C., & Kabir, M. (2013). Investment Financing in the Wake of the Crisis: The Role of Multilateral Development Banks. *Poverty Reduction and Economic Management (WB)*, 121

28 Development Finance Institutions (2017). *DFI Working Group on Blended Concessional Finance for Private Sector Projects*.

29 Buitier, W. & Fries, S. (2002). What Should the Multilateral Development Banks Do?. *EBRD Working Paper No. 74*

30 Overseas Development Institute (2015). *Multilateral Development Banks: A Short Guide*. London, UK: ODI

31 Carnegie Endowment for International Peace (2001). *The Role of the Multilateral Development Banks in Emerging Market Economies*. Washington DC, USA: Carnegie Endowment for International Peace

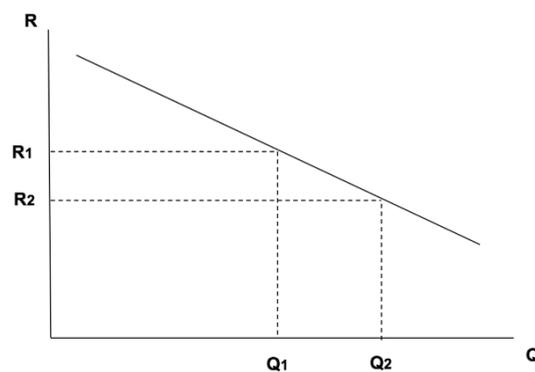
## 2. Counter-cyclical

In addition to being long-term and stable, MDB financing can take an active role in counter-cyclical lending. The reason MDBs are able to provide such counter-cyclical financing is that they are policy driven as intergovernmental institutions, rather than driven by bottom-line profits. Furthermore, their high credit rating allows them to raise funds cheaper on global financial markets than other financial institutions would have to do in local markets under disadvantageous circumstances<sup>32</sup>. In this sense, when other investors are withdrawing from a country, region, or sector, MDBs can counter-balance this trend by increasing their own engagements. Such financing can act as an important stabilizer under circumstances such as an economic downturn, capital flight, a currency crisis, or the like.

## 3. Concessional terms

Lending at lower interest rate or grace periods, alone or in combination, reduces the cost of debt for projects, and consequently makes more projects bankable than purely on market terms. As shown in figure 3 below, as MDBs concessional lending reduces the cost of debt through a lower interest rate, more projects become bankable, since projects with a lower return on investment are now bankable. Mechanisms include concessional terms on interest rates, grace periods, early stage financing, first-loss clauses. For example, a project with a 10% return on investment would not be bankable with a market-based cost of debt of 12% but is bankable with a concessional loan at 8%. Therefore, reducing the cost of debt from R1 to R2, increases the number of profitable projects from Q1 to Q2. The slope of the curve is a conservative estimate as potential projects are more numerous at lower profitability levels, suggest the shape may be convex.

**Figure 3. Relation between cost of debt (R) and bankable project quantity (Q)**



Source: Authors

In addition to lending at lower rates, MDBs can provide concessional terms on risk management instruments which enable private investments in the context of uncertainty. For example, by backing private equity, debt financing in more challenging environments can take place. Concessional terms can be provided through most financial mechanisms of MDBs such as various forms of project loans, syndicated loans, equity, mezzanine financing, lines of credit, and guarantees.

32 Commonwealth (2016). *Countercyclical Financial Instruments*. London, UK: Commonwealth

#### 4. **Know-how & technical assistance**

MDBs possess valuable expertise on development finance, often owing to their size and history, combined with their individual, regional, or sectorial priorities. As such, MDBs, seen as authorities in the field, are often initiating and participating in project research and development on a wide array of topics within development finance. Due to such authority, project owners are often enthusiastic in involving MDBs as this is considered a stamp of approval by stakeholders, as MDB involvement indicates that a project lives up to the requirements of MDB financing. Consequently, with an MDB involved in a project, the risk is perceived as lower, reducing the cost of debt. This is part of the role of MDBs as bridging the gap between project owners and investors.

Technical assistance is offered at both institutional and project level. Institutionally MDBs assist states and institutions in strengthening domestic capital markets. MDBs encourage development by helping governments put in place a number of necessary conditions for stable market economies, including policies that promote macroeconomic stability, laws that protect creditors and borrowers, local banking systems and capital markets, providing credit enhancement, structured finance, as well as tax structures<sup>33</sup>. By offering technical assistance on a macro level, MDBs facilitate a more favorable institutional and economic structure, that ultimately attracts private capital as project costs and risks are reduced. At a project level, technical assistance includes project structuring, risk-mitigation designs, and other advice improving the bankability of a project.

#### 5. **Private capital mobilization – policy support & specialized mechanisms**

This characteristic differs from the above four as it is a *result* of MDB project involvement, rather than a characteristic of the type of involvement. The underlying ability to mobilize private capital is, according to the MDBs joint assessment<sup>34</sup>, by providing financial policy support and using specific financial mechanisms in combination with the above-mentioned characteristics. For continued coherence with the five MDB characteristics of the AAAA, the paper applies the term private capital mobilization when referring to the two sub-components, despite private capital mobilization also being a product of the previous characteristics. Alternative categorizations of MDB characteristics label all mechanisms within private capital mobilization as an overarching category<sup>35</sup>, but ultimately the conclusions of taking either approach will remain similar.

Through *policy support* MDBs assist in financing projects prioritized by the national or local government. In many contexts, this reduces the risk from political and other uncertainties. Assisting the government in realizing such strategic projects attracts capital toward the projects, to other similar projects, as well as to the economy as a whole.

Furthermore, MDBs use a variety of *specialized mechanisms* to catalyze other investors. These include syndications and other pooled funding structures, risk absorbing financial mechanisms such as senior loans and guarantees incorporating pre-completion and early operational risk, subordinated loans and guarantees ranking ahead of shareholder subordinated debt, mezzanine finance including high-yield debt for SMEs, as well as project-related derivatives<sup>36</sup>. Another type of mechanism includes MDBs absorbing risk by financing an extensive feasibility study. Lastly, MDBs have limits on their maximum share of total project costs, such as the EIB on aver-

33 MDBs (2015). *From Billions to Trillions: MDB Contributions to Financing for Development*

34 MDBs (2015). *From Billions to Trillions: MDB Contributions to Financing for Development*

35 Buitier, W. & Fries, S. (2002). What Should the Multilateral Development Banks Do?. EBRD Working Paper No. 74

36 EIB (2017). *Blending: Structured Finance*. Luxembourg, Luxembourg: EIB

age financing 30% of a project<sup>37</sup> and the AIIB having a hard ceiling at 35%<sup>38</sup>.

The above methods allow MDBs to decrease the risk, increase the profitability, and improve the overall feasibility and success of a project. This not only encourages the private sector to engage in specific MDB joint projects, but also provides a ‘demonstration effect’ inciting owners and investors to engage in similar projects on their own afterwards. In total, the ability to catalyze private sector capital is critical since this source of financing has to be catalyzed to meet sustainable development goals<sup>39</sup>. MDBs, according to their own and others’ research, have the potential of catalyzing \$2-5 of private capital for each \$1 of their own spending<sup>40,41,42</sup>. In comparison, global developed to developing country climate financing has only catalyzed \$0,34 of private capital per \$1 of financing according to the OECD’s calculations<sup>43</sup>.

**Table 1. Summary of Characteristics of MDBs and their Advantages**

MDB Characteristic	Comparative advantage	Representative examples
1. Long-term and stable	MDBs make long term commitments to projects, providing stable investment at both project, sector, and geographic level.	Average MDB loan maturity of 20-30 years. The WB and ADB’s long term commitment to improving urban air quality in Asia through the Clean Air Initiative.
2. Counter-cyclical	Willingness to invest in strategic areas under circumstances where other investors are pulling back engagements.	MDBs statistically scaling up of climate financing in the wake of the global financial crisis, offsetting national budget cuts in many countries <sup>1</sup> .
3. Concessional terms	Ability to provide concessional terms in a variety forms including blended financing towards strategic areas.	The ADB’s Green Finance Catalyzing Facility or the laDBs green credit lines, aiming to increase the bankability of green projects.
4. Know-how and technical assistance	Large scale and long history of MDBs provide greater overarching expertise than other investors for both the specific project, and the country or region as a whole.	The EIB and WB played a catalytic role in promoting green bonds, through their legitimacy and ambitious engagements. The new IMF-WBG partnership on tax diagnostics.
5. Private capital mobilization (5.A. financial policy support & 5.B. specialized mechanisms)	Through financial policy support and financial mechanisms MDBs can reduce perceived risks at both institutional and project level	Whereas MDBs catalyze \$2-5 of private capital per \$1 invested <sup>2</sup> , the average for public north-south climate financing is \$0.34 <sup>3</sup> .

Source: Authors (1.OECD (2016). “CRS: Aid activities”, OECD International Development Statistics (database). Paris, France: OECD.2.MDBs (2015). From Billions to Trillions: MDB Contributions to Financing for Development.3.OECD & CPI (2015). Climate Finance in 2013-14 and the USD 100 billion goal. Paris, France: OECD)

37 EIB (2015c). *The European Investment Bank at a glance*. Luxembourg, Luxembourg: EIB

38 AIIB (2016). *Operational Policy on Financing*. Beijing, China: AIIB

39 Addis Ababa Action Agenda (2015). *Addis Ababa Action Agenda (AAAA) of the Third International Conference on Financing for Development*. Addis Ababa, Ethiopia: United Nations

40 MDBs (2015). *From Billions to Trillions: MDB Contributions to Financing for Development*

41 WEF (2013). *Green Investment Report*. Geneva, Switzerland: WEF

42 Buiter, W., and S. Fries. (2002). What Should the Multilateral Development Banks Do?. *Working Paper No. 74, European Bank for Reconstruction and Development*.

43 OECD & CPI (2015). *Climate Finance in 2013-14 and the USD 100 billion goal*. Paris, France: OECD



### III. Challenges within Green Finance

In the global economy, capital naturally flows to where return is the highest. Simply put, the unmet need for green financing is therefore a sign of a lower return on investment from a combination of actual and/or perceived lower revenues and higher costs – as based on numerous factors inside such calculations. On the revenue side, green investments often have a similar revenue as non-green projects, or it may even receive targeted subsidies such as a feed-in tariff for electricity generation. However, it is particularly on the cost side that green projects are perceived as less attractive to investors. These costs often stem from higher technological risk within less mature technologies, political risks from less stable political support or the lack thereof, higher implementation costs from using less proven implementation methods, mismatch of project and lending timelines, and higher transaction costs in financial markets.

Based on this fundamental trend, a number of research papers attempt to summarize and categorize the challenges to developing green finance, such as the Brookings Institute<sup>44</sup>, UNEP<sup>45</sup>, McKinsey<sup>46</sup>, the G20 Green Finance Study Group<sup>47</sup>. This paper applies the basic structure of the framework developed in a recent publication by the Asian Development Bank, conceptualizing the identified challenges into 4 basic categories<sup>48</sup>. From these, the paper modifies, expands, and delimits the challenges to developing green finance through a broad range of literature.

#### 1. Institutional Environment

Within the political and regulatory environment surrounding green finance, a number of challenges can be identified as inhibiting green project financing. These include political instability and policy reversals, distorting subsidies and feed-in tariffs, unregulated sectors, and an uneven playing field towards state-owned institutions. As political rhetoric and commitment to greening economies is increasing, it is discouraging that the institutional framework is often not sufficiently supporting green finance. Non-political factors are also important components of the institutional environment, such as economic, social, and environmental instability.

#### 2. Project Financiers

Potential investors in green projects encounter a number of financial and perception challenges. In general, the financial cost of developing green projects is higher than traditional projects as the category is less mature in terms of technologies and market development. A perception challenge is the over-emphasis on short-term profit, reducing the incentive for project owners to prioritize long-term environmental sustainability. Further, portfolio restrictions, particularly of conservative investors, can exclude green financing, due to a perception of higher risk, but it may also work in the other direction by requiring a proportion of investments to be green. In addition, due to the maturity of the market and the great uncertainty, a high first-mover costs and risks issue is present. The unexplored market, lack of standards and data, and unproven commercial application of a new technology exists and deters financiers from taking the first move<sup>49</sup>.

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44 Brookings Institute (2016). *Delivering on Sustainable Infrastructure for Better Development and Better Climate*. Washington DC: Brookings Institute

45 UNEP Inquiry (2016). *Design of a Sustainable Financial System. Inquiry Working Paper: 16/09*.

46 Bielenberg, A., Kerlin, M., Roberts, M., & Oppenheim, J. (2016). *Financing Change: Mobilizing Private Sector Financing for Sustainable Infrastructure*. Detroit, USA: McKinsey and Company

47 G20 Green Finance Study Group (2016). *G20 Green Finance Synthesis Report*. Hangzhou, China: G20

48 ADB (2017). *Catalyzing Green Finance: A Concept for Leveraging Blended Finance for Green Development*. Manila, Philippines: ADB

49 E3G (2014). *Developing Smart Green Finance Incentive Schemes- The Role of Public Sector and Development Banks*. London, UK: E3G

### 3. Project Owners

A fundamental issue from the side of project owners is a lack of experience in using green finance labelling to attract financing. This includes limited awareness of targeted green finance mechanisms, inexperience in leveraging non-traditional financial possibilities, and limited capacity in structuring projects to allow for green labelling. Furthermore, as project owners are often national and local government institutions, there is a lack of transparent and comprehensive project pipelines. Furthermore, a maturity mismatch between the project payback period and loan tenor increases cost of capital for project owners as they may have to take several loans and refinance a number of times over the project lifespan.

### 4. Financial Markets

Within global and local financial markets green finance is inhibited by a number of challenges at the market and the product level. Within the market, issues include green infrastructure not being a mature asset class, shortage of specialized funds and tools, and mismatch of risk profiles. It is further worth noting the lack of monetized positive environmental externalities, as well as internalization of negative environmental externalities. Within green financial products, there is a lack of data availability and transparency, a limited level of international, national, and sub-national standardization, as well as lack of knowledge of good practices as ways to solve the challenges. At the project level, challenges include a bankability, uncertain end-user demand, complexity of green project execution and management, as well as higher risk associated with new technologies.

**Table 2. Summary of Challenges in Green Finance Development**

Level of Challenge	Key Aspects	Examples of Current Overarching Efforts
<b>1. Institutional Framework</b>	A. Political, economic, & environmental instability B. Policy reversals & regulatory uncertainties C. Distorting subsidies and feed-in tariffs D. Uneven playing field to SOEs E. Regulatory barriers to entry	Streamlining of policy implementation from strategic to regulatory and local level including via international fora and mechanisms
<b>2. Project Financiers</b>	A. High project development costs B. High transaction costs C. Competition for green projects between providers of specialized funds D. Overemphasis on short-term returns E. Portfolio restrictions	Compensation mechanisms for increased costs of launching sustainable projects, improving ESG awareness of investors, and incorporating green finance requirements
<b>3. Project Owners</b>	A. Limited awareness of green finance mechanisms B. Inexperience in leveraging non-traditional finance C. Limited capacity for structuring projects as green D. Lack of publication of transparent and comprehensive project pipelines E. Lack of viable funding and business models	Improving guidance and training available as provided by public or private organizations, and developing platforms for knowledge exchange and financing mechanisms
<b>4. Financial Markets</b>	A. Lack of green asset classes B. Shortage of specialized funds and tools C. Mismatch in risk profiles D. Non-monetized positive environmental externalities E. Lack of data F. Incoherent application of green standards G. Low ability to accurately assess green project risks.	Improving information availability and quality through platforms, standards, and third-party assessments, developing innovative financial tools addressing, and establishing international dialogue on green finance harmonization of processes and standards

Source: Authors, based on ADB (2017). *Catalyzing Green Finance: A Concept for Leveraging Blended Finance for Green Development*. Manila, Philippines: ADB



## IV. Current Role of MDBs in Green Finance

Based on the above, it is possible to assess how MDBs’ characteristics currently address the challenges in scaling up green finance through a set of financial solutions, as summarized in table 3 below. First, this chapter provides an overarching overview of MDBs accumulative activities in green finance. Second, the chapter presents a summary of individual assessments of green finance inside the 9 largest MDBs, with assessment details to be found in annex 1. Third, an exhaustive overview and assessment of activities is provide based on financing solutions that are only green, partly green, or that have green potential, with description of each solution in appendix 2.

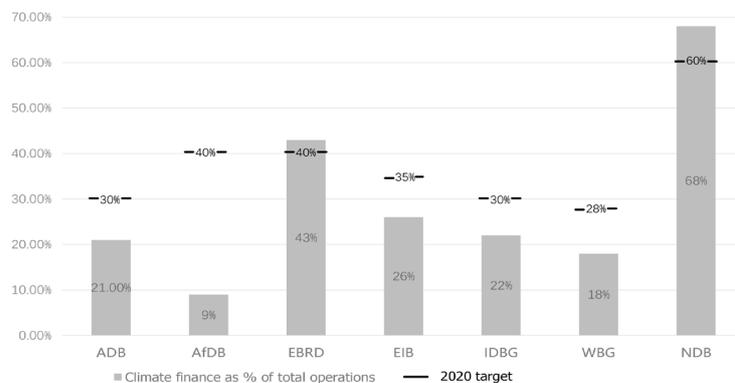
### Cumulative Engagement of MDBs in Green Finance

Fundamentally, it is not possible to provide an accurate estimate of total green financing by MDBs. This is due to lack of detailed financing disclosure and lack of comparable standards. Still, it is possible to draw out a general picture based on MDBs’ comprehensive climate finance disclosure, as well as MDBs individual disclosure by various green variables.

In climate financing alone, in 2016 all MDBs together provided over \$27bn, of which 77% were labelled as mitigation and 23% as adaptation<sup>50</sup>. In the 2013-2015 period MDB climate finance amounted to over one third of developed countries climate financing support to developing countries, working to fulfil the 2020 promise of \$100bn under the UNFCCC<sup>51</sup>. While the cumulative numbers are large, it is critical to view these as a proportion of total financing, as well as consider the greenness of MDBs non-climate and non-green portfolio.

Figure 4 below shows a number of the MDBs current climate financing proportion compared to 2020 targets. Based on their commitments, MDBs will provide 40% of global developed to developing country climate flows by 2020<sup>52</sup>. This shows that as most MDBs need to make drastic progress within a short period to achieve their targets, they have to carry out rapid change in financing direction compared to business-as-usual. In addition to active targets for climate finance, MDBs are also using negative lists for excluding projects. For example, the WB President Jim Kim announced at the One Planet Summit in Paris 2017 said that the WB will no longer finance upstream oil and gas<sup>53</sup>, while the bank quit coal fired plants in 2010.

**Figure 4. MDBs Climate / Green Finance Proportion and Targets**



Source: Authors update (2018), based on WRI (2017b). *MDB Climate Finance: The Good, the Bad and the Urgent*. Washington DC, USA: WRI. (no comparable data exists for the AIIB and IsDB)

50 MDB Joint Report (2016). *Joint Report on Multilateral Development Banks Climate Finance*

51 OECD & CPI (2015). *Climate Finance in 2013-14 and the USD 100 billion goal*. Paris, France: OECD

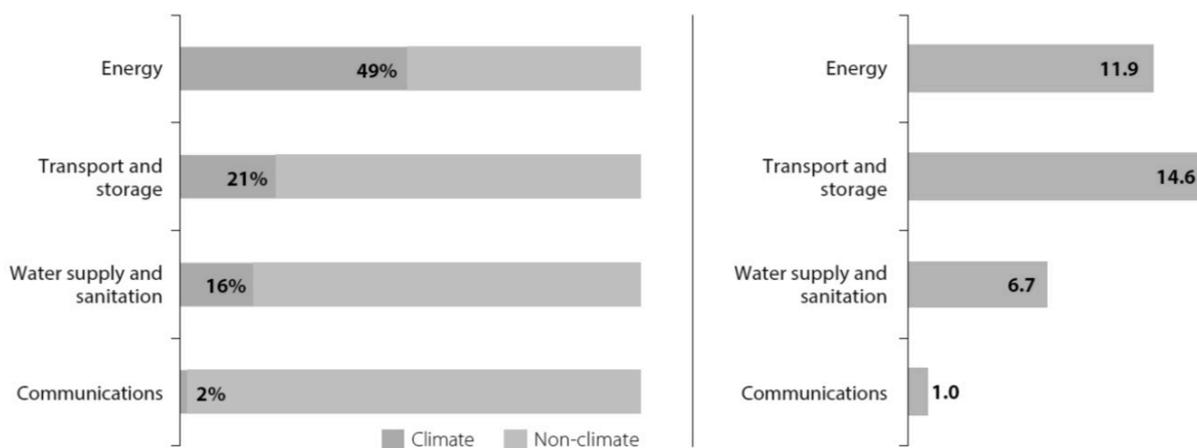
52 OECD (2017). *Investing in Climate. Investing in Growth*. Paris, France: OECD

53 WBG (2017). *World Bank Group Announcements at One Planet Summit*. Retrieved from: <http://www.worldbank.org/en/news/press-release/2017/12/12/world-bank-group-announcements-at-one-planet-summit>



It is further important to consider the overall greenness of MDBs portfolios. As mentioned above, the World Resources Institute has analyzed the climate financing by the World Bank (WB), International Finance Corporation (IFC), and Asian Development Bank (ADB) (accounting for 1/3 of MDB financing), compared with a 2-degree scenario. They conclude that 17% of financing is aligned with a 2-degree pathway, 57% is conditional, 22% is controversial, and 3% are misaligned<sup>54</sup>. Despite the study’s narrow coverage, it provides an indication that MDBs need to change business-as-usual to be aligned with green policy objectives. Another study measuring alignment of MDBs with the Paris Agreements has been published by E3G, concluding that MDBs are currently not adequately aligned with global climate ambitions scoring between 15 and 23 out of 42 possible points on E3Gs scoreboard<sup>55</sup>. This is further highlighted by the OECD’s calculations, as shown in figure 5 below. From this figure, it is clear that while climate change has been incorporated into the energy sector of infrastructure, it remains a much smaller proportion in other sectors. In total, a third of all MDB infrastructure financing in 2013-2015 targeted climate change mitigation or adaptation. Working towards improving the situation, the joint IDFC-MDB statement at the One Planet Summit of 2017 promises to align financing with the Paris Agreement<sup>56</sup>.

**Figure 5. Climate Change as Proportion of MDB Infrastructure Financing by Sector (Left: proportion. Right: \$ bn)**



Source: OECD (2017). *Investing in Climate. Investing in Growth*

Furthermore, OECD data shows what kind of financing solutions are used for climate financing, as show in figure 6 below. For the six MDBs (WBG split in two) covered by the data, it is clear that loans remain the primary channel of involvement. The IFCs 20%+ share of equity is due to its specific mandate and nature as a non-concessional MDB only investing in for-profit projects.

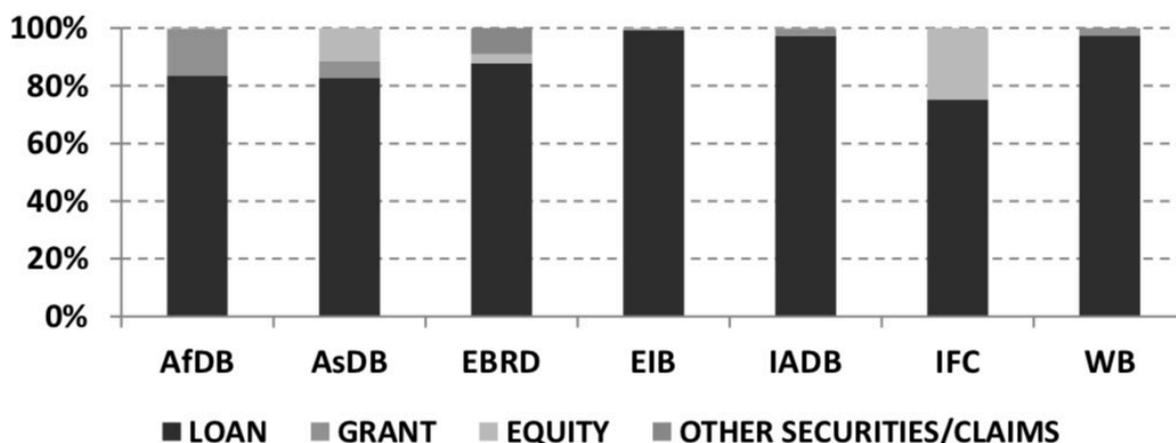
54 WRI (2017). *Financing the Energy Transition: Are World Bank, IFC, And ADB Energy Supply Investments Supporting A Low-Carbon Future?*. Washington DC, USA: WRI

55 E3G (2018). *Banking on Reform: Aligning Development Banks with the Paris Agreement*. London, UK: E3G

56 WBG (2017b). *Together Major Development Finance Institutions Align Financial Flows with the Paris Agreement*. Retrieved from: <http://www.worldbank.org/en/news/statement/2017/12/12/together-major-development-finance-institutions-align-financial-flows-with-the-paris-agreement>



**Figure 6. MDB Climate Financing by Financing Mechanism**



Source: OECD (2016b). *Climate Change: OECD DAC External Development Finance Statistics*. Paris, France: OECD

### Individual Engagement of MDBs in Green Finance

From analyzing MDBs current activities within green finance, it is clear that the topic is increasingly prioritized. Yet, many MDBs fail to take a comprehensive approach to green, and rather focus on climate change mitigation and adaptation. The table below provides an overview of MDBs conceptualization of the green finance concept and provides statistics on climate and green financing as well as on green bond issuance. The individual assessment of each MDB carried out as basis for the below table 3 can be found in appendix 1.

**Table 3. Comparison of MDBs Engagement in Green Finance**

MDB	Green finance concept	All current green / climate financing & 2020 target	Green bond issuance: First year Nr. of times Total volume	Green Bond Use of Proceeds categories
<b>African Development Bank Group (AfDB)</b>	Green growth priorities: Resilience to climate shocks, sustainable infrastructure, ecosystem services, and efficient and sustainable use of natural resources	Climate: Today: \$1bn 9% 2020: 40%	2013 Seven rounds \$3.5bn	Low- carbon development or climate- resilient development
<b>Asian Development Bank (ADB)</b>	Green within sustainable infrastructure, natural capital investment, environmental governance and management, as well as climate change as a stand-alone and crosscutting issue	Climate: Today: \$3.7bn, 11,7% 2020: 30%	2015 Three rounds \$3.05bn	Climate change mitigation and adaptation
<b>Asian Infrastructure Investment Bank (AIIB)</b>	Financing infrastructure that is environmentally friendly and socially sustainable, and it will support members in their transition towards a low-carbon energy mix	No accumulative official numbers. Numerous projects within green definition.	N / A	N / A
<b>European Bank for Reconstruction and Development (EBRD)</b>	Climate change mitigation and adaptation, sustainable use of resources, protection of natural assets, and rehabilitation of environmental damage	Green: Today \$5.1bn, 43% 2020: 40%	2010 62 individual bonds \$2.9bn	Climate and sustainable resource usage

<b>European Investment Bank (EIB)</b>	Climate change mitigation and adaptation, transport, environment protection, biodiversity, de-pollution, water, circular economy and waste management, disaster risk, energy production and use.	Climate: Today: \$22.3bn, 26% 2020: 25%	2007 30 rounds \$22,3bn	Renewable energy and energy efficiency
<b>Inter-American Development Bank (IaDB)</b>	Climate change mitigation and adaptation as well as sustainable infrastructure, sustainable urbanization, as well as natural capital	Climate Today: \$2.6bn, 22% 2020: 30%	N/A	N/A
<b>Islamic Development Bank (IDB)</b>	N/A	N/A	N/A	N/A
<b>New Development Bank (NDB)</b>	Infrastructure and non-infrastructure aligned with the Green Bond Principles	Green: Today: \$2,3bn, 68% Future: 60% renewable energy	2016 One round \$441mn	Green Bond Principles & PBOC Catalogue
<b>World Bank Group (WBG)</b>	Climate change mitigation, climate change adaptation, sustainable natural resource management (including oceans, lands, and forests), and clean development (soil, water, air)	Climate: Today: \$10.4bn, 18% 2020: 28%	2008 135 transactions \$10.2bn	Climate change mitigation and adaptation

Source: Authors

## Current Green Related Financing Solutions

This section provides an overview and assessment of activities based on financing solutions that are only green, partly green, or that have green potential. To root the assessment in a solid framework, the paper uses the categorization of the MDBs jointly developed catalogue of financing solutions<sup>57</sup>. The catalogue includes four categories, as shown in table 3 below. While some solutions may fit in several categories, such as PPPs, they are labelled by their primary function. The analysis goes through each category of financial solutions individually, relating the 47 identified financial tools directly to the MDB characteristics and green finance challenges identified above<sup>58</sup>. Each of the 47 financing solutions are described in appendix 2.

To limit the scope to green finance, the financial solutions are either exclusively, primarily, or partially green. Other financial solutions with green potential are discussed in the recommendations chapter. The solutions included aim to provide an overarching understanding, but do not include every single solution existing. To allow for a systematic comparability of financial solutions listed, they are described to the largest extent possible by the same variables: Name, actor(s), function, relation to green finance as a concept, relation to the above listed green finance challenge(s), and application of which MDB characteristic(s). The examples are summarized in table 4 at the end of the chapter.

<sup>57</sup> MDBs (2017b). *Catalogue of the MDBs and the IMF Financing Solutions*

<sup>58</sup> While the below listing of financing solutions aim to give an exhaustive overview, some small scale, temporary, or less transparent solutions may not be included.

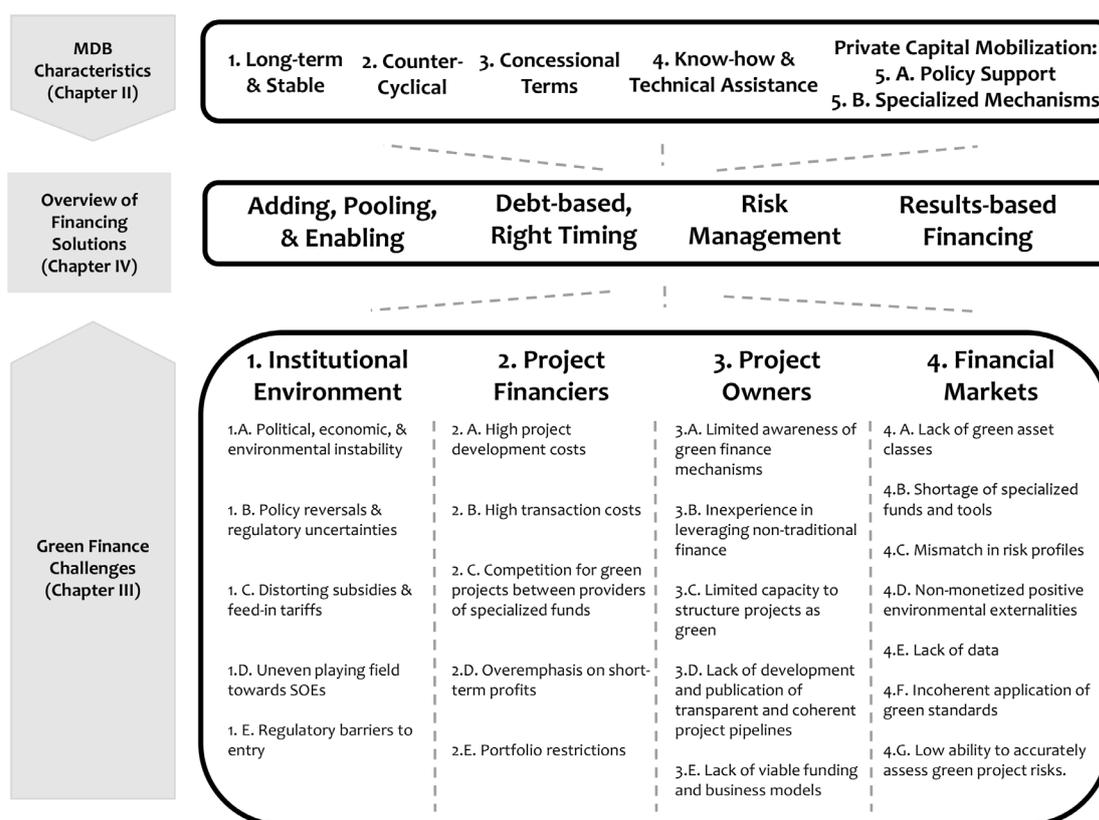
**Table 4. Categorization of financing solutions**

Adding, pooling, & enabling	Debt-based, right-timing	Risk management	Results-based financing
Co-investment platforms & pooled vehicles	Bond issuance	Blended finance	Advance market commitments
Equity investment	Bridge financing	PPPs	Buy-downs
Regulatory advice	Debt conversions	Guarantees & insurance	Performance based funding
Bond market building	Line of credit	Market data and benchmarks	Pull mechanisms
Public-private dialogue	Frontloading	Project preparation facilities	Prices and competitions
Information facilitation	Long-term finance	Risk sharing vehicles	

Source: MDBs (2017b). *Catalogue of the MDBs and the IMF Financing Solutions*

Table 5 below provides an overview of the 47 financing solutions included, based on the three-part taxonomy shown in figure 6.

**Figure 6. Visualization of Taxonomy**



Source: Authors



**Table 5. Overview of Financial Solutions**

	Financial solution	Actor(s)	Challenges addressed	Applied MDB characteristics	Level of green
Adding, pooling, & enabling	Common Principles for Climate Mitigation Finance Tracking	Joint MDB initiative	4.A. Lack of green asset classes 4.C. Mismatch in risk profiles 4.F. Incoherent application of green standards	4. Know-how and technical assistance	Exclusively
	China-EU harmonization of Green Bond Standards	EIB & China Green Finance Committee	4.A. Lack of green asset classes 4.F. incoherent application of green standards	4. Know-how & technical assistance	Exclusively
	Green Cornerstone Bond Fund	IFC (WBG) & Amundi Asset Management	4.B. Shortage of funds and tools	5.B Specialized mechanisms	Exclusively
	Green Finance Catalyzing Facility	ADB	2.A. Project and development costs 3.D. Pipeline and 3.E. funding models of project owners 4.B. Specialized tools of financial markets	3. Concessional terms 4. Know-how & technical assistance 5.B. Specialized mechanisms	Exclusively
	Sustainable Banking Network	Banking regulators led by the IFC	2.B. High transaction costs 4.B. Coherence on green standards	4. Know-how & technical assistance	Exclusively
	African Climate Change Fund	AfDB	3.A. Limited awareness of green finance mechanisms 4.B. Shortage of specialized funds and tools	4. Know-how & technical assistance 5.B Specialized mechanisms	Exclusively
	African Water Facility	AfDB	3 E. lack of viable funding and business models	3. Concessional terms 4. Know-how & technical assistance 5.B Specialized mechanisms	Green amongst other priorities
	Agricultural Fast Track Fund	AfDB	3.D. Lack of project pipelines 3.E. Lack of viable funding and business models 4.A. Lack of green asset classes	5.A. Policy support 5.B. Specialized mechanisms.	Green amongst other priorities
	Climate Investment Funds	AfDB, ADB, EBRD, laDB, WBG	2.A. High project development costs 3.E. Lack of viable funding and business models 4.B. Shortage of specialized funds	5.A. Policy support 5.B. Specialized mechanism	Exclusively
	Congo Basin Forest Fund	AfDB	3.D. Lack of publication of project pipelines 3.E. Lack of viable funding and business models	3. Concessional terms 4. Know-how & technical assistance 5.B. Specialized mechanisms	Green amongst other priorities
	Sustainable Energy Fund for Africa	AfDB	2.A. High project development costs 3.E. Lack of viable funding and business models	4. Know-how & technical assistance 5.A. Policy support	Exclusively
	Global Environment Facility (GEF)	AfDB, ADB, EBRD, laDB, WBG	3.B. Inexperience in leveraging non-traditional finance 3.C. Limited capacity for structuring projects as green, 3.E. Lack of viable funding and business models	5.A. Policy support 5.B. Specialized mechanisms.	Exclusively
	Green Climate Fund	AfDB, ADB, EBRD, EIB, laDB, WBG	3.A. Limited awareness of green finance mechanism 3.B. Inexperience in leveraging non-traditional financing 4.B. Shortage of specialized fund and tools	4. Know-how & technical assistance 5.B. Specialized mechanisms.	Exclusively
	Sustainable Energy and Climate Change Initiative	laDB	3.C. Limited capacity to structure projects as green 3.D. Lack of project pipeline 4.F. Lack of coherent application of green standards	4. Know-how & technical assistance	Exclusively
	The Adaptation Fund	WBG	4.B. Shortage of specialized funds	1. Long-term and stable 4. Know-how & technical assistance 5.B. Specialized mechanisms	Exclusively
	EDGE Buildings	WBG (IFC)	3.A. Limited awareness of green finance mechanisms 3.C. Limited capacity for structuring projects as green 4.A. Lack of green asset classes 4.F. Incoherent application of green standards	4. Know-how & technical assistance 5.B. Specialized mechanisms	Exclusively



	Invest4Climate Platform	WBG	3.D. Lack of project pipeline 4.C. Mismatch in risk profiles 4.E. Lack of data 4.G. Low ability to accurately assess green project risks	4. Know-how & technical assistance 5.A. Policy support	Exclusively
	Future Carbon Fund	ADB	2.A. High project development cost 3.C. Limited awareness of green finance mechanisms 3.E. Lack of viable funding and business models	3. Concessional terms 5.B. Specialized mechanisms	Exclusively
	Asia Pacific Disaster Response Fund	ADB	1.A. Political, economic and environmental Instability	1. Long-term and stable 2. Counter-cyclical 5. Know-how & technical assistance	Exclusively
Debt-based, right-timing	Concessional and non-concessional loans	All MDBs	2.A. High project development costs 3.E. Lack of viable funding models 4.C. Mismatch in risk profiles	1. Long-term and stable 2. Counter-cyclical 3. Concessional terms 5.A. Policy support	Partially
	Green Lines	laDB	2.B. High transaction costs of project financiers 3.E. Lack of viable funding models of project owners	5.B. Specialized mechanisms	Exclusively
	Green Bonds	AfDB, ADB, EBRD, EIB, NDB & WBG	3.E. Lack of viable funding models 4.A. Green asset classes 4.B. Lack of specialized tools	4. know-how & technical assistance 5.B Specialized mechanisms	Exclusively, depending on definitions
	Venture Capital and Seed Fund Support	MIF (laDB)	3.E. Funding models 4.C. Mismatch in risk profiles 4.G. Ability to accurately assess project risk	3. Concessional terms 4. Know-how and technical assistance	Partially
	Direct Equity Investment	EBRD	1.D. An uneven playing field toward SOEs 3.E. Lack of viable funding models	5.A Policy support 5.B Specialized mechanisms	Partially
	Enhanced Private Sector Assistance	AfDB	1.D. Uneven playing field towards SOEs 3.B. Inexperience in leveraging non-traditional finance 3.E. Lack of viable funding models 4.B. Shortage of specialized funds and tools	1. Long-term & stable, 3. Concessional 5.B. Specialized mechanisms	Partially
	Global Energy Efficiency and Renewable Energy Fund	Advised by the EIB	3.E. Lack of viable funding and business models	4. Know-how and technical assistance	Exclusively
	Natural Capital Financing Facility	EIB	4.B. Shortage of specialized funds and tools	5.A. Policy support 5.B. Specialized mechanisms	Exclusively
Risk management	Guarantees of various forms	Most MDBs	1.A. Political, economics, and environmental instability 1.B. Policy reversals and regulatory uncertainties 3.E. Lack of viable funding models 4.C. Mismatch in risk profiles	2. Counter-cyclical 3. Concessional 5.A. Policy support.	Partially
	Crisis Response Window	IDA (WBG)	1.A. Institutional instability 1.B. Policy uncertainty	2. Counter cyclical 3. Concessional 5.A Policy support 5.B Specialized mechanisms	Green amongst other priorities
	Global Index Insurance Facility	IFC (WBG)	1.A. Institutional instability 4.B. Lack of specialized tools	4. Know-how & technical assistance 5.B Specialized mechanisms	Green amongst other priorities
	Partial Risk Guarantees	ADF (AfDBG)	1.B. Policy uncertainty	1. Long-term & stable	Partially
	Infrastructure Project Preparation Facility	EBRD	3.C. Green project structuring 3.D. project pipelines 3.E. lack of viable business models	4. know-how & technical assistance	Partially
	Global Map of Environmental & Social Risk in Agro-commodity Production	IFC (WBG)	1.A. Environmental instability 3.A. Lack of awareness of green financing possibilities, 3.B. Lack of experience in leveraging non-traditional financial tools 4.E. lack of data	4. know-how and technical assistance	Green amongst other priorities





	ClimDev-Africa Special Fund	AfDB	1.A. Political, economic, and environmental instability 4.E. Lack of data 4.G. Low ability to accurately assess environmental risks	3. Concessional terms 4. Know-how & technical assistance.	Exclusively
	Forest Carbon Partnership Facility	IaDB	3.A. Limited awareness of green finance mechanisms 3.B. Inexperience in leveraging non-traditional finance 3.C. Limited capacity to structure projects as green	3 Concessional terms 4. Know-how and technical assistance 5.B. Specialized mechanisms	Exclusively
	InfraFund	IaDB	2.A. High project development costs 3.D. Lack of comprehensive project pipelines 3.E. Lack of viable funding and business models	3. Concessional terms 4. Know-how & technical assistance	Green amongst other priorities
	Climate and Clean Energy Facility	IaDB	3.B. Inexperience in leveraging non-traditional finance 4.C. Mismatch in risk profiles 4.G. Lack of ability to assess green project risks	3. Concessional terms 4. Know-how & technical assistance 5.B. Specialized mechanisms	Exclusively
	Energy Efficiency Guarantee Mechanism	IaDB	1.C. Distorting subsidies and tariffs 3.E. Lack of viable funding and business models 4.C. Mismatch in risk profiles 4.G. Low ability to assess green project risks	1. Long-term and stable 3. Concessional 4. Know-how & technical assistance	Exclusively
	Green Cities Climate Finance Accelerator	EBRD	2.A. High project development costs 2.B. High transaction costs 4.C. Mismatch in risk profiles	2. Concessional support 5.B. Specialized mechanisms	Exclusively
	Green for Growth Fund	EIB (IFC, EBRD)	3.A. Limited awareness of green financing mechanisms 3.B. Inexperience in leveraging non-traditional financing 3.C. Limited capacity to structure projects as green 4.G. Low ability to accurately assess green project risks	3. Concessional support 4. Know-how & technical assistance.	Exclusively
	Private Finance for Energy Efficiency	EIB	2.B. High transaction costs 3.E. Lack of viable funding and business models 4.B. Shortage of specialized funds	1. Long-term and stable 3. Concessional terms 5.B. Specialized mechanisms	Exclusively
	European Energy Efficiency Fund	EIB participation	3.A. Limited awareness of green finance mechanisms 3.E. Lack of viable funding and business models 4.C. Mismatch in risk profiles	4. Know-how and technical assistance 5.B. Specialized mechanisms	Exclusively
	AIIB Project Preparation Fund	AIIB	3.C. Limited capacity to structure projects as green 3.D. Lack of comprehensive project pipelines 3.E. Lack of viable funding and business models	3. Concessional support 5.B. Specialized mechanisms	Partially
Result-based financing	Community Development Carbon Fund	WBG	4.B. Specialized tools 4.D. Non-monetized positive environmental externalities.	4. know-how and technical assistance 5.B. Specialized mechanisms	Exclusively
	Ideas for Action	WBG & Wharton Business School	4.B. Specialized tools	4. know-how and technical assistance	Partially
	Program-for-results	WBG	4.B. Specialized tools 4.D. Non-monetized positive environmental externalities.	4. know-how and technical assistance 5.B. Specialized mechanisms	Partially
	The Development Marketplace	WBG	2.C. Competition between providers of specialized funds 3.A. Limited awareness of funding models 4.B. Lack of specialized mechanisms	4. know-how and technical assistance	Partially

## Assessment of Financing Solutions

The tables below provide descriptive statistics of the financing solutions listed above. In considering these statistics it is critical to note that sheer numbers do not represent total investment amount, weighing of priorities, or fulfillment of challenges. For example, “concessional and non-concessional loans” is counted as a single financing solution although its cumulative scale is much larger than most other financing solutions. Yet, the tables provide an overview of the predominant approaches by tools, challenges, and characteristics, applied by each MDB and MDBs in general. As each of the 47 financing solutions may include several MDBs, characteristics, and challenges, every individual mention in the table above is counted in the statistics.

**Table 6. Financing Solutions by Category**

Category	1. Adding, pooling, & enabling	2. Debt-based, right-timing	3. Risk management	4. Result-based financing
Number of financing solutions	19	8	16	4

Source: Authors

**Table 7. Financing Solutions by MDBs**

MDB	AfDB	ADB	AIIB	EBRD	EIB	IaDB	IsDB	NDB	WBG
Participation in number of financing solutions	13	8	2	8	9	10	1	2	20

Source: Authors

**Table 8. Financing Solutions by Green Finance Challenges**

Green Finance Challenge	1. Institutional environment	2. Project financiers	3. Project owner	4. Financial markets
Number of financing solutions	10	10	32	32

Source: Authors

**Table 9. Financing Solutions by MDB Characteristics**

MDB Characteristic	1. Long-term & stable	2. Counter-cyclical	3. Concessional terms	4. Know-how & technical assistance	5.A Policy Support	5.B Specialized mechanisms
Number of financing solutions	7	5	17	28	10	27

Source: Authors

## V. Recommendations on the potential role of MDBs in Green Finance

Based on the assessment of the current role of MDBs in green finance, it is possible to formulate recommendations towards future engagements. By comparing the conclusions with MDBs current involvement in green finance, it is possible to both determine gaps, overlaps, and priorities. As all MDBs have unique differences, the general findings have to be tailored to each individual case.

Before providing recommendations, it is worth considering the trends identified in the previous chapter's overview and analysis of the current status of green in MDBs:

- I. There is a clear trend of increasing importance of green and climate finance amongst MDBs. This is shown clearly in strategic documents such as long-term plans, in promises to reach a minimum proportion of the total investment stock in green or climate related fields, as well as in the rapid increase in MDB's green bond issuances. While the older MDBs' fundamental mandating documents often focus on development, growth, and transition, they allow for green to be scaled up through current strategy documents. The newer established MDBs often have green as a central pillar embedded in their original mandate.
- II. It is clear that MDBs apply different definitions of green. While the basic concept of green is universally supported, defining what constitutes green specifically differs. The basic concept is generally referred to as 'green growth', 'green transition' or 'a greener tomorrow'. Specific definitions differ such as while the EIB's green bonds are exclusively for addressing climate change, the NDB can use the funds raised for all purposes within the broad categories of the Green Bond Principles<sup>59</sup>.
- III. In terms of challenges to scaling up green finance addressed by MDBs today, it is clear that through the variety of financing solutions most challenges are approached. This, of course, does not suggest that the challenges are solved, but it does indicate that the challenges are acknowledged and that effort in addressing them exist to some extent. Prioritization of which challenges constitute bottlenecks and priorities are context and locally specific, and only possible to make overarching recommendations towards.
- IV. It can further be observed that a number of financial solutions overlap between MDBs. While some solutions don't overlap due to MDBs specific geographic or thematic scope, there are instances where overlap leads to competition and crowding out. Such circumstances may lead to either inefficiencies or unhealthy competition and forms the basis for recommendation 5 below.
- V. When it comes to green bonds, it seems that not all MDBs find it necessary or appropriate to issue green bonds in order to be ambitious on green financing. For example, while the AIIB and AfDB both indicate strong ambitions on green investment they have not yet issued green bonds. This should make us consider that the scope and necessity of green bonds may depend on a number of specific circumstances rather than being universally relevant.

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59 ICMA (2017). *The Green Bond Principles 2017*. Paris, France: ICMA

## 1. Prioritize Private Capital Mobilization

MDBs can play a critical role in mobilizing the private capital required to finance environmental sustainability. As it is acknowledged that the private sector will provide a critical proportion of financing for sustainable development<sup>60</sup> and that MDBs historically have one of the highest capital leverage abilities<sup>61</sup>, this paper recommends MDBs to prioritize capital mobilization as basis for all operations.

While some MDBs have private capital mobilization and private sector development at the core of their mandate, such as the EBRD, other MDBs prioritize different targets higher. Achieving this prioritization in practice requires the development of better methodologies for estimating private capital mobilization. Today, while some research on estimating capital mobilization exists inside and outside MDBs, there is no consensus-based methodology or comparability of data. For example, the OECD and CPI estimate that developed to developing country public climate finance of \$43.2bn, catalyzed \$14.8bn of private capital, amounting to a leverage rate of \$0.34<sup>62</sup>. MDBs, according to their joint estimate, are able to catalyze \$2-5 for each dollar invested<sup>63</sup>, but does not disclose any details on how this is calculated. It is therefore suggested that MDBs jointly develop a methodology, provide comparable and compatible data, and publicly disclose the results. This can serve both to inform MDBs and the public on which specific MDB financing solutions have the greatest ability to catalyze private capital. This can in turn form the basis for MDBs to prioritize their operations in this direction. As such, while this paper cannot suggest concrete financial solutions, it suggests a reprioritization and research effort to determine such financing solutions.

A number of challenges present themselves in increasing MDBs prioritization of private capital mobilization. First of all, the reprioritization has to be gradual. MDBs all have a 5 or 10 year strategic plans as well as long-term commitments to projects with a maturity of 30 years. This means that a first step should be the above described development of methodologies and research on most efficient ways to catalyze private capital, after which MDBs and their members can have internal discussions on how to implement this into strategic documents based on MDBs' specific mandates. Other challenges may include changing organizational structure, organizational culture, addressing mission creep, and difficulties in closing down projects deemed to be inefficient in leveraging private capital.

This recommendation first and foremost applies the MDBs two part of private capital mobilization, namely (5.A) policy support and (5.B) specialized mechanisms. Intrinsically, the (4) know-how and technical assistance characteristics is also applied in methodology and research on private capital mobilization across financing solutions. The recommendation addresses the green finance challenges related to the (2.B) high transaction costs of project financiers, (3.A) lack of awareness of green mechanisms and (3.E) funding models of project owners, as well as (4.E) lack of data in financial markets (through the research component).

60 Addis Ababa Action Agenda (2015). *Addis Ababa Action Agenda (AAAA) of the Third International Conference on Financing for Development*. Addis Ababa, Ethiopia: United Nations

61 MDBs (2015). *From Billions to Trillions: MDB Contributions to Financing for Development*.

62 OECD & CPI (2015). *Climate Finance in 2013-14 and the USD 100 billion goal*. Paris, France: OECD

63 MDBs (2015). *From Billions to Trillions: MDB Contributions to Financing for Development*.

## 2. Promote and Develop Green Finance Standards

Given their authority in development finance, joint MDB action on green standard setting can be influential in setting global standards for all stakeholders. In order to be able to compare green finance by different stakeholders, MDBs can take a lead in developing standards. Such standards can be used both at project level as green bonds, green credit, green insurance, as well as in organizations' green finance reporting. As the SDGs include more green factors than climate change alone and as many developing countries' stem from non-climate change factors, it is critical that green standards are established and harmonized.

Under the UNFCCC and OECD climate financing is accounted with a high level of detail, based on specific standards on what qualifies as climate change mitigation and adaptation. These processes can serve as inspiration for developing a similar mechanism for green finance. As already existing, the standards from the MDB-IDFC Common Principles for Climate Mitigation Finance Tracking<sup>64</sup> could be expanded with a green finance working group. MDBs are able to lead this effort on standard setting due to their institutional legitimacy based on institutional, delegated, expertise, principled, and capacity-based authority<sup>65</sup>. To allow for local specificities to be included in green standards, it may not be necessary to develop a single universal standard. Rather, it is important to develop standards that can be coherently compared. This fundamentally depends on a segregation of objectives and activities, such as currently being discussed under the Green Bond Principles' working groups. For example, clean coal, nuclear, and large hydro, is categorized as green in some places and not in others. If the two standards are based on a compatible framework, it is simple to see if clean coal is included under 'pollution prevention and control' by one standard and not by another. Among existing initiatives towards this purpose, the EIB is cooperating with the Chinese government to harmonize green bond standards in the EU and China<sup>66</sup>. Furthermore, the IFC has announced an ambition to create a unified standard for green bonds along the lines of the Equator Principles<sup>67</sup>.

The main challenge for setting standards is allowing sufficient leeway for standards to reflect different local green priorities. In many developing countries green includes air, soil, and water pollution, while for many European issuers, green only refers to climate change mitigation. Such differences are also reflected in investor preferences. Ultimately, for the sake of all market stakeholders, MDBs can lead the effort in developing and supporting compatibility between standards, clarifying the concept of green finance as basis for its further expansion.

This recommendation uses the MDB characteristics of (4) know-how and technical assistance, as source of their authority to promote green standards. In terms of green finance challenges, this recommendation addresses (2.E) portfolio restrictions of project financiers, as well as (4.A) the lack of green asset classes, and (4.F) the incoherent application of green standards in financial markets.

64 MDB-IDFC (2015). *Common Principles for Climate Mitigation Finance Tracking*

65 Avant, D.D., Finnemore, M., Sell, S.K. (2010). *Who Governs the Globe*. London: Cambridge University Press

66 EIB & China Green Finance Committee (2017). *The need for a common language in Green Finance*. Luxembourg, Luxembourg, EIB

67 WBG (2017). *World Bank Group Announcements at One Planet Summit*. Retrieved from: <http://www.worldbank.org/en/news/press-release/2017/12/12/world-bank-group-announcements-at-one-planet-summit>

### 3. Extend Individual and Joint MDB Green Finance Reporting

Transparent and comparable individual and joint reporting by MDBs on green finance would clarify their cumulative role. Today, MDBs jointly report on their climate financing, but not on green financing<sup>68</sup>. However, the IDFC members report specifically on their green financing efforts<sup>69</sup>. Using a similar methodology to their current joint climate finance reporting, MDBs can apply the same scope as the IDFC, disclosing both climate and green financing separately in the same report. With momentum developing for expanding climate reporting through the Financial Stability Board's Task Force on Climate Related Financial Disclosure (FSB-TCFD)<sup>70</sup>, MDBs can take the effort from being climate focused to include more green factors. In the same sense that 'climate' reporting can be scaled up to 'green', ultimately 'green' forms a component of 'sustainability' reporting, as advocated as the most comprehensive approach by for example the UK Government's Green Finance Taskforce's TCFD workstream<sup>71</sup>.

The methodology used by the IDFC's green finance mapping report can be used as basis, although the methodology and coverage has to be improved. To date, even the IDFC has only 20 of 23 members reporting with difference in coverage. In addition to climate change mitigation and adaptation, the IDFC report covers the following green aspects: Industrial pollution control, water supply, water waste treatment, sustainable infrastructure, waste management, biodiversity, soil remediation & mine rehabilitation, and 'other environment'. Including those variables, MDBs could develop their climate financing report to a green finance report. Such report would still show climate and other green aspects separately to meet the UNFCCC and the FSB-TCFD goals of coherent climate disclosure. In addition, such reporting should include not only how much financing is allocated within a certain definition, but also the MDBs total climate and environmental footprint. Such reporting is still in its infancy. According to the Economist, though an increasing number of insurance companies and pension funds report on their footprint, amongst the MDBs only the EBRD and laDB do so<sup>72</sup>.

As a challenge, these efforts, of course, relate back to setting clear standards for what is green, as suggested in the above recommendation. Green finance reporting, as such, can be a simultaneous or subsequent step to establishing green standards. In this sense, reporting is much more useful if carried out against the same benchmark as it allows for comparability. When such reporting is carried out based on consensus standards, issues of accounting disagreements can be discussed openly based on better information. As a testimony to the problem existing today, E3G reports that EBRD has labelled financing for a Moroccan port that will handle coal and an Azerbaijani offshore gas exploration project as partially climate<sup>73</sup>.

The recommendation is based on the MDB characteristics of (4) know-how and technical assistance, and addresses the green finance challenges of (2.A) high project development cost of project financiers, and the (4.E) lack of data in financial markets.

68 MDB Joint Report (2016). *Joint Report on Multilateral Development Banks Climate Finance*.

69 IDFC (2016). *IDFC Green Finance Mapping Report 2016*

70 FSB-TCFD (2017). *Recommendations of the Task Force on Climate-related Financial Disclosures*. Basel, Switzerland: FSB

71 UK Government's Green Finance Taskforce (2018). *Establishing the World's Best Framework for Climate-Related and Sustainability-Related Financial Disclosures*. London, UK: Green Finance Taskforce

72 Economist (2017). *Multilateral lenders vow openness about their carbon footprints*. Retrieved from: [www.economist.com/news/finance-and-economics/21730448-environmentalists-allege-their-lending-has-been-less-green](http://www.economist.com/news/finance-and-economics/21730448-environmentalists-allege-their-lending-has-been-less-green)

73 E3G (2017). *Greening Financial Flows: What Progress Has Been Made in The Development Banks?*. London, UK: E3G



#### 4. Implement Internal Carbon Pricing

Since external carbon pricing is not applied in all countries, MDBs can use internal carbon pricing to increasingly internalize externalities and mitigate physical and transition risks in project financing. Depending on the method of internal carbon pricing this can directly impact project bankability or at the minimum provide a basis for discussing the carbon footprint of each project. While internal carbon pricing provides a direct cost incentive in project evaluation, it can be used in tandem with improved environmental risk assessment methodologies to comprehensively capture environmental factors. Essentially, an internal carbon price also serves to prepare an organization for the implementation of an external carbon price as a transition risk. In 2014 the AfDB, ADB, EBRD, EIB, IADB, and WB agreed to use a ‘shadow carbon price in appropriate cases’<sup>74</sup>. While the AfDB and IADB has yet to use any form of carbon pricing, for the other MDBs the coverage is sporadic and only used as a reference point as shadow price<sup>75</sup>.

Internal carbon pricing comes in three forms: 1) A shadow price is a voluntarily set to incorporate the carbon value into each investment decision – with no real cost transaction. 2) A carbon fee is set by the organization and applied as a tangible cost transaction throughout the organization, increase expenses by carbon intensity. 3) An implicit carbon tax measures the organization’s existing carbon related expenditures in order to better understand its carbon footprint and reduce this type of costs<sup>76</sup>. This paper recommends the first two as most useful and applicable to MDBs. Internal carbon pricing is also listed as a recommended metric to be used and disclosed by the FSB-TCFD<sup>77</sup>. As part of discussions with MDBs in preparing this paper, it is clear that various forms of internal carbon pricing is being discussed at senior levels in a number of MDBs. Led by Joseph Stiglitz and Lord Nicholas Stern the Carbon Pricing Leadership Coalition’s report suggests a \$40-\$80 range in 2020, rising to \$50-\$100 by 2030, is consistent with the core objective of the Paris Agreement of keeping temperature rise below 2 degrees<sup>78</sup>. In setting an internal carbon price, MDBs can use these numbers as benchmarks to gradually move towards.

An internal carbon price can be gradually implemented in an MDB to minimize challenges. One method is to start with a shadow price while setting a deadline for the implementation of a carbon fee, perhaps 3 years later. This should allow time to accommodate the financing impacts of the increased carbon costs. A second method is to have the price gradually increasing over time. This, again, allows for gradual adaption. An additional challenge exists in the form of country differences to be incorporated into an MDB in its entirety. While some countries already have a carbon tax for some sectors, other countries may be far away from this, implying that the transition risk from a carbon tax differs drastically. Implementing this in an MDB with operations in both areas could be a challenge.

Implementing internal carbon pricing is based on the MDBs characteristic of (1) long-term and stable, (3) concessional terms, as well as (5.1) policy support. Within green finance, the recommendation is target towards the challenges of (2.D) overemphasis on short-term profits, as well as (4.C) mismatch in risk profiles and (4.G) low ability to accurately estimate green project risks in financial markets.

74 MDBs (2014). *Joint statement by Multilateral Development Banks (MDB) on climate finance 11 September 2014: Multilateral Development Banks agree to reinforce climate finance.*

75 E3G (2018b). *How are development banks performing on shadow carbon pricing?*. Retrieved from: <https://www.e3g.org/library/how-are-development-banks-performing-on-shadow-carbon-pricing>

76 I4CE (2016). *Internal carbon pricing: A growing corporate practice*. Paris, France: I4CE

77 FSB-TCFD (2017). *Recommendations of the Task Force on Climate-related Financial Disclosures*. Basel, Switzerland: FSB

78 Carbon Pricing Leadership Coalition (2017). *Report of the High-Level Commission on Carbon Prices*.

## 5. Focus on Targeted Rather Than Broad Concessional Support

While MDBs' concessional financing can incentivize financing towards certain policy objectives, such support may have adverse market distorting effects. This report suggests that within green finance, MDBs carefully target their concessional support rather than provide broad subsidies. In many aspects of green finance there is a clear business case, suggesting that rather than long term concessional financing, stakeholders need short-term concessional interest or tenor as well as technical assistance from MDBs. This is particularly clear within green credit in commercial banks. Concessional support may still be an important catalyzer for mainstreaming new technologies before reaching marketable maturity. While the related Development Finance Institutions report highlights that concessional financing should be “structured to provide the missing element in the overall financing that makes private projects commercially financeable and if it successfully creates a demonstration effect of commercial replicability”<sup>79</sup>, the demonstration effect is often not successful in practice.

In practice, this can be implemented by MDBs putting more resources into targeted, rather than broad support financial solutions. Considering this from the perspective of the above listed financing solutions, most targeted are the Climate Investment Funds, the CIF's Clean Technology Fund, and the ADB's Asia Pacific Disaster Response Fund, whereas the broader scope include various forms of green credit lines. Targeted support can also be used to close concrete financing gaps as when the IFC issues a credit enhancing guarantee for green trade finance in commodity goods between emerging markets<sup>80</sup>.

The main challenge that can be expected from this change in priorities stems from recipient countries. Broad concessional support from MDBs can often replace subsidies from the local government, freeing up local government budget for other items. While targeted support may avoid market distortions and catalyze more private capital, it less under the control of the local government. It is therefore critical for MDBs to involve local government and stakeholders when changing priorities and rolling back existing programs.

This recommendation is carried out through the MDB characteristics of (1) long-term and stable, (3) concessional support, and (5.B) specialized mechanisms. It addressed the above identified green finance challenges of (1.C) distorting subsidies and feed-in-tariffs in the institutional environment, (3.E) lack of viable business models of project owners, and (4.B) lack of specialized funds and tools in financial markets.

79 Development Finance Institutions (2017). *DFI Working Group on Blended Concessional Finance for Private Sector Projects*.  
80 IIGF & Cambridge University (2017). *China sustainable trade finance workshop – Briefing paper*. Beijing, China: IIGF

## 6. Enhance Environmental Risk Assessment

Despite excellent financial expertise in MDBs, the rapidly changing environmental circumstances presents challenges to current ways of risk assessments. In addition to classical projects, internal financial properties, and external risk factors, MDBs have to use new methods for including physical climate risks and transitional risks<sup>81</sup>. Without doing this, MDBs will not adequately capture the risks their assets are exposed to, leading to losses and stranded assets<sup>82</sup>. While MDBs have always taken environmental factors into account, it is the current pace of change in combination with developing data availability on physical and transition risks that justifies this recommendation.

Another push for including environmental risk systematically in MDBs project financing and organizational risk management structure, comes from credit rating agencies increasingly including environmental factors. This may ultimately lead to a higher credit rating to MDBs with a green profile, and consequently a lower cost of debt. As a testimony to this trend, the Chinese Central Bank is considering implementing measures to include environmental risk exposure of commercial banks into their credit rating<sup>83</sup>. Today, the main risk types and metrics for MDBs include credit risk, interest rate risk, exchange rate risk, liquidity risk, and operational risk<sup>84</sup>. Environmental risks should be concretely included as a component of liquidity and operational risk. The coverage of environmental risk assessment as a key topic of the G20 Green Finance Study Group in Hamburg in 2017 is suggested to be: 1) Risk types (e.g., market, credit, business). 2) Risk factors financial institutions are exposed to (e.g. physical or transition risks). 3) Size of direct and indirect exposure to the specific environmental risks. 4) Key country/sector-specific factors<sup>85</sup>.

The main challenge to improving environmental risk assessment in MDBs is data availability and methodology. Because the underlying circumstances are changing fast it is difficult to use historical performance of investments to predict their future profitability. This is exactly what is done today, and what is inadequate. On the physical side, data is improving on how climate change will affect certain types of projects in certain regions. On the transition side, scenario planning such as including a carbon price, higher water price, or higher pollution fines should all be taken into account. Initiatives working on this today include the G20<sup>86</sup>, the UK-China Economic and Financial Dialogue<sup>87</sup>, and the Oxford Green BRI Data and Analysis Platform<sup>88</sup>. MDBs can be active in engaging in these for a, for their own benefit as well as to promote and support the effort internationally.

The MDB characteristics to be applied in this recommendation includes (1) long-term and stable and (3) know-how and technical assistance. The green finance to be addressed include (1.A). political, economic, and environmental instability, (1.B) policy reversals and regulatory uncertainty in the institutional environment, as well as (4.C) mismatch in risk profiles, (4.E) lack of data, and (4.G) low ability to accurately assess green project risks in financial markets.

81 FSB-TCFD (2017). *Recommendations of the Task Force on Climate-related Financial Disclosures*. Beijing, China: IIGF

82 UK-China Green Finance Task Force (2017). *Turning Green Momentum into Actions*. Beijing, China: UK-China Green Finance Task Force

83 OMFIF-DZ Bank (2017). *Green Infrastructure Finance Roundtable. The path towards a sustainable economy*. London, UK: OMFIF

84 NDB (2017c). *Investor Presentation*. Shanghai, China: NDB

85 G20 Hamburg (2017). *G20 Green Finance Synthesis Report 2017*. Hamburg, Germany: G20

86 G20 Hamburg (2017). *G20 Green Finance Synthesis Report 2017*. Hamburg, Germany: G20

87 UK-China Economic and Financial Dialogue (2017b). *UK-China EDF Discussion Meeting, 15.12.2017*. Beijing, China: UK-China Economic and Financial Dialogue

88 Oxford University (2018). *Green BRI Data and Analysis Platform*. Retrieved from: <https://bri.ouce.ox.ac.uk>

## 7. Expand MDB Cooperation for Economies of Scale

MDBs can increase the efficiency of their green financing by merging together a number of financing solutions across MDBs. While MDB competition on policy advice, pricing, and financing modalities can be healthy it can also lead to a suboptimal outcome for the development finance system<sup>89</sup>. While it is critical for financing solutions to be tailored to local environments, the above analysis has identified a number of overlapping financing solutions. The fundamental argument for this recommendation is that if enough characteristics of MDBs financing solutions overlap, increased efficiency can be achieved through economies of scale. This is ultimately towards the fulfillment of the partnership principles of the Busan Partnership for Effective Development Co-operation<sup>90</sup>. Yet, such cooperation should not be promoted across the board since it may also increase complexity, leading to decreased efficiency.

The above listing of financial solutions has identified a number of areas where MDBs activities overlap. For example, project pipeline preparation facilities exist in overlapping geographies, sectors, and processes. Centralizing such initiatives avoid the duplication of efforts. In general, the financial solutions that should be kept separated are the ones dealing with a country specific environmental situation or that depend solely on a single country's specific institutional environment. For example, these include the ADB-China Green Finance Platform for air quality in Northern China<sup>91</sup> or the EBRD splitting its Green Economy Financing Facilities into country-specific programs<sup>92</sup>. An alternative mechanism is to merge funds at an overarching level, with separate sub-funds for specific areas such as the Climate Investments Funds which are implemented jointly by the MDBs.

The main challenge with increased MDB cooperation on projects and financial solutions is that complexity can be added from involving more stakeholders. This complexity can come both from MDB members' specific priorities, MDBs' different local cooperation partners, as well as more stakeholders simply from a greater coverage on geographies and sectors. Additional challenges may stem from closing down programs and laying off staff in the process of integrating financing solutions. Consequently, in considering the feasibility of cooperation and program mergers, MDBs have to anticipate these potentially added costs.

The MDB characteristics applied in this recommendation includes (4) know-how and technical assistance, (5.A) policy support, and (5.B) specialized mechanisms. The green finance challenges addresses are primarily the (1.C) distorting subsidies and feed-in-tariffs of the institutional environment, (2.C) competition for green projects between providers of specialized funds, and (4.B) shortage of specialized funds and tools in financial markets.

89 Brookings (2018). *The New Global Agenda and the Future of the Multilateral Development Banking System*. Washington DC, USD: Brookings Institution

90 OECD (2011). *The Busan Partnership for Effective Development Co-operation*. Retrieved from: <http://www.oecd.org/development/effectiveness/busanpartnership.htm>

91 ADB (2018). *Green Financing Platform for Accelerated Air Quality Improvement*. Retrieved from: <https://www.adb.org/projects/50096-001/main>

92 EBRD (2018b). *Green Economy Financing Facilities*. London, UK: EBRD

## 8. Reapply Existing Non-Green Financial Solutions Towards Green Purposes

A number of non-green financial solutions have a potential to be modified to be green. As MDBs are increasingly emphasizing financing for climate and other green areas, existing successful financing solutions targeted at other priorities can in some cases be duplicated or modified to include green finance. These include a number of tools such as project preparation facilities, social impact bonds, and credit lines. As with the financing solutions above, a number of cases exist that differ by actor(s), function, potential relation to green finance as a concept, relation to the above listed green finance challenge(s), and application of which MDB characteristic(s) Such an update on policy and practice towards the post-2015 development agenda is directly encouraged by the Addis Ababa Action Agenda<sup>93</sup>. Each MDB can analyze their respective financing solutions, to determine low-hanging fruits for scaling up green financing towards their goals.

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<sup>93</sup> Addis Ababa Action Agenda (2015). *Addis Ababa Action Agenda (AAAA) of the Third International Conference on Financing for Development*. Addis Ababa, Ethiopia: United Nations.

## VI. Conclusion

First, this paper identifies five characteristics of MDBs, as based on Addis Ababa Action Agenda from the third United Nations International Conference on Financing for Development. These are: 1) Long-term & stable, 2) counter-cyclical, 3) concessional, 4) know-how and technical assistance, 5) private capital mobilization. Second, the paper identifies four main categories of challenges associated with scaling up green finance by combining a broad variety of relevant literature, namely: 1) institutional environment, 2) project financiers, 3) project owners, 4) financial markets. This methodology takes an exhaustive approach to both MDB characteristics and green finance challenges, rather than being centered around specific aspects of each through a narrower scope. To ensure the practical applicability of the paper's conclusions, the analysis is rooted in concrete examples of MDB projects and initiatives, combining a top-down theoretical approach with a bottom-up use of cases as retroductive reasoning.

The analysis of the paper combines the characteristics of MDBs with the challenges of green finance. This is done by first analyzing current examples categorized by four financial solutions, namely 1) adding, pooling & enabling, 2) debt-based, right-timing, 3) risk management, and 4) results-based financing. The analysis identifies concrete current solutions and relates these back to the characteristics of MDBs and challenges of green finance. Second, this allows for recommendations to be developed on how MDB characteristics can be used in addressing the challenges, and where MDBs cannot adequately address the challenges.

In climate financing alone, in 2016 all MDBs together provided over \$27bn of which 77% were labelled as mitigation and 23% as adaptation<sup>94</sup>. In the 2013-2015 period MDB climate finance amounted to over one third of developed countries climate financing support to developing countries, working to fulfil the 2020 promise of \$100bn under the UNFCCC<sup>95</sup>. Based on their commitments, MDBs will provide 40% of global developed to developing country climate flows by 2020<sup>96</sup>. While the cumulative numbers are large, it is critical to view these as a proportion of total financing, as well as consider the greenness of MDBs non-climate and non-green portfolio. It is further important to consider the overall greenness of MDBs portfolios. Comparing MDBs current portfolios with a 2-degree warming scenario, the WRI concludes that 17% of financing is aligned with a 2-degree pathway, 57% is conditional, 22% is controversial, and 3% are misaligned<sup>97</sup>. This provides an indication that MDBs need to change business-as-usual to be aligned with green policy objectives.

In analyzing MDBs current role in green finance, the paper finds that MDBs are 1) increasing prioritizing green and climate issues in mandating and strategic documents, 2) have substantial differences in their approach and definition of green, 3) in their entirety address most of the challenges to green finance, but at varying extent and by different means, 4) have degrees of overlap between financing solutions, potentially leading to duplication and less efficient use of resources, 5) while applying similar finance mechanisms, do not agree on the value and necessity to use green bonds to raise capital.

94 MDB Joint Report (2016). *Joint Report on Multilateral Development Banks Climate Finance*

95 OECD & CPI (2015). *Climate Finance in 2013-14 and the USD 100 billion goal*. Paris, France: OECD

96 OECD (2017). *Investing in Climate. Investing in Growth*. Paris, France: OECD

97 WRI (2017). *Financing the Energy Transition: Are World Bank, IFC, And ADB Energy Supply Investments Supporting A Low-Carbon Future?*. Washington DC, USA: WRI

## Recommendations for MDBs to improve engagement in green finance

### 1. Prioritize Private Capital Mobilization

MDBs can play a critical role in mobilizing the private capital required to finance environmental sustainability. It is acknowledged that the private sector will provide the main proportion of financing for sustainable development and that MDBs historically have one of the highest capital leveraging abilities. According to the MDB's *From Billions to Trillions* report mobilization rates of MDBs are often between \$2-5<sup>98</sup>, which is substantially higher than estimates of other sources such as North to South climate financing<sup>99</sup>. While some MDBs do so already, this paper recommends MDBs to prioritize capital mobilization as basis for all operations.

### 2. Promote and Develop of Green Finance Standards

Given their authority in development finance, joint MDB action on green standard setting can be influential in setting global standards for all stakeholders. In order to be able to compare definitions of green finance by different stakeholders, MDBs can use their authority in developing consensus-based standards such as with the MDB-IDFC *Common Principles for Climate Mitigation Finance Tracking*<sup>100</sup>. Such standards can be used both at project level or as green bonds, green credit, green insurance, as well as in organizations' green finance reporting.

### 3. Extend Individual and Joint MDB Green Finance Reporting

Transparent and comparable individual and joint reporting by MDBs on green finance would clarify their cumulative role. Today, MDBs jointly report on their climate financing, but not on green financing. On the contrary, the International Development Finance Club (IDFC) reports specifically on their members' green financing<sup>101</sup>. Using a similar methodology to their current joint climate finance reporting, MDBs can apply the same scope as the IDFC, disclosing both climate and green financing separately in the same report. With momentum developing for expanding climate reporting through the Financial Stability Board's Task Force on Climate Related Financial Disclosure, MDBs can develop reporting from being climate focused to include more green factors<sup>102</sup>.

### 4. Implement Internal Carbon Pricing

Since external carbon pricing is not applied in all countries, MDBs can use internal carbon pricing to increasingly internalize externalities and mitigate physical and transition risks in project financing. Depending on the method of internal carbon pricing this can directly impact project bankability or at the minimum provide a basis for discussing the carbon footprint of each project. To be compatible with the Paris Agreement, the Carbon Pricing Leadership Coalition suggests a \$40-\$80 range by 2020<sup>103</sup>. While internal carbon pricing can provide a direct cost incentive in project evaluation, it can also be used in tandem with improved environmental risk assessment methodologies to comprehensively capture environmental factors on both the project cost and project risk side.

### 5. Focus on Targeted Rather Than Broad Concessional Support

While MDBs' concessional financing can incentivize financing towards certain policy objectives, such support may have adverse market distorting effects. This report suggests that within

98 MDBs (2015). *From Billions to Trillions: MDB Contributions to Financing for Development*

99 OECD & CPI (2015). *Climate Finance in 2013-14 and the USD 100 billion goal*. Paris, France: OECD

100 MDB-IDFC (2015). *Common Principles for Climate Mitigation Finance Tracking*

101 IDFC (2016). *IDFC Green Finance Mapping Report 2016*

102 FSB-TCFD (2017). *Recommendations of the Task Force on Climate-related Financial Disclosures*. Basel, Switzerland: FB

103 Carbon Pricing Leadership Coalition (2017). *Report of the High-Level Commission on Carbon Prices*.

green finance, MDBs carefully target their concessional support rather than provide broad subsidies, along the guidelines of the Development Finance Institutions' recommendations<sup>104</sup>. In many aspects of green finance there is a clear business case, suggesting that rather than long term concessional financing, stakeholders need short-term concessional interest or tenor as well as technical assistance from MDBs.

## 6. Enhance Environmental Risk Assessment

Despite the financial experience of MDBs, the rapidly changing environmental circumstances presents challenges to current methodologies of risk assessments. In addition to classical project internal financial properties and external risk factors, MDBs have to use new methods for including physical climate risks and transitional environment-related risks as highlighted by the 2017 G20 Green Finance Study Group<sup>105</sup> and the Financial Stability Board's Task Force on Climate Related Financial Disclosure<sup>106</sup>. Such methodologies should adequately include asset-level data, impact measurement, potential scenarios, management implications, and other case-specific variables.

## 7. Expand MDB Cooperation for Economies of Scale

MDBs can increase the efficiency of their green financing by merging together a number of financing solutions across MDBs. While MDB competition on policy advice, pricing, and financing modalities can be healthy it can also lead to a suboptimal outcome for the development finance system<sup>107</sup>. While it is critical for financing solutions to be tailored to local environments, the paper identifies a number of overlapping financing solutions. The fundamental argument for this recommendation is that if enough characteristics of MDBs financing solutions overlap, increased efficiency can be achieved through economies of scale. This is ultimately towards the fulfillment of the 'partnership' principles of the Busan Partnership for Effective Development Co-operation<sup>108</sup>.

## 8. Reapply Existing Non-Green Financial Solutions Towards Green Purposes

A number of non-green financial solutions have potential to be modified or replicated to be green. As MDBs are increasingly emphasizing financing for climate and other green areas, existing successful financing solutions targeted at other priorities can in some cases be effectively revised to include green finance. Such an update on policy and practice towards the post-2015 development agenda is directly encouraged by the Addis Ababa Action Agenda<sup>109</sup>. Each MDB can analyze their respective financing solutions, to identify their respective low-hanging fruits for scaling up green financing towards their goals.

As MDBs across the board are scaling up green financing, an effective and efficient approach to this effort is critical. This paper has found that MDBs can benefit from greater coordination of their approaches, methodologies, and practice while maintaining their individual unique features required by their local environment. Through the above recommendations, MDBs can work towards realizing their potential and expectation to providing a critical piece in the puzzle for meeting the global green financing need.

104 Development Finance Institutions (2017). *DFI Working Group on Blended Concessional Finance for Private Sector Projects*.

105 G20 Hamburg (2017). *G20 Green Finance Synthesis Report 2017*. Hamburg, Germany: G20

106 FSB-TCFD (2017). *Recommendations of the Task Force on Climate-related Financial Disclosures*. Basel, Switzerland: FB

107 Brookings (2018). *The New Global Agenda and the Future of the Multilateral Development Banking System*. Washington DC, USD: Brookings Institution

108 OECD (2011). *The Busan Partnership for Effective Development Co-operation*. Retrieved from: <http://www.oecd.org/development/effectiveness/busanpartnership.htm>

109 Addis Ababa Action Agenda (2015). *Addis Ababa Action Agenda (AAAA) of the Third International Conference on Financing for Development*. Addis Ababa, Ethiopia: United Nations.

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## Appendix 1. Assessment of MDBs Individual Engagement in Green Finance

- **African Development Bank Group (AfDB)**

The African Development bank (AfDB) was established in 1964 and mandated to contribute to the sustainable economic development and social progress of its regional members individually and jointly<sup>110</sup>. The two main objectives promoted by AfDB are inclusive and green growth in its 2013-2022 strategy<sup>111</sup>, highlighting the so-called “High 5s”: 1) Light up & Power Africa, 2) Feed Africa, 3) Industrialize Africa, 4) Intergrade Africa, and 5) Improve the quality of life for the people of Africa. In order to further its development implementation, the AfDB produced its second *Climate Change Action Plan 2016-2020*, which committed to achieve a climate-resilient and low carbon growth on the African Continent<sup>112</sup>.

As part of the AfDB’s 2013-2022 strategy green growth is a crosscutting priority, defined as including resilience to climate shocks, sustainable infrastructure, ecosystem services, and efficient and sustainable use of natural resources. The actions in dealing with climate change is regarded by the banks as an opportunity to drive the climate resilient and low-carbon economic transformation in African development. As part of its safeguards, the AfDB takes into account climate change considerations in financing, although climate financing is a smaller proportion. Overall, this accounted for \$1bn or 9% of overall investments in 2016<sup>113</sup>.

In order to leverage green finance in African countries, the AfDB works with countries through a set of 9 climate funds, mechanism, and policy initiatives, including Africa Climate Change Fund, African Water Facility, Agriculture Fast Track Fund, Climate Investments Funds, Congo Basin Forest Fund, Sustainable Energy Fund for Africa, ClimDev-Africa Special Fund, as well as through the GEF and GFC<sup>114</sup>. Other financing solutions with green components include the Enhanced Private Sector Assistance Program and Partial Risk Guarantees. AfDB’s inaugural green bond was issued in 2013 at amount of \$500mn with 0.75% coupon rate. Up to date, the AfDB has been issued in 3 different currencies (USD, SEK, AUD) dominated green bonds in totaling around \$3.5bn with coupon rates varying from 0.375% to 3.5%. According to the AfDB’s green bond framework, use of proceeds must be used for low- carbon development or climate resilient development<sup>115</sup>.

For the future, AfDB has declared it will triple its climate finance to reach \$5bn a year by 2020, equivalent of 40% of total approvals in all key sectors. The majority of these 40% will come from the energy sector<sup>116</sup>. However, although AfDB has made a large effort in climate finance, total climate financing for Africa is identified as inefficient by AfDB president, Akinwumi Adesina “The current climate financing architecture is not providing the finance Africa need. Much more needs to be done to increase Africa’s access to climate finance.” Except traditional internal financing sources, AfDB therefore expected to scale up private finance through Public-Private Partnership (PPP) as well as leverage market mechanisms in Africa such as REDD+<sup>117</sup>.

110 AfDB (2011) *Agreement Establishing the African Development Bank*. Abidjan, Côte d'Ivoire: AfDB.

111 AfDB (2013). *At the Center of Africa’s Transformation. Strategy for 2013–2022*. Abidjan, Côte d'Ivoire: AfDB

112 AfDB (2017). *Second Climate Change Action Plan 2016-2020*. Abidjan, Côte d'Ivoire: AfDB

113 MDBs (2016). *Joint Report on Multilateral Development Banks Climate Finance*

114 AfDB (2015). *UNFCCC COP21 Meeting. Africa’s Climate Opportunity: Adapting and Thriving*. Abidjan, Côte d'Ivoire: AfDB

115 AfDB (2013b). *Green Bonds Framework: Portfolio Selection, Allocation of Proceeds and Monitoring*. Abidjan, Côte d'Ivoire: AfDB

116 AfDB (2017). *Second Climate Change Action Plan 2016-2020*. Abidjan, Côte d'Ivoire: AfDB

117 AfDB (2015b). *Climate Finance*. Retrieved from: <https://www.afdb.org/en/cop21/climate-finance/>

- **Asian Development Bank (ADB)**

In 1966, the Asian Development Bank (ADB) was established and mandated to foster economic growth and regional co-operation<sup>118</sup>. *Strategy 2020*, the long-term strategic framework of the ADB for 2008-2020, identifies three strategic agendas, namely inclusive economic growth, environmentally sustainable growth, and regional integration. Environment, including climate change, is one of five core intervention areas, the other four being infrastructure, regional co-operation and integration, financial sector development, and education<sup>119</sup>. Moreover, with the intention of being consistent with Rio+20 and United Nations' 2030 Agenda for Sustainable Development, ADB outlines clear objectives in *Environmental Operational Directions 2013-2020*<sup>120</sup> and *2016 Sustainability Report*<sup>121</sup>.

Environmental issues, in particular with regard to climate change, have increasingly become ADB's key focus in recent decades. Since the early 1990s, ADB has demonstrated ability in tackling serious environmental issues and put forth efforts to enhance understanding of the regions' GHG emission and aimed to achieve mitigation targets under the United Nations Framework Convention on Climate Change. Labelled as 'green growth', the ADB defines green within sustainable infrastructure, natural capital investment, environmental governance and management, as well as climate change as a stand-alone and crosscutting issue<sup>122</sup>. ADB is the first multilateral development bank to present a consolidated climate change portfolio with detailed information on financing<sup>123</sup>. While no clear number exists on green finance, ADBs climate finance in 2016 amounted to \$3.7bn, at 11,7% of total financing. Of this, 94% were loans, with the remainder being grants, equity, guarantees, and technical assistance.

Historically and today, the ADB has used a wide variety of green financing solutions. Most recently the ADB launched a conceptual approach for governments, Green Finance Catalyzing Facility (GFCCF), to utilize public and private finance into green projects. Several funds are mobilized or managed by the ADB to help member countries access finance for tackling climate change and disaster risks problems, such as the Future Carbon Fund, Climate Investment Funds (CIF) and Asia Pacific Disaster Response Fund. Furthermore, the ADB is accredited and receives funding both from the Global Environment Facility and the Green Climate Fund. Since 2015, the ADB has issued green bonds three times at a total volume of \$3.05bn, which according to the ADB's Green bond framework is allocated exclusively to climate purposes, rather than within a broader definition of green<sup>124</sup>. Consistent with its commitment to scale up climate financing, ADB intends to maintain a regular presence in the green bond market.

According to ADB President, Takehiko Nakao, the ADB remains committed to scaling up its climate financing to \$6bn by 2020, of which \$4bn will target mitigation and \$2bn adaptation. This increase will constitute 30% of overall financing by 2020<sup>125</sup>. Though the number is not to be confused with climate finance, the share of ADB operations with a climate change component was 45% in 2013-2015, reaching its 2016 target a year early.

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118 ADB (1966). *Agreement Establishing the Asian Development Bank*. Manila, Philippines: ADB

119 ADB (2008). *Strategy 2020*. Manila, Philippines: ADB

120 ADB (2013). *Environment Operational Directions 2013-2020*. Manila, Philippines: ADB

121 ADB (2016). *ADB Sustainability Report*. Manila, Philippines: ADB

122 ADB (2013). *Environment Operational Directions 2013-2020*. Manila, Philippines: ADB

123 ADB (2017b). *ADB Climate Financing Database*. Retrieved from: <https://www.adb.org/climate-change-financing>

124 ADB (2017c). *ADB Sells Dual-Tranche Global Green Bonds to Spur Climate Financing*. Retrieved from: <https://www.adb.org/news/adb-dual-tranche-global-green-bonds-spur-climate-financing>

125 ADB (2015). *ADB to Double Annual Climate Financing to \$6 Billion for Asia-Pacific by 2020*. Retrieved from: <https://www.adb.org/news/adb-double-annual-climate-financing-6-billion-asia-pacific-2020>

- **Asian Infrastructure Investment Bank (AIIB)**

The Asian Infrastructure Investment Bank (AIIB) was established in 2015 with an authorized capital stock of \$100bn. It is mandated to foster sustainable economic development and regional cooperation by investing in infrastructure in Asia, based on the concept of being lean, clean, and green<sup>126</sup>. Sustainable infrastructure is ranked as the first of all three thematic priorities identified in the bank's 2017 business plan, the other two priorities being cross-border connectivity and private capital mobilization. The AIIB remains to release a 5-10 year strategic document in line with most other MDBs. In terms of strategic documents covering green finance, the AIIB Sustainable Energy for Asia aims to support members in fulfilling their NDC's to the Paris Agreement focusing on renewable energy, energy efficiency, rehabilitation and upgrading of existing plants, and transmission and distribution networks<sup>127</sup>.

With green being one of the three core values of the AIIB, the concept is embedded into all operations. The AIIB defines green as: "The Bank is committed to financing infrastructure that is environmentally friendly and socially sustainable, and it will support members in their transition towards a low-carbon energy mix"<sup>128</sup>. Up until January 2018, the AIIB approved financing for 24 projects at a total value of \$4.4bn. Of this, all financing was in the form of loans with 54% co-financed with other MDBs such as the WB, EIB, and EBRD. While no official accumulative statistics have been released on the AIIBs green and climate finance, the project portfolio includes projects on pollution prevention, low-carbon mass transit, solar power, and hydro power<sup>129</sup>.

Financing solutions with green components include the AIIB Project Preparation Special Fund, established in year 2016 as a multi-donor fund by providing grants to support and facilitate preparation of projects in member countries<sup>130</sup>. In general, the bank has a financing ceiling of 35% of total project costs. Until now, AIIB has not issued any conventional or green bonds. According to Chinese State Media Xinhua, the bank may issue its first U.S. dollar-denominated bond around the end of June in year 2018, the minimum size would be \$1bn but a larger size is expected<sup>131</sup>.

For the future, the AIIB commenced operations on January 2016 to help its members meet an estimated \$21 trillion financing gap between the region's demand for infrastructure, projected at \$40 trillion from 2015 to 2030, and available financial resources.<sup>132</sup> However, as the AIIB is a newly built multilateral bank, its current focus is still to sharpen the bank's long-term strategies and institution building. It is expected that the AIIB will gradually scale up its lending to \$10-15bn per year<sup>133</sup>.

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126 AIIB (2015). *Articles of Agreement*. Beijing, China: AIIB

127 AIIB (2017). *Energy Sector Strategy: Sustainable Energy for Asia*. Beijing, China: AIIB

128 AIIB (2016). *Annual Report*. Beijing, China: AIIB

129 AIIB (2018). *Approved Projects*. Retrieved from: <https://www.aiib.org/en/projects/approved/index.html>

130 AIIB (2017). *The Use of Resources of the AIIB Project Preparation Special Fund*. Beijing, China: AIIB

131 Xinhua (2018). *AIIB eyes first USD bond issuance as early as June*. Retrieved from: [http://www.xinhuanet.com/english/2018-01/07/c\\_136878054.htm](http://www.xinhuanet.com/english/2018-01/07/c_136878054.htm)

132 AIIB (2016C). *2017 Business Plan and Budget*. Beijing, China: AIIB

133 Forbes (2018). *China's AIIB Expected to Lend \$10-15B A Year, But Has Only Managed \$4.4B In 2 Years*. Retrieved from: <https://www.forbes.com/sites/salvatorebabones/2018/01/16/chinas-aiib-expected-to-lend-10-15b-a-year-but-has-only-managed-4-4b-in-2-years/#5dd6dd5437f1>

- **European Bank for Reconstruction and Development (EBRD)**

The European Bank for Reconstruction and Development (EBRD) was established in 1991 and mandated to enhance economic progress and reconstruction towards open market-oriented economies as well as the promotion of private and entrepreneurial initiatives in the Central and Eastern European countries.<sup>134</sup> Notably, the EBRD is the first MDB which has environmentally sound and sustainable development written into its fundamental mandate<sup>135</sup>. The EBRD's *Environmental and Social policy* details the commitments of the EBRD “to promote environmentally sound and sustainable development in the full range of its activities”, which is aligned with the Equator Principles of the IFC and the EU environmental standards<sup>136</sup>.

The EBRD itself considers the concept of sustainability as a fundamental aspect of achieving outcomes consistent with its transition mandate. According to EBRD's *Focus on Environmental Presentation*, saying “Green Finance has been firmly anchored in the Banking Department of the EBRD since 1994 and is overseen by the head of banking operations.” In 2015, the Green Economy Transition approach was launched in order to put investments that bring environmental benefits at the heart of the EBRD's mandate. Specifically, the new approach was built upon its two previous initiatives, the Sustainable Energy Initiative and the Sustainable Resource Initiative, but expands to take into account climate change mitigation and adaptation projects as well. The definition of green within this initiative goes beyond climate change to include sustainable use of resources and protection of natural assets and rehabilitation of environmental damage. The EBRD's total financing for the green economy grew from \$3.5bn in 2016 to \$5.1bn in 2017, amounting to 43% of total financing. This is a three-year early fulfilment of the EBRD's pledge to the Paris Agreement of 40% green financing by 2020<sup>137</sup>. In general, the EBRD supports green projects in a range ranges between \$6mn and \$309mn, in the form of loans or guarantees.

In the end of year 2017, EBRD announced its launch of the Green Cities Climate Finance Accelerator in partner with Global Covenant of Mayors for Climate and Energy (GCoM), which aims to drive climate actions in up to 60 cities. Other specific financing solutions include the Green Economy Financing Facility in various countries, as well as partly green mechanisms such as the Direct Investment Facility, and the Infrastructure Project Preparation Facility. In addition, EBRD has issued green bonds for both climate projects (energy efficiency and renewable energy) and sustainable resources projects (water management; waste management; air pollution prevention/ transport). Up to now, The EBRD has cumulatively issued 64 bonds with a totaling value of \$2.9bn since 2010, which were denominated in seven different currencies (AUD, BRL, IDR, INR, NZD, RUB, TRY and USD).

According to EBRD's *Strategic and Capital Framework 2016-2020*<sup>138</sup>, the EBRD is committed to investing 40% of total funds in in the green economy annually<sup>139</sup>. Yet, as mentioned, the 40% target was already surpassed in 2017.

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134 EBRD (1990). *Agreement Establishing the European Bank for Reconstruction and Development*. London, UK: EBRD

135 EBRD (2017). *Presentation: Focus on Environment*. London, UK: EBRD

136 EBRD (2014). *Environmental and Social policy*. London, UK: EBRD

137 EBRD (2018). *EBRD meets ambitious green-economy goals early as investment hits new record*. Retrieved from: <http://www.ebrd.com/news/2018/ebrd-meets-ambitious-greeneconomy-goals-early-as-investment-hits-new-record.html>

138 EBRD (2015). *Strategic and Capital Framework 2016-2020*. London, UK: EBRD

139 EBRD (2016). *Sustainability Report*. London, UK: EBRD

- **European Investment Bank (EIB)**

The European Investment Bank (EIB) was established to be the financing institution of the EU to support policy objectives and operation<sup>140</sup>. From its *Climate Strategy*, it is clear that climate and environment is one of four central priorities in EIB, the other three being innovation and skills, small and medium sized enterprises, and infrastructure. In this effort, the EIB aims to play a leading role in mobilizing finance for the transition to a low-carbon and climate-resilient economy. This is further shown by the EIB commitment to continuingly providing a minimum of 25% of its lending to specific climate action projects, and 35% in non-EU countries<sup>141</sup>.

As one of its key purposes, the EIB considers itself as the world's largest financiers of climate actions. Climate and environment are separated within the EIB, with climate referring to mitigation and adaptation and environment including sustainable transport, environment protection, biodiversity and natural resources, de-pollution, water supply and wastewater, circular economy and waste management, disaster risk management, clean and efficiency energy production and use. Together, they can be labelled as green finance. So far, the EIB has funded sustainable project in over 130 countries in developed countries and developing countries. In 2016, the EIB's support for climate finance totaled \$23.4bn, representing around 26% of lending<sup>142</sup>.

Fundamentally, the EIB actively acts as a catalyst to mobilise private finance in order to match its long-term investment strategies. The bank has therefore developed a series of mechanisms to do so. These include equity funds, layered risk funds (Green for Growth Fund, European Energy Efficiency Fund) and fund of funds (Global Energy Efficiency and Renewable Energy Fund). The EIB has also developed joint instruments with its partners, such as within energy efficiency (Private Finance for Energy Efficiency) or conservation of natural capital measures (Natural Capital Financing Facility). Furthermore, the EIB was the world's first green bond issuer in 2007 by issuing its Climate Awareness Bond (CAB) and remains the largest issuer to date. Green bonds with a totaling value of \$22,3bn have been issued so far to help finance 160 climate change mitigation projects to date. Recently, in cooperation with the China Green Finance Committee the EU has been working towards the harmonization of green bond standards.

For the future, the EIB is committed to providing \$100bn for climate related investment in the five years up to 2020<sup>143</sup>. Emphasizing the important role of green bonds, the EIB President Hoyer sees green bonds alongside other green finance instruments as key instrument for providing \$90tn in sustainable investment by 2030<sup>144</sup>.

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140 EIB (2014). *The Statute and Other Treaty Provision*. Luxembourg, Luxembourg: EIB

141 EIB (2015b). *Climate Strategy*. Luxembourg, Luxembourg: EIB

142 EIB (2017b). *CAB Strategy & Factsheet. February 2017*. Luxembourg, Luxembourg: EIB

143 EIB (2016b). *Climate finance cuts risk*. Retrieved from: <http://www.eib.org/stories/climate-finance-cuts-risk>

144 EIB (2017) *Promoting Green Finance, Tackling Climate Change*. Retrieved from: <http://www.eib.org/infocentre/press/releases/all/2017/2017-320-promoting-green-finance-tackling-climate-change-eu-bank-president-joins-capital-market-leaders-in-bonn.htm>

- **Inter-American Development Bank (IaDB)**

The Inter-American Development Bank (IaDB) was established in 1959 and mandated to foster the economic and social development of the IaDB's borrowing members countries, both individually and collectively.<sup>145</sup> Climate change and environmental sustainability is one of three crossing cutting issues identified by the IDB in its *Update to the Institutional Strategy 2016-2019*, the other two being gender equality and diversity, as well as institutional capacity and the rule of law<sup>146</sup>. *The Sustainability Report* in 2016 further emphasizes that the IaDB's focus areas are climate change, sustainable infrastructure, sustainable cities, natural capital, social sustainability, and safeguards.

The climate change and sustainable development concepts in the IaDB have been created to ensure a coordinated and consistent approach for sustainability issues, including urban and rural development, tourism, environment and natural disasters. Green finance includes climate change mitigation and adaptation as well as sustainable infrastructure, sustainable urbanization, as well as natural capital. To date, the IaDB is the largest source of multilateral financing to Latin America and the Caribbean offering loans, grants and guarantees to sovereign and private sector clients. In 2016, the IaDB provided \$2,6bn in financing towards climate change, constituting 22% of approvals<sup>147</sup>.

The new launch of the NDC invest platform includes 1) NDC Programmer, 2) NDC Finance Mobilizer, 3) NDC pipeline accelerator and 4) NDC Market Booster, in order to provide more financial and technical assistance for each member country to meet its nationally determined climate commitment. The IaDB works with several funds including Climate Investment Funds, Global Environment Facility, Forest Carbon Partnership Facility, Adaptation Fund, Green Climate Fund, UKAid, InfraFund, Sustainable Energy and Climate Change Initiative (SECCI). Except traditional loans, the IaDB has a number of innovative financing instruments for funding green infrastructure projects, such as technical cooperation grants, guarantees and equity investment. Moreover, the IaDB offers concessional financing and grants to support the development of its sovereign lower income borrowers. More specifically, the IaDB has a number of programmes to support certain sustainable activities<sup>148</sup>, for example, The Climate and Clean Energy Facility (CCF), The Energy Efficiency Guarantee Mechanism (EEGM), Energy Efficiency and Self-Supply Renewable Energy Program (PEERA), and Climate Smart Agriculture Fund (CSAF). While the IaDB has not issued green bonds itself, it has established the Regional Green Bond Facility to support local potential issuers. In the late 2017, the IaDB had already supported Columbia to issue its inaugural green bond with a totaling value of 200bn pesos in its local market<sup>149</sup>.

In the IaDB's long term strategy, it has set a goal that 30% or \$4bn of IaDB Group financing will be climate-related by 2020. Also, the IaDB will continuously increase the use of innovative instruments for leveraging private sector finance for mainstreaming adaptation and climate resilience, such as green bonds<sup>150</sup>.

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145 "IaDB" (1959). *The Agreement Establishing the IDB*. Washington DC, USA: IaDB

146 "IaDB" (2015). *Update to the institutional Strategy 2016-2019 (UIS)*. Washington DC, USA: IaDB

147 "IaDB" (2017) *Sustainability report 2016*. Washington DC, USA: IaDB

148 "IaDB" (2018) *Blended Climate Fund*. Retrieved from: <http://www.iic.org/en/blended-climate-funds#.WmqZ3a6Wao0>

149 "IaDB" (2017). *Colombia issues its first green bond*. Retrieved from: <https://www.IaDB.org/en/news/news-releases/2017-08-09/green-bonds-in-colombia%2C11865.html>

150 "IaDB" (2017). *Sustainability report 2016*. Washington DC, USA: IaDB

- **Islamic Development Bank (IsDB)**

The Islamic Development Bank (IDB) was established in 1975 and mandated to foster economic and social progress of member countries in Muslim communities<sup>151</sup>. As the key objectives of the bank are to promote Islamic financial industry, alleviate poverty and enhance cooperation among member countries. Environment in general is therefore not identified as one of their “5 + 1” strategic pillars in *IDB’s 10- year Strategic Framework* currently. Although IDB is not alike other MDBs to include environment development as one priority in future plan, IDB does recognize the significance to adapt and combat with climate change<sup>152</sup>. The Islamic Development Bank is rooted in Religion and driven by the vision of Islam, of that is an obvious difference from other MDBs. Therefore, proper governance on natural environment is regarded as a key part of human development in Islam being as God’s servant and vicegerent<sup>153</sup>. Of the \$12.2bn of financing provided in 2016, the IsDB does not break down how much attributed to climate of other environmental areas, although many projects include such related aspects.

Environmental sustainability is one of the key areas along with child mortality, maternal health, diseases are top issues expected to be addressed in the bank’s Key Strategic Trust in health. The bank also makes a commitment to provide clean drinking water for two thirds of people who had these difficulties before by 2018. Financial capital goes to the building of infrastructure in member countries, where agriculture together with health and education are seen as the key levers for poverty alleviation<sup>154</sup>. IsDB Unit Investment Fund (UIF), IDB infrastructure Fund (IIF) and AWQAF Properties Investment Fund are the main funds managed by the IDB to support infrastructure development in its member countries. In terms of green bonds, the IsDB has not yet issued the Islamic equivalent called a green sukuk, but has assisted the Malaysian government in 2017 to carry out the world’s first issuance<sup>155</sup>.

As an indication of its increasing green ambitions the IsDB signed a memorandum of understanding with UNEP in 2016, covering cooperation within climate change, agriculture and food security, eco-innovation and green economy, and Islamic finance<sup>156</sup>. Indicating that the IsDB is increasing its green finance efforts the IsDB President Hajjar stated at the One Planet Summit in Paris in 2017: “IsDB has taken several steps since COP22 to help address challenges related to climate change, including the establishment of a new Climate Change division. Moreover, there is a new focus on using Science, Technology and Innovation for Development. We have established a \$500mn STI Fund. This Fund will contribute to developing climate smart solutions using the power of Science and Technology particularly in energy, transport and water”<sup>157</sup>.

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151 IsDB (1975). *Articles of Agreement*. Jeddah, Saudi Arabia: IsDB

152 IsDB (2015). *The 10-year Strategic Framework 2016-2025*. Jeddah, Saudi Arabia: IsDB

153 IsDB (2006). *Vision 1440H: A Vision for Human Dignity*. Jeddah, Saudi Arabia: IsDB

154 IsDB (2018). *Project Financing Strategy*. Retrieved from: <http://www.isdb.org/irj/portal/anonymous?NavigationTarget=navurl://cc7e5c2235d5868176648a426fbb2e8b>

155 WBG (2017c). *Learn About Green Sukuk*. Retrieved from: <http://www.worldbank.org/en/news/infographic/2017/09/19/malaysia-green-sukuk>

156 UNEP (2016). *UNEP and Islamic Development Bank Sign Agreement*. Retrieved from: <http://web.unep.org/newscentre/unep-and-islamic-development-bank-sign-agreement-environmental-conservation>

157 IsDB (2017). *Press Release: Islamic Development Bank pledges more Climate-Related Financing*. Jeddah, Saudi Arabia: IsDB

- **New Development Bank (NDB)**

The New Development Bank (NDB) was founded in 2015 and mandated to mobilize resources for infrastructure and sustainable development projects in BRICS and other emerging market economies<sup>158</sup>. The NDB emphasizes five key areas in its *General Strategy: 2017-2020*: 1) clean energy, 2) transport infrastructure, 3) irrigation, water resources management and sanitation, 4) sustainable urban development and 5) economic cooperation and integration<sup>159</sup>. A few landmark events, including the SDGs, COP21 and the G20 Summit in China, have been acknowledged by the NDB as shaping its foundations. Environmental sustainability is therefore seen as widely embedded into all aspects of the NDB's operations and seen as one of its priority in the following five years<sup>160</sup>. Compared to other MDBs, the NDB has a greater focus on supporting local country agendas, rather than implementing the MDBs own strategic priorities.

According to NDB's *Environment and Social Framework*<sup>161</sup>, the NDB is committed to adhere to the principles of environmental and social sustainability to ensure minimal adverse impacts on the environment and people from its projects. While the NDB has no clear benchmark defining "green", it expects to do non-infrastructure investment aligned with the *Green Bond Principles* as well as saying the bank will be green on both the lending and funding side. This indicates a broad scope of the green concept, which is still undergoing dynamic development in the NDB today. The NDB does not provide an official proportion of green investment, but by applying the GBP's green definition, to the NDB's project database it is possible to calculate the number<sup>162</sup>. With \$2.3bn invested in GBP aligned projects of total of \$3.4bn it suggests that 68% of all investments can be defined as green.

Currently, direct loans are the dominant approach within the NDB to fund green projects and notably more than half (6 out of 13) of all projects are targeted to renewable energy. The NDB has lent \$1.5bn and \$2.5bn loans in the year of 2016 and 2017 respectively. Yet, in the long run the NDB is committed to utilize a full range of financing instruments, moving beyond long-term loans to include guarantees, syndicated loans with private investors, equity investments, project bonds and co-financing arrangements with national and multilateral financial institutions. It is further worth noting that the NDB does not lend out on concessional terms<sup>163</sup>. On the other hand, except paid-in capital by each member country, green bonds are the other vital financing source that raised RMB3bn (\$441mn) with a tenor of 5 years under criteria in line with the *Green Bond Principles*. In addition, by issuing its inaugural onshore green bond in China in 2016, the NDB became the first multilateral financial institution to issue a green bond in the Chinese inter-bank bond market.

In accordance with a strong focus on sustainability, NDB has made strong commitment to provide \$4bn worth of loans in the year of 2018, to issue more green bonds in the growing market, and to invest two-thirds of financing income in sustainable infrastructure within the next five years. Looking forward, the NDB President K. V. Kamath explains: "Everything that we do has to be sustainable. Broadly we have said that 60% should go to renewable projects. About \$1-1.5tn per year is the funding need of the sector. All the multilateral development banks do not do more than 15% of this"<sup>164</sup>.

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158 NDB (2015). *Agreement on the New Development Bank*. Shanghai, China: NDB

159 NDB (2017). *General Strategy: 2017 – 2021*. Shanghai, China: NDB

160 NDB (2017b). *Towards a Greener Tomorrow. Annual Report 2016*. Shanghai, China: NDB

161 NDB (2016). *Environment and Social Framework*. Shanghai, China: NDB

162 NDB's own labelling: Renewable energy, water supply, sanitation and flood control, environment and rural development.

163 NDB (2016b). *Brics Bank to Begin Funding Of Projects From April: Kamath*. Retrieved from: <https://www.ndb.int/media/brics-bank-begin-funding-projects-april-kamath/>

164 NDB (2016c). *NDB President: 60% Of Funding Will Be for Renewables*. Retrieved from: [https://www.ndb.int/president\\_desk/ndb-president-60-funding-will-renewables/](https://www.ndb.int/president_desk/ndb-president-60-funding-will-renewables/)

- **World Bank Group (WBG)**

The World Bank was established in 1944 to assist member countries to assist reconstruction, private investment, and growth<sup>165</sup>. *The World Bank Group's Environment Strategy 2012-2022* supports a “Green, Clean, Resilient” trajectory mainly for developing countries to achieve poverty reduction and development<sup>166</sup>. Specifically on climate change, the WBG’s strategy is to provide 28% of financing by 2020 to this area<sup>167</sup>.

While acknowledging significant progress in poverty reduction, the WB recognizes less progress in environmental sustainability. As part of its efforts in poverty reduction and development, the WB covers four basic green areas: climate change mitigation, climate change adaptation, sustainable natural resource management (including oceans, lands, and forests), and clean development (soil, water, air). The WB promotes greening the global financial sector such as within transparency about climate risks, factoring climate opportunities and risks into decision making, and expanding the use of green finance tools<sup>168</sup>. In financial year 2016 alone, the WBG provided \$10.4bn in financing to 177 climate-related projects amounting to 18% of total financing<sup>169</sup>.

In terms of financing green projects, the WB group has implemented a series of solutions, including Green Cornerstone Bond Fund, Crisis Response Window, Global Index Insurance Facility, Global Map of Environmental & Social Risk in Agro-commodity Production, Community Development Carbon Fund, Ideas for Action, Program-for-results, and The Development Marketplace. In addition, WB also manage and mobilize a few funds to tackling environmental and social sustainability issues. Notably, Global Environment Facility (GEF) Trust Fund was established to generate financial capital in both public and private sectors to assist mainly 5 focal environmental areas. In order to finance and accelerate climate action, a few financial mechanisms are blended together, including grants, concessional finance, development finance, guarantees and commercial finance. Moreover, the launch of Invest4Climate platform provides further mobilize, coordinate and deliver finance for countries’ low-carbon transition as a complementary to existing climate financing mechanisms. The World Bank has been an important part of mainstreaming green bonds from the beginning having issued over \$10.2bn equivalent in green bonds through more than 135 transactions in 18 currencies since 2008<sup>170</sup>.

The World Bank Group is committed to providing more than \$10bn annually for increasing climate change<sup>171</sup>. In December 2017, Jim Yong Kim, World Bank Group President, made new announcements at One Planet Summit to mobilizing finance for improving climate resilience. Also, the IFC plans to work on setting a single unifying global standard on green bonds similar to the Equator Principles to facilitate the development of the green bond market and will invest up to \$325mn in the Green Cornerstone Bond Fund to create the largest ever green-bond fund dedicated to emerging markets.<sup>172</sup>

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165 IMF & IBRD (1944). *Articles of Agreement*. Washington DC, USA: WBG

166 WBG (2012). *World Bank Group Environment Strategy, 2012-2022*. Washington DC, USA: WBG

167 WBG (2018). *Climate Change*. Retrieved from: <http://www.worldbank.org/en/topic/climatefinance#2>

168 WBG (2012). *World Bank Group Environment Strategy, 2012-2022*. Washington DC, USA: WBG

169 WBG (2018b). *WBG Annual Report 2017*. Washington DC, USA: WBG

170 WBG (2018c). *Green Bonds*. Retrieved from: <http://treasury.worldbank.org/cmd/htm/WorldBankGreenBonds.html>

171 WBG (2018d). *Climate Finance*. <http://www.worldbank.org/en/topic/climatefinance#1>

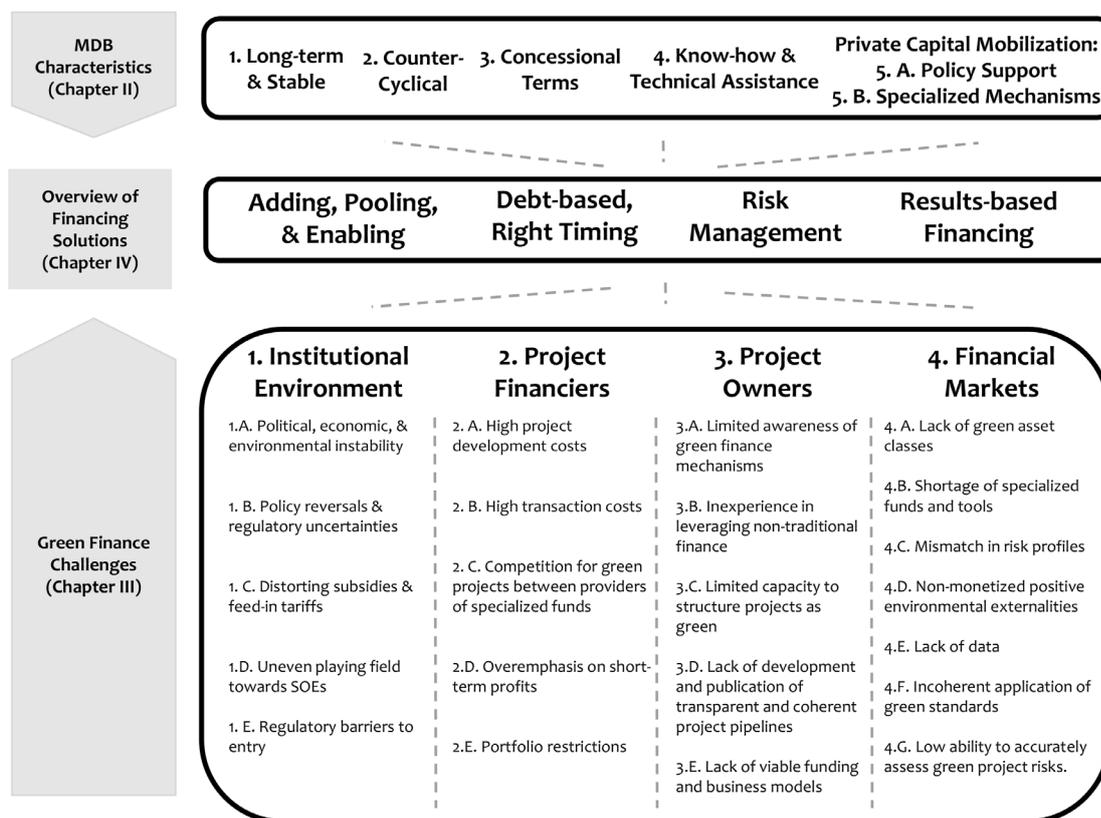
172 WB (2017). *World Bank Group Announcements at One Planet Summit*. Retrieved from: <http://www.worldbank.org/en/news/press-release/2017/12/12/world-bank-group-announcements-at-one-planet-summit>



## Appendix 2. Complete List of Financing Solutions

The below financing solutions are based and labelled by MDB characteristics, green finance, challenges, and categories of financing solutions, as summarized in the table below.

Figure. Visualization of Taxonomy



Source: Authors

### 1. Adding, pooling, & enabling

#### Common Principles for Climate Mitigation Finance Tracking, joint MDB initiative

The purpose of this initiative is to set out agreed climate change mitigation finance tracking principles for development finance. The principles consist of a set of common Definitions and Guidelines including the list of activities, but do not cover aspects related to their implementation, including quality control procedures which remain the sole responsibility of each institution and/or group<sup>173</sup>. This addresses the challenges within financial markets, namely regarding (4.A) lack of green asset classes, (4.C) mismatch in risk profiles, and (4.F) incoherent application of green standards. Such an effort can be used in a broad range of green finance topics to standardize both processes and related language. The initiative is based on the MDBs characteristic on (4) know-how and technical assistance.

#### China-EU harmonization of Green Bond Standards, EIB & China Green Finance Committee

This initiative is a part of China-EU cooperation on green finance and is carried out by the EIB and China Green Finance Committee. Since internationally a number of green bond standards exist without a clear method for comparison, the initiative provides a basis for developing greater harmony by providing a compatibility scheme between China's, EIB's, and the MDB-ID-

173 MDB-IDFC (2015). *Common Principles for Climate Mitigation Finance Tracking*.

FC green bond standards<sup>174</sup>. This provides a clear example of MDBs using their authority to be a standard setter, which is a role that can be used in green finance outside green bonds. The initiative addresses the (4.A) lack of green asset classes and the (4.F) incoherent application of green standards. The primary MDB characteristic in use is (4) know-how & technical assistance

### **Green Cornerstone Bond Fund, IFC (WBG) & Amundi Asset Management**

Launched in April 2017, the IFC is investing up to \$325mn in the fund, which will buy green bonds issued by banks in developing countries. Amundi will raise the rest of the \$2bn from institutional investors worldwide and provide its services in managing emerging-market debt. The fund aims to be fully invested in green bonds within seven years<sup>175</sup>. This is a clear example of the power of MDBs to catalyze private capital, in this case at a ratio of \$6,15 dollar or private investment for each \$1 of MDB investing. Such an initiative is easily replicable by other MDBs within and outside green bonds. The fund addresses the (4.B) shortage of funds and tools within financial markets, and uses the MDB characteristics of (5.B) specialized mechanisms for private capital mobilization.

### **Green Finance Catalyzing Facility, ADB**

The facility proposes a blended finance framework for governments and development entities to better leverage development funds for risk mitigation, generate a pipeline of bankable green infrastructure projects, and directly catalyze private finance. It is a pooled vehicle that can blend concessional and commercial finance from a wide range of public and private actors across numerous finance mechanisms<sup>176</sup>. In the broader context, to develop financing methods suitable to the specific challenges of green finance, MDBs can launch such vehicles across, tools, sectors, and geographies. This financial solution addresses the challenge of (2.A) high project and development costs of the project financier, (3.D) pipeline development and (3.E) funding models of project owners, and (4.B) lack of specialized tools of financial markets. The main MDB characteristics applied include (3) concessional terms, (4) know-how, as well as (5.B) mechanisms for private capital mobilization.

### **Sustainable Banking Network, Banking regulators led by the IFC**

The network is an informal group of bank regulators and banking associations, led by IFC, that helps regulators in emerging markets develop green-credit policies and environmental and social risk-management guidelines by sharing knowledge and technical resources<sup>177</sup>. While momentum is gathering in the topic as part of the G20 work on green finance, there remains a great need for skills on green-credit and risk-management of regulators in both developed and developing countries. This initiative addresses the challenges of (2.B) high transaction costs and indirectly (4.B) the lack of coherence on green standards. This is a clear application of MDB (4) know-how and technical assistance.

### **African Climate Change Fund (ACCF), AfDB**

This fund was created in line with AfDB's ten-year strategy 2013-2022 in April 2014 with an initial contribution of \$5.87mn from the government of Germany. The main objectives of the ACCF are to increase and mobilize climate funding for activities that take account of climate change in

174 EIB & China Green Finance Committee (2017). *The need for a common language in Green Finance*. Luxembourg, Luxembourg: EIB

175 IFC (2017). *Green Bond Fund offers Green Path for Emerging Markets*. Retrieved from: [http://www.ifc.org/wps/wcm/connect/news\\_ext\\_content/ifc\\_external\\_corporate\\_site/news+and+events/news/impact-stories/green-bond-fund-offers-green-path-for-emerging-markets](http://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/impact-stories/green-bond-fund-offers-green-path-for-emerging-markets)

176 ADB (2017). *Catalyzing Green Finance: A Concept for Leveraging Blended Finance for Green Development*. Manila, Philippines: ADB

177 IFC (2017) *Sustainable Banking Network*. Retrieved from: [http://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn](http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn)

African countries. So far, the fund has reached a size of \$14.16mn as of the end of year 2017 and covered a wide range of climate-resilience and low-carbon activities, such as the Menengai geothermal development project with \$502.9mn of funding from the Bank<sup>178</sup>. Delimited to climate change, the fund can be defined as exclusively green. In addition, this financial solution could address the challenge of (3.A) limited awareness of green finance mechanisms, and (4.B) shortage of specialized funds and tools. Therefore, it demonstrates the (3) know-how and technical assistance and (5.B) specialized mechanisms as characteristics of MDBs.

### **African Water Facility (AWF), AfDB**

This facility provides grants and expert technical assistance to implement innovative water projects and raise investment for water projects throughout Africa. For example, the AWF has provided grants of \$1.74m for a rainwater mobilization project in Cameroon. In addition, the AWF has in total committed \$1.99bn to implement water and sanitation projects in the region<sup>179</sup>. The AWF also funds project preparation, water governance and water knowledge, supporting projects designed to increase water, energy and food security, and projects enhancing regional cooperation and promotion of socio-economic growth in Africa<sup>180</sup>. In general, this facility acknowledged as green amongst other priorities and address the current green finance challenge such as (3 E) lack of viable funding and business models, of which demonstrates MDBs characteristics on (3) concessional terms and (4) know-how and technical assistance, as well as (5.B) specialized mechanisms.

### **Agricultural Fast Track Fund, AfDB**

This fund was launched in 2013 and managed by AfDB with initial funding amounting to \$23.80mn. Rooted on previous G8 and G20 commitments, the fund intends to support financially sound, environmentally sustainable, and socially beneficial food security projects<sup>181</sup>. This fund has a green component rather than being green exclusively because it supports both environmental friendly projects (e.g. a hydrological study for an irrigation system that would support smallholder crop production) and non-green project (e.g.: construction of an extraction and refining center). Overall, this financial solution could address the challenge of (3.D) lack of publication of transparent and comprehensive project pipelines, (3.E) lack of viable funding and business models, and (4.A) lack of green asset classes. Therefore, it could demonstrate the characteristics of MDB's on (5.A) policy support and (5.B) specialized mechanisms.

### **Climate Investment Funds (CIF), AfDB, ADB, EBRD, laDB, WBG**

These funds, with a totaling value of \$8.3bn, is providing 72 developing countries with urgently needed investments to manage the challenges of climate change and reduce their GHG emissions. The CIF is comprised of four programs, including Clean Technology Fund (CTF), Forest Investment Program (FIP), Pilot Program Climate Resilience (PPCR) and Scaling UP Renewable Energy Program (SREP). At \$5,2bn the CTF provides financing for projects such as within geothermal power, mini-grids, solar PV, and early-stage renewable energy programs. As another funding window of the CIF, FIP provides \$775m indispensable direct investments to benefit forests, development and the climate. In the area of PPCR, it adopted a two-phase, programmatic approach with a total value of \$1.2bn aims to assist national governments in integrating climate resilience into development planning across sectors and stakeholder groups. Lastly, SREP at

178 AfDB (2018a). *Africa Climate Change Fund*. Retrieved from: <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/africa-climate-change-fund/>

179 African Minister's Council on Water (2018). *African Water Facility*. Retrieved from: [http://www.amcow-online.org/index.php?option=com\\_content&view=article&id=366:african-water-facility-commits-16-billion-to-water-and-sanitation-projects-in-africa&catid=44:demo-content&Itemid=69&lang=fr](http://www.amcow-online.org/index.php?option=com_content&view=article&id=366:african-water-facility-commits-16-billion-to-water-and-sanitation-projects-in-africa&catid=44:demo-content&Itemid=69&lang=fr)

180 African Water Facility (2018). *What we do*. Retrieved from: <https://www.africanwaterfacility.org/en/>

181 AfDB (2018b). *Agriculture Fast Track (AFT) Fund*. Retrieved from: <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/agriculture-fast-track-aft-fund/>

\$839mn funds renewable energy transformation in developing countries<sup>182</sup>. It is important to note that MDBs may use the CIF resources to set up their own internal financing solutions, which are not listed in detail here. To conclude, these funds address the challenge of (2.A) high project development costs, (3.E) lack of viable funding and business models, and (4.B) shortage of specialized funds and tools. The fund with its subcomponents primarily uses the MDB characteristics of (5.A) policy support and (5.B) specialized mechanism to mobilize private capital.

### **Congo Basin Forest Fund (CBFF), AfDB**

Established in 2008 and managed by AfDB the fund has as size of \$18.68mn. It is operated in partnership with the Central Africa Forests Commission (COMIFAC) and the United Kingdom Department for International Development (DFID). It provides grant funding to projects that slow deforestation, alleviate poverty for forest dwellers, and contribute to a reduction in GHG emissions.<sup>183</sup> For example, CBFF has granted \$2.85mn to the REDD Luki pilot Project<sup>184</sup>. This has green amongst other priorities and addresses the challenges of (3.D) lack of publication of transparent and comprehensive project pipelines, (3.E) lack of viable funding and business models. In addition, the fund works for forest management and sustainable practice. Therefore, it could be labelled as green exclusively and demonstrate the characteristic of MDB's on (3) concessional terms, (4) know-how and technical assistance, and (5.B) specialized mechanisms.

### **Sustainable Energy Fund for Africa (SEFA), AfDB**

The SEFA is a multi-donor trust fund administered by the African Development Bank – anchored in a commitment of \$60m by the governments of Denmark and the United States – to support small- and medium-scale renewable energy and energy efficiency projects in Africa<sup>185</sup>. Recently, the fund has approved a grant of \$995,000 to Asticom Kenya Ltd., supporting the construction of a 10-megawatt (MW) grid-connected municipal waste-to-energy (WTE) plant<sup>186</sup>. This financial solution is labelled as green exclusively and addresses the challenge of (3.A) limited awareness of green finance mechanisms and (3.E) lack of viable funding and business models. Therefore, the main MDB characteristics applied include (3) concessional terms, (4) know-how and technical assistance, as well as (5.A) policy support as private capital mobilization.

### **Global Environment Facility (GEF). AfDB, ADB, EBRD, IaDB, WBG**

The GEF was established in 1991 and serves as a financing instrument for implementing international goals in the fields of biodiversity, climate change, international waters, degradation, desertification, deforestation, ozone layer reduction, and persistent organic pollutants. Since its inception the GEF has provided over \$17bn in grants and mobilized an additional \$88bn in financing for more than 4000 projects in 170 countries. It supports exclusively green projects, such as for example the Growing Green Business in Montenegro project at \$771,690<sup>187</sup>. It helps multi stakeholders' alliance to deal with several green finance challenges identified above, namely, (3.A) limited awareness of green finance mechanisms, (3.B) inexperience in leveraging non-traditional finance, (3.C) limited capacity for structuring projects as green, and (4.E) lack of viable funding and business models. It is based on the MDB characteristics of (5.A) policy support and (5.B) specialized mechanisms.

182 Climate Investment Fund (2018). *What we do*. Retrieved from: <https://www.climateinvestmentfunds.org/about>

183 AfDB (2018c). *Congo Basin Forest Fund*. Retrieved from: <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/congo-basin-forest-fund/>

184 Congo Basin Forest Fund (2013). *Annual Report*. Kinshasa, Congo: CBFF

185 AfDB (2018d). *Sustainable Energy for Africa*. Retrieved from: <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/sustainable-energy-fund-for-africa/>

186 AfDB (2017d). *Sustainable Energy Fund for Africa improves waste-to-energy electricity in Kenya with US \$1 million grant*. Retrieved from <https://www.afdb.org/en/news-and-events/sustainable-energy-fund-for-africa-improves-waste-to-energy-electricity-in-kenya-with-us-1-million-grant-17709/>

187 GEF (2018). *About Us*. Retrieved from: <https://www.thegef.org/about-us>

### **Green Climate Fund (GCF), AfDB, ADB, EBRD, EIB, IaDB, WBG,**

GCF is a recent global fund that helps developing countries limit or reduce their GHG emissions and adapt to climate change. It was set up by the 194 countries who are parties to the United Nations Framework Convention on Climate Change (UNFCCC) in 2010 and seeks to promote a paradigm shift to low-emission and climate-resilient development. The GCF initially offers support through two thematic funding windows: mitigation and adaptation with a focus on engaging local actors and small-and-medium-sized enterprises. Up to now, GCF has already supported 53 projects, totaling at \$9.2bn, and benefit 162mn people world-wide<sup>188</sup>. With its local focus this financial solution addresses (3.A) limited awareness of green finance mechanism, (3.B) inexperience in leveraging non-traditional financing as well as (4.B) shortage of specialized fund and tools. Through its implementation by MDBs it uses the MDB characteristic of (4) know-how and technical assistance, and (5.B) specialized mechanisms.

### **Sustainable Energy and Climate Change Initiative (SECCI), IaDB**

The goals of this initiative are centered around the provision of comprehensive sustainability options in areas related to the energy, transportation, water and environmental sectors as well as building climate resilience. It further aims to promote sustainability standards inside and outside the IaDB. The Initiative consists of four strategic pillars: 1) Renewable energy and energy efficiency, 2) sustainable biofuel development, 3) access to carbon markets, and 4) adaptation to climate change.<sup>189</sup> The initiative is based on donations from Austria, Germany, Finland, Italy, Japan, Korea, Spain, Switzerland, United Kingdom. As an example of the projects supported by the initiative, the IaDB announced approval of a \$0.4m for helping to promote biofuels in Guatemala<sup>190</sup>. Overall, this initiative is green exclusively and used for solving the challenges in (3.C) limited capacity to structure projects as green, (3.D) lack of project pipeline, and (4.F) lack of coherent application of green standards. This applies the MDB characteristics on (4) know-how and technical assistance.

### **The Adaptation Fund, WBG**

The Adaptation Fund was established under the Kyoto Protocol of the UN Framework Convention on Climate Change, and has committed \$462m in 73 countries since 2010 to climate adaptation and resilience activities. The World Bank serves as trustee of the Adaptation Fund on an interim basis<sup>191</sup>. Its primary funding comes from a 2% share of proceeds of the Certified Emission Reductions issued by Kyoto Protocol's Clean Development Mechanism. This fund focus on supporting climate change adaptation projects, for example in its granting of \$7mn to address climate change risks on water and food security in the dry zone of Myanmar<sup>192</sup>. Overall, this fund is exclusively within green categories and works to solve the challenges in (4.B) shortage of specialized funds. The main MDB characteristics applied include (1) long-term and stable, (4) know-how and technical assistance, and (5.B) specialized mechanisms.

### **EDGE Buildings, IFC (WBG)**

188 Green Climate Fund (2018). *Portfolio Dashboard*. Retrieved from: <http://www.greenclimate.fund/what-we-do/portfolio-dashboard>

189 "IaDB" (2018b). *Sustainable Energy and Climate Change Initiative*. Retrieved from: <https://www.IaDB.org/en/topics/climate-change/secci%2C1449.html>

190 "IaDB" (2008). *IDB Sustainable Energy and Climate Change Initiative announced operation to support biofuels in Guatemala*. Retrieved from: <https://www.IaDB.org/en/news/news-releases/2008-01-15/idb-sustainable-energy-and-climate-change-initiative-announced-operation-to-support-biofuels-in-guatemala%2C4368.html>

191 The Adaptation Fund (2018). *Financial Status*. Retrieved from: <https://www.adaptation-fund.org/about/financial-status/>

192 The Adaptation Fund (2018b). *Projects & Programmes*. Retrieved from: <https://www.adaptation-fund.org/projects-programmes/>

As an innovative initiative by the IFC, EDGE (“Excellence in Design for Greater Efficiencies”) is an online platform, a green building standard and a certification system for more than 130 countries. A project that reaches the EDGE standard of 20 percent less energy use, 20 percent less water use, and 20 percent less embodied energy in materials compared to a base case building can be independently certified.<sup>193</sup> This new innovation is acknowledged as green exclusively and could address the challenge of (3.A) limited awareness of green finance mechanisms, (3.C) limited capacity for structuring projects as green, (4.A) lack of green asset classes, and (4.F) incoherent application of green standards. Therefore, the main MDB characteristics applied include (4) know-how and technical assistance and (5.B) specialized mechanisms.

### **Invest4Climate Platform, WBG**

The Invest4Climate platform is designed to bring together national governments, financial institutions, private sector investors, philanthropies, and multilateral banks to support transformational climate action in line with the Paris Agreement<sup>194</sup>. It will not have its own funding sources but will complement existing climate and development finance initiatives and institutions. It has four key purposes: 1) Bring visibility to potential investments and identify opportunities for action and investment. 2) Mobilize multiple sources of finance and combine them most effectively to maximize deployment and impact. 3) Identify barriers to scaled up investment and develop solutions and political support to address them. 4) Facilitate the identification and allocation of risk to those who can best bear and manage them and hence facilitate appropriate financial structuring to crowd in additional funding. Generally speaking, this platform can be acknowledged as green exclusively and can address the challenges of (2.B) high transaction costs, (3.D) lack of project pipeline (4.C) mismatch in risk profiles, (4.E) lack of data, and (4.G) low ability to accurately assess green project risks. Therefore, the main MDB characteristics applied include (4) know-how and technical assistance, and (5.A) policy support as it is based on implementing NDCs.

### **Future Carbon Fund, ADB**

The Future Carbon Fund (FCF) is a trust fund established and managed by ADB. The fund is a component of ADB’s ongoing Carbon Market Program (CMP), which provides financial and technical support for Clean Development Mechanism (CDM) projects<sup>195</sup>. In details, this fund support projects including biomass, wind power, solar power, geothermal power, coalmine methane, solid waste and waste water treatment. For example, the 11-megawatt IFEC Solar Photovoltaic Project in Thailand has a potential to light up 5,891 households and reduce 7,918 tons of carbon dioxide equivalent per annum<sup>196</sup>. Therefore, this fund is exclusively green and seen as a solution addresses the challenge of (2.A) high project development cost, (3.C) limited awareness of green finance mechanisms and (3.E) lack of viable funding and business models. The main MDB characteristics applied include (3) concessional terms and (5.B) specialized mechanisms.

### **Asia Pacific Disaster Response Fund (APDRF), ADB**

The Asia Pacific Disaster Response Fund (APDRF) is a special fund designed to provide incremental grant resources to developing member countries impacted by a major natural disaster<sup>197</sup>. Specifically, assistance from the APDRF will be provided in the form of a grant in an

193 EDGE Building (2018). *EDGE*. Retrieved from: <https://www.edgebuildings.com/about/edge-ifc/>

194 Invest4Climate (2018). *Invest4Climate*. Retrieved from: <https://www.connect4climate.org/content/invest4climate>

195 ADB (2018b). *Future Carbon Fund*. Retrieved from: <https://www.adb.org/site/funds/funds/future-carbon-fund-fcf>

196 ADB (2017d). *Future Carbon Fund: Delivering Co-Benefits for Sustainable Development*. Manila, Philippines: ADB

197 ADB (2018c). *Asia Pacific Disaster Response Fund (APDRF)*. Retrieved from: <https://www.adb.org/site/funds/funds/asia-pacific-disaster-response-fund-apdrf>

amount totaling up to \$3mn per event<sup>198</sup>. As this fund focuses on providing financial aid before and after natural disaster rather than protecting and enhancing environment, this fund is exclusively green as contributing to adaptation and resilience. It approaches the green finance challenges of (1.A) political, economic and environmental Instability. The main MDB characteristics applied include (1) long-term and stable, (2) counter-cyclical, and (4) know-how and technical assistance.

## 2. Debt-based, right-timing

### Concessional and non-concessional loans, all MDBs

While not being a specialized financial solution, loans of various forms constitute the majority of MDB financing inside and outside green topics. Such loans can take a variety of shapes and forms such as, concessional and non-concessional, have different conditions, different interest rate arrangements, and different currencies. While most MDB provide some degree of concessional financing, for example the AIIB does not. Loans by MDBs can be used to address a number of green finance challenges such as (2.A) high project development costs, (3.E) lack of viable funding models, and (4.C) mismatch in risk profiles. Depending on the circumstances it may constitute the MDB characteristics within (1) long-term and stable, (2) counter-cyclical, (3) concessional terms, and (5.A) policy support.

### Green Lines, laDB

This initiative provides loans and guarantees to financial intermediaries to promote businesses within specific green sectors<sup>199</sup>. To date, more than \$1bn in loans and guarantees have been provided throughout the region such as to Banco General in Panama where a \$20 million loan from the laDB gave rise to a green credit line portfolio of \$65.95mn<sup>200</sup>. A similar mechanism exists in the form of the EBRD's Sustainable Energy Financing Facilities<sup>201</sup>. This mechanism is exclusively green and easily replicable by other MDBs, in most cases targeting national banks. The challenges addressed are (2.B) high transaction costs of project financiers, and (3.E) lack of viable funding models of project owners. The MDB characteristic applied is the (5.B) specialized mechanisms for private capital mobilization.

### Green Bonds, AfDB, ADB, EBRD, EIB, NDB & WBG

The first green bonds were issued by the European Investment Bank on 04.07.2017. Since then the EIB has issued more than €19bn of Climate Awareness Bonds in 11 different currencies<sup>202</sup>. A number of MDBs have also issued green bonds such as the AfDB, ADB, EBRD, EIB, NDB, & WBG. Of the MDBs considered in this report the AIIB, laDB and IsDB have not issued green bonds. Yet, it has to be noted that green projects can be financed by conventional bonds, and that green bonds have the same credit backing as an identical conventional bond. Additionally, MDB projects often have a lifespan above 30 years and since bonds often have a tenor about 5 years, projects are potentially funded by capital raised by numerous issuances. Discussion on the underlying need and logic for green bonds is ongoing, with numerous disagreements on the existence of a green premium, increased transaction costs, and investor motives<sup>203</sup>. Green bonds can deal with the challenge of (3.E) lack of viable funding models of project owners, the

198 ADB (2009). *Establishment of the Asia Pacific Disaster Response Fund*. Manila, Philippines: ADB

199 "laDB" (2017). *Green Lines*. Retrieved from: <http://www.laDB.org/en/resources-for-businesses/beyondbanking/green-lines,2297.html>

200 MDBs (2017b). *Catalogue of the MDBs and the IMF Financing Solutions*.

201 EBRD (2017d). *Sustainable Energy Financing Facilities (SEFFs)*. Retrieved from: <http://www.ebrd.com/what-we-do/sectors-and-topics/sustainable-resources/seffs.html>

202 EIB (2017c). *EIB highlights 10th anniversary of the EIB issuing the world's first green bond and confirms new green bond tree planting scheme*. Retrieved from: <http://www.eib.org/infocentre/press/releases/all/2017/2017-173-eib-highlights-10th-anniversary-of-the-eib-issuing-the-worlds-first-green-bond-and-confirms-new-green-bond-tree-planting-scheme>

203 Zerbib, O. D. (2016). *The green bond premium*. Retrieved from: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2889690](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2889690)

(4.B) lack of specialized tools in financial market, and indirectly also the (4.A) lack of green asset classes. The MDB characteristic is (4) know-how and (5.B) specialized mechanisms.

### **Venture Capital and Seed Fund Support, Multilateral Investment Fund (IaDB)**

This initiative aims to play a catalytic role in supporting SMEs by providing equity and capacity building to seed and venture capital funds which offer financing to early stage, dynamic enterprises. By investing in funds, the IaDB Group shares investment risk with other partners in the region and demonstrates that financial sustainability and positive social and environmental impact can be mutually attainable<sup>204</sup>. As venture capital for developing new technologies is critical to carry out a green transition in the world economy, as directly mentioned by the G20, such mechanisms can have a great impact specifically within green finance. The initiative related to challenges of (3.E) funding models, (4.C) mismatch in risk profiles, and (4.G) low ability to accurately assess project risk. It applies the MDB characteristics of (3) concessional terms and (4) know-how and technical assistance.

### **Direct Investment Facility, EBRD**

The EBRD's Direct Investment Facility (DIF) demonstrates the viability of smaller businesses based in countries and regions at an early stage in the transition to the market economy. Equity and limited debt financing may be available to attractive private sector businesses, especially those led by motivated and experienced local entrepreneurs. Investment range generally between €500,000 and €6mn<sup>205</sup>. Such facilities inside MDBs can be replicated and tailored to green equity. This initiative addresses the challenges of (1.D) an uneven playing field toward SOEs, and (3.E) lack of viable funding models. It uses the MDB characteristics within (5.A) policy support and (5.B) specialized mechanisms to catalyse private capital

### **Enhanced Private Sector Assistance, AfDB**

The Enhanced Private Sector Assistance (EPSA) Initiative is an innovative, multi-component, multi-donor framework for resource mobilization and development partnership to support implementation of the AfDB's Strategy for Private Sector Development. It consists of the Accelerated Co-financing Facility for Africa, Non-sovereign Loans facility, and the Fund for African Private Sector Assistance<sup>206</sup>. Applying environmental criteria to such a mechanism would allow the private sector to compete with SOEs who are often dominant in the energy sector. This addresses (1.D) uneven playing field towards SOEs, (3.B) inexperience in leveraging non-traditional finance, (3.E) lack of viable funding models, and (4.B) shortage of specialized tools. It applied the MDB characteristics of (1) long-term & stable, (3) concessional, and (5.B) specialized mechanisms.

### **Global Energy Efficiency and Renewable Energy Fund (GGREF), advised by the EIB**

Advised by the European Investment Bank Group, GEEREF is an innovative Fund-of-Funds catalyzing private sector capital into clean energy projects in developing countries and economies in transition. GGREF was initiated by the European Commission in 2006 and launched in 2008 with a totaling funding \$14.99mn<sup>207</sup>. GEEREF's funds target attractive financial investments that also deliver a strong positive environmental and developmental impact. The fund invests in private equity funds which, in turn, invest in private sector projects, thereby further enhancing the

204 "IaDB" (2017). *Financing Innovative Companies*. Retrieved from: <http://www.IaDB.org/en/topics/finance/venture-capital/financing-innovative-companies,1720.html>

205 EBRD (2017b). *EBRD Direct Investment Facility (DIF)*. Retrieved from: <http://www.ebrd.com/work-with-us/projects/psd/ebrd-direct-investment-facility-dif.html>

206 AfDB (2017b). *Enhanced Private Sector Assistance for Africa: EPSA Initiative*. Retrieved from: <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/enhanced-private-sector-assistance-for-africa-epsa-initiative/>

207 Global Energy Efficiency and Renewable Energy Fund (2018). *What GEEREF is*. Retrieved from: <http://geeref.com/about/what-geeref-is.html>

leveraging effect of GEEREF's investments. For example, GEEREF has committed \$19.6mn to African Renewable Energy Fund. The fund has a clear exclusively green focus, and addresses the challenges of (3.E) lack of viable funding and business models. It uses the MDB's characteristics of (4) know-how and technical assistance.

### **Natural Capital Financing Facility (NCFF), EIB**

This NCFF is created as a product of partnership between the EIB and the European Commission. The facility is a financial instrument that supports projects delivering on biodiversity and nature-based climate adaptation<sup>208</sup>. Specifically, NCFF emphasis investments in to five areas including 1) green infrastructure, 2) payment for ecosystem services, 3) biodiversity, 4) pro-biodiversity and adaptation, and 5) nature-based solutions for adaptation to climate change. The NCFF consists of a combination of the following two components. 1) The finance facility can provide financing of a minimum amount of EUR 2mn and a maximum amount of \$18.58mn. 2) The technical assistance facility can provide each project with a grant of up to a maximum of \$1.24mn for project preparation, implementation and the monitoring of the outcomes. For example, the first project supported by the NCFF, signed in 2017 with a \$7.47mn loan to protect threaten species such as the European bison, brown bear as well as black vultures<sup>209</sup>. This financial solution is seen as green exclusively and used to addresses the challenges of (4.B) shortage of specialized funds and tools. Therefore, the main MDB characteristics applied include (5.A) policy support and (5.B) specialized mechanisms.

## **3. Risk management**

### **Guarantees of various forms, most MDBs**

Guarantees come in a number of shapes and are a common feature of MDB support both inside and outside green areas. Depending on the underlying funding structure of the operation, a guarantee may be more attractive than a loan for the project owner. It may either provide greater value-added or require lower capital charges. Guarantees differ substantially depending on the circumstances in terms of coverage of types of risks, actors, timelines, and costs. Guarantees can general be labelled by three categories, namely risk guarantees, credit guarantees, and trade finance guarantees. MDBs approved a combined total of \$37bn in project (non-trade) guarantees between 2001 and 2013, equal to 4.5% of total lending<sup>210</sup>. Guarantees in its various forms can address the challenges within (1.A) political, economic, and environmental instability, (1.B) policy reversals and regulatory uncertainties, (3.E) lack of viable funding models, and (4.C) mismatch in risk profiles. Depending on the situation, a guarantee by an MDB applied the characteristics of (2) counter-cyclical, (3) concessional, and (5.B) policy support.

### **Crisis Response Window, International Development Association (WBG)**

This mechanism provides access to financial resources under political, economic, or other crises (1.A)<sup>211</sup>. The use of the Crisis Response Window is considered for crises resulting in a widespread or a regional year-on-year projected decline of GDP growth of at least 3%, while the final decision on the possibility for financing depends on an analysis of the total fiscal impact. Since its inception in 2011 it has been applied to Guinea, Liberia, Malawi, Nepal, Sierra Leone, Solomon Islands, Vanuatu, and Tuvalu. In terms of green finance, this and similar mechanisms can safeguard projects losses from disruptions in the institutional environment. The primary challenge addressed is (1.A & 1.B) instability and uncertainty in the institutional environment. It applies a combination of four MDB characteristics, namely (2) counter-cyclical, (3) concessional, as well

208 EIB (2018). *NCFF in a Nutshell*. Retrieved from: <http://www.eib.org/products/blending/ncff/index.htm>

209 EIB (2018b). *Project Examples*. Retrieved from: <http://www.eib.org/products/blending/ncff/project-examples/index.htm>

210 Overseas Development Institute (2014). *Guarantees for development: A review of multilateral development bank operations*. London, UK: ODI

211 WBG IDA (2017). *Crisis Response Window*. Retrieved from: <http://ida.worldbank.org/financing/crisis-response-window>



as (5.A) financial policy support and (5.B) innovative financial mechanism as a sub-category private capital mobilization.

### **Global Index Insurance Facility, International Finance Corporation (WBG)**

This mechanism is a dedicated WBG program that facilitates access to finance for smallholder farmers, micro-entrepreneurs, and microfinance institutions through the provisions of catastrophic risk transfer solutions and index-based insurance in developing countries. Index insurance is a relatively new but innovative approach to insurance provision that pays out benefits on the basis of a predetermined index (e.g. rainfall level, seismic activity, livestock mortality rates) primarily for loss of working capital<sup>212</sup>. This mechanism is green by nature and has great potential for providing climate change resilience in vulnerable geographic areas. The primary challenge addressed is environmental (1.A) instability in the institutional environment and (4.B) lack of specialized tools in the financial market. The primary MDB characteristics applied are (4) know-how and (5.B) innovative financial mechanism as part of private capital mobilization.

### **Partial Risk Guarantees, African Development Fund (AfDB Group)**

This mechanism insulates private lenders against well-defined political risks related to the failure of a government or a government-related entity to honor certain specified commitments. Such risks could include political force majeure, currency inconvertibility, regulatory risks (adverse changes in law), and various forms of breach of contract. Partial risk guarantees cover political risk, particularly losses on equity/quasi equity or other forms of direct investment. An example of a partial risk guarantee by the ADF is the one extended to the Kenyan Lake Turkana Wind Project, backing obligations of the Kenyan government<sup>213</sup>. Similar partial risk guarantees are also extended by laDB, IBRD, and the IFC. Such partial guarantees are particularly important to green investments as these in general carry high political risks, and have potential to be replicated and scaled up by other MDBs. The challenge addressed is (1.B) political instability and uncertainty in the institutional environment. The MDB characteristic used is (1) long-term & stable.

### **Infrastructure Project Preparation Facility, EBRD**

The facility seeks to remedy the lack of creditworthy, well-structured projects in infrastructure in emerging markets by building a pipeline of finance by providing high-quality, client-oriented project preparation, policy support, and institutional strengthening<sup>214</sup>. This addresses most challenges for project owners including, (3.C) limited capacity to structure projects as green, (3.D) lack of development and publication of transparent and coherent project pipelines, (3.E) lack of viable business models. The main characteristic applied by the EBRD is (4.) know-how and technical assistance.

### **Global Map of Environmental & Social Risk in Agro-commodity Production (GMAP), International Finance Corporation (WBG)**

The GMAP works as a database, displayed as a world map, which collects publicly available data on environmental and social risks associated with over 250 country-commodity combinations across the globe. Using a tailored methodology aligned to IFC's Performance Standards on Environmental and Social Sustainability, the GMAP facilitates rapid financing and sourcing decisions by assigning a color-coded risk score to country-commodity combinations<sup>215</sup>. Green in its nature, this and similar mechanisms can be scaled up in terms of sectors, geographies, and

212 IFC (2017). *Global Index Insurance Facility*. Retrieved from: [http://www.ifc.org/wps/wcm/connect/industry\\_ext\\_content/ifc\\_external\\_corporate\\_site/financial+institutions/priorities/access\\_essential+financial+services/global+index+insurance+facility](http://www.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/financial+institutions/priorities/access_essential+financial+services/global+index+insurance+facility)

213 AfDB (2017c). *African Development Fund Partial Risk Guarantee*. Retrieved from: <https://www.afdb.org/en/projects-and-operations/financial-products/african-development-fund/guarantees/>

214 EBRD (2017c). *The EBRD's Infrastructure Project Preparation Facility (IPPF)*. Retrieved from: <http://www.ebrd.com/infrastructure/infrastructure-IPPF.com>

215 IFC (2017). *Global Map of Environmental & Social Risk in Agro-commodity Production*. Retrieved from: <https://gmaptool.org>

coverage proportion of commodity dependent actors. The initiative approaches the challenges of (1.A) environmental instability, the project owners (3.A) lack of awareness of green financing possibilities, (3.B) lack of experience in leveraging non-traditional financial tools, and (4.E) lack of data. It uses the MDB characteristic of (4) know-how and technical expertise.

### **ClimDev-Africa Special Fund (CDSF), AfDB**

The CDSF was established in 2010 and pools resources to finance investment activities on the ground across Africa for this generation and use of climate information for climate-resilient development. Focus is primarily on developing and providing market data on climate risk and correctly assessing risk management. Operated by the AfDB the fund provides grants to projects that are implemented by national and regional organizations at all levels on the continent<sup>216</sup>. For example, the fund supports projects such as “Climate Information and Early Warning Systems for Climate Resilient Development and Adaptation to Climate Change in Ethiopia – (SCI-EWS)” at a total cost of \$1.24m. As exclusively green this financial solution addresses the challenge of (1.A) political, economic, and environmental instability, (4.E) lack of data, and (4.G) low ability to accurately assess environmental risks. The main MDB characteristics applied include (3) concessional terms, (4) and know-how and technical assistance.

### **Forest Carbon Partnership Facility (FCPF). IaDB**

This facility is a global partnership of governments, businesses, civil society, and indigenous peoples focused on reducing emissions from deforestation and forest degradation, forest carbon stock conservation, the sustainable management of forests, and the enhancement of forest carbon stocks in developing countries (activities commonly referred to as REDD+)<sup>217</sup>. The FCPF has two separate but complementary funding mechanisms, namely the Readiness Fund and the Carbon Fund. The readiness fund mainly supports tropical and sub-tropical developing countries while the carbon fund supports countries that they have made significant progress in their REDD+ readiness. Focused on data provision and project preparation, this solution can be labeled as risk management. This facility is regarded as green exclusively and it has made total contribution and commitment of over \$1.1bn, with \$370mn going to the former fund and \$740m to the latter fund respectively. Therefore, this financial solution addresses the challenge of (3.A) limited awareness of green finance mechanisms, (3.B) inexperience in leveraging non-traditional finance, and (3.C) limited capacity to structure projects as green. The main MDB characteristics applied include (3) concessional terms, (4) know-how and technical assistance and (5.B) specialized mechanisms.

### **InfraFund, IaDB**

InfraFund is a fast-disbursing fund for preparation of climate resilient and sustainable infrastructure projects. The fund was built to bridge the gaps where lack of funding for project financing and preparation as a major bottleneck for the much-needed scaling up of infrastructure investment in Latin America and the Caribbean (LAC)<sup>218</sup>. IaDB has approved a total of \$8.6 m for 18 technical cooperation projects, including Santa Fe Wind, the first wind power project in Panama<sup>219</sup>. As of the MDB’s categorization of financing solutions above, project preparation is categorized under risk management. This financial solution is regarded as partially green because the major objective is to develop infrastructure and environmental impact is one of many considerations rather than being the main purpose. Therefore, this fund could solve the challenge of (2.A) high project development costs, (3.D) lack of publication of transparent and comprehensive project pipelines, and (3.E) lack of viable funding and business models. There-

216 ClimDev-Africa (2018). *The ClimDev Special Fund*. Retrieved from: <http://www.climdev-africa.org/The-ClimDev-Special-Fund>

217 Forest Carbon Partnership Facility (2018). *About FCPF*. Retrieved from: <https://www.forestcarbonpartnership.org/about-fcpf-o>

218 “IaDB” (2018c). *Transportation Initiative: Infrafund*. Retrieved from: <https://idblegacy.laDB.org/en/topics/transportation/infrafund,1635.html>

219 “IaDB” (2008b). *IDB’s InfraFund approved US\$8.6 million in 2007 to prepare new infrastructure projects*. Retrieved from: <https://www.laDB.org/en/news/news-releases/2008-01-07/idbs-infracfund-approved-us86-million-in-2007-to-prepare-new-infrastructure-projects%2C4248.html>

fore, the main MDB characteristics applied include (3) Concessional terms and (4) Know-how and technical assistance.

### **The Climate and Clean Energy Facility (CCEF), laDB**

The Facility has a total value of \$100m, to be used for energy efficiency, self-supply renewables, and climate adaptation. The facility is designed to originate and structure scalable energy efficiency and distributed generation projects that demonstrate innovative financing models<sup>220</sup>. The facility is a blended finance vehicle including concessional terms on borrowing and partial risk guarantees. For example, this facility approves \$15m loan to Peru to increase competitiveness of agriculture. In general, this facility could be labelled as exclusively green and addresses the challenge of (3.B) inexperience in leveraging non-traditional finance, (4.C) mismatch in risk profiles, and (4.G) lack of ability to accurately assess green project risks. The main MDB characteristics applied include (3) concessional terms, (4) know-how and technical assistance, and (5.B) specialized mechanisms.

### **Energy Efficiency Guarantee Mechanism (EEGM), laDB**

The EEGM is a guarantee fund with initial value of \$25m designed to address the lack of access to competitive financing and overall barriers faced by energy Service Companies (ESCOs) for providing energy efficient solutions to businesses. It aims to overcome financial and technical barriers for Brazilian businesses to adopt energy efficiency measures by focusing on energy efficient projects with potential to achieve high carbon-emission savings and high financial returns. The first guarantees were issued to APS Soluções, a Brazilian energy service company<sup>221</sup>. This instrument is exclusively green as the energy efficiency has to live up to the standards of the GEF, which is a project partner. Overall, this financial solution addresses the (1.C) distorting subsidies and tariffs, (3.E) lack of viable funding and business models, (4.C) mismatch in risk profiles, and (4.G) low ability to assess green project risks. As such, the main MDB characteristics applied include (4) know-how and technical assistance and (5) private capital mobilization.

### **Green Cities Climate Finance Accelerator (CFA), EBRD**

The Climate Finance Accelerator is a unique approach to developing public-private financing solutions for climate change adaptation and mitigation projects. It brings together government, finance and capital market players from participant countries with project and green finance experts from the City of London<sup>222</sup>. The EBRD has committed over \$500mn in “first mover” financing aimed at leveraging additional capital from the private sector. In addition, it plans to support projects worth a total of \$1.5bn. As a blended finance and risk sharing mechanisms, it can be characterized as a risk management initiative. As this accelerator only supports climate change resilience projects, it can be identified as an exclusively green solution and therefore addresses the challenges identified within (2.A) high project development costs, (2.B) high transaction costs, (4.C) mismatch in risk profiles. Therefore, it could illustrate MDB’s characteristics on (2) concessional support, and (5.B) specialized mechanisms.

### **Green for Growth Fund (GGF), EIB**

The Green for Growth Fund is the first specialized fund to advance energy efficiency and renewable energy initiated by EIB and KfW. Amongst others, MDB funders include the IFC and EBRD. It works in the form of a public private partnership with a layered risk/return structure and

220 “laDB” (2018). *IIC Programs*. Retrieved from: [http://www.iic.org/en/blended-climate-funds/programs#.WnF7\\_a6Wao0](http://www.iic.org/en/blended-climate-funds/programs#.WnF7_a6Wao0)

221 “laDB” (2013). *First of its kind instrument helps overcome financial barriers for Brazilian businesses to adopt energy efficiency measures*. Retrieved from: <https://www.ladb.org/en/news/announcements/2013-10-20/idb-and-gef-close-first-guarantees-under-eegm%2C10611.html>

222 EBRD (2017e). *EBRD and global cities group scale up green urban financing*. Retrieved from: <http://www.ebrd.com/news/2017/ebrd-and-global-cities-group-scale-up-green-urban-financing.html>

mainly focuses on four areas, namely 1) verifying and monitoring reductions in energy use and CO<sub>2</sub> emissions, 2) establishing renewable energy and energy efficiency lending at financial institutions, 3) capacity building for investments in renewable energy projects, and 4) awareness raising and market enabling activities. For example, GGF has provided a grant to agriculture development in Albania with a value of \$31.14mn in 2015<sup>223</sup>. In addition, GGF also makes direct investments in non-financial institutions in combination with a technical assistance facility. Overall, this fund is acknowledged as green exclusively and could solve the challenges of (3.A) limited awareness of green financing mechanisms, (3.B) inexperience in leveraging non-traditional financing, (3.C) limited capacity to structure projects as green, and (4.G) low ability to accurately assess green project risks. Therefore, it applies the MDB characteristics of (3) concessional support and (4) know-how & technical assistance.

### **Private Finance for Energy Efficiency (PF4EE), EIB**

The Private Finance for Energy Efficiency (PF4EE) instrument is a joint agreement between the EIB and the European Commission which aims to address the limited access to adequate and affordable commercial financing for energy efficiency investments<sup>224</sup>. The PF4EE loans will typically range from \$49 000 to €5mn, and in exceptional cases up to \$18.6m. It works through three components: 1) A portfolio-based credit risk protection provided by means of cash-collateral (Risk Sharing Facility). 2) Long-term financing from the EIB (EIB Loan for Energy Efficiency). 3) Expert support services for the Financial Intermediaries (Expert Support Facility). This mechanism contributes towards solving the challenges of (2.B) high transaction costs, (3.E) lack of viable funding and business models, and (4.B) shortage of specialized funds. The main MDB characteristics applied include (1) long-term and stable, (3) concessional terms, and (5.B) specialized mechanisms.

### **European Energy Efficiency Fund (EEEF), EIB participation**

The European Energy Efficiency Fund (EEEF) aims to support the goals of the European Union to promote a sustainable energy market and climate protection. While being independent, the EIB is a supporting and funding institution. The fund is specialized in and mandated in three areas, 1) contribute to the mitigation of climate change 2) achieve economic sustainability of the fund, and 3) attract private and public capital into climate financing. The fund contributes with a layered risk/return structure to enhance energy efficiency and foster renewable energy in the form of a targeted private public partnership, primarily through the provision of dedicated financing via direct finance and partnering with financial institutions<sup>225</sup>. EEEF managed investment programmes up to a total volume of approximately \$560.65mn, helping to reach the targets of the EU regarding climate protection. It can be identified as exclusively green and as addressing the challenges of (3.A) limited awareness of green finance mechanisms and (3.E) lack of viable funding and business models, (4.C) mismatch in risk profiles. The main MDB characteristics applied include (4) know-how and technical assistance and (5.B) specialized mechanisms.

### **AIIB Project Preparation Fund, AIIB**

Operational from fall 2016 based on a \$50mn Chinese government contribution, the fund provides grants to support and facilitate the preparation of projects to be financed by AIIB in eligible member countries (International Development Association recipients, including International Development Association Blend countries.) In exceptional circumstances, resources may also be used for preparing innovative/complex projects, regional/cross-border projects that have significant regional impact and benefit other members, or non-sovereign backed transactions

223 Green for Growth Fund (2018). *Albania*. Retrieved from: <http://www.ggf.lu/project-portfolio/investments/albania/>

224 EIB (2018c). *PP4EE*. Retrieved from: <http://www.eib.org/products/blending/pf4ee/index.htm>

225 European Energy Efficiency Fund (2018). *Objective of the Fund*. Retrieved from: <https://www.eeef.eu/objective-of-the-fund.html>

where there is a demonstrable need<sup>226</sup>. The fund addresses the green finance challenges of (3.C) limited capacity to structure projects as green, (3.D) lack of development and publication of transparent and coherent project pipelines, (3.E) lack of viable business models. The main MDB characteristic applied by the fund is (3.) concessional terms, and (5.B) specialized mechanisms.

#### 4. Results-based financing

##### Program-for-results, WBG

This supports government programs and links the disbursement of funds directly to the delivery of defined results with a special focus on strengthening institutions. This helps build capacity within the country, enhances effectiveness and efficiency and leads to achievement of tangible, sustainable program results. It also supports government programs and helps leverage World Bank development assistance by fostering partnerships and aligning development partner goals and results that can lead to greater development effectiveness<sup>227</sup>. This mechanism applies within a long range of development aspects and also includes green such in the Hebei Air Pollution and Prevention Control Program<sup>228</sup>. The challenges addressed by this financing solution includes (4.B) specialized tools in financial markets and (4.D) non-monetized positive environmental externalities. The MDB characteristics applied include (4) know-how and technical assistance as well as (5.B) innovative financial mechanisms.

##### Ideas for Action, WBG & Wharton Business School

Organized by the World Bank Group and the Wharton Business School the competition engages young people around the world to encourage them to develop and share their ideas for financing solutions to deliver the sustainable development agenda. As part of the competition, students get input and feedback from related experts get the chance to present their ideas at the final stage. This initiative, as centered on the SDGs, carry a strong green component and can be carried out in similar form by other MDBs. It may address any challenge depending on the nature of the proposal, while in general addressing (4.B) lack of specialized funds and tools. It uses the MDB characteristics of (4) know-how and technical assistance and (5.B) specialized mechanisms.

##### Community Development Carbon Fund, WBG Carbon Finance Unit

The fund leverages output-based aid to help implement carbon finance projects with specific community and poverty reduction outcomes. Since its creation in 2003, the fund conducts small-scale projects that both mitigate climate change and benefit communities with a focus on poor countries. The fund is a public-private initiative administered by the World Bank which aims to contribute to a more equitable regional distribution of carbon finance resources by focusing mostly on the poorest countries of the world<sup>229</sup>. The challenges addressed include (4.B) specialized tools in financial markets and (4.D) non-monetized positive environmental externalities, and the MDB characteristics used include (4) know-how and technical assistance as well as (5.B) innovative financial mechanisms.

##### The Development Marketplace, WBG

The Development Marketplace is a competitive grants program, supported by the World Bank and the IFC, that identifies, supports, and promotes innovative social enterprises that effectively deliver services to the poor. Selected organizations demonstrate the potential for growth

226 AIB (2018b). *AIB Project Preparation Special Fund is Open to Proposals*. Retrieved from: <https://www.aib.org/en/projects/preparation-special-fund/index.html>

227 WBG (2017d). *Program-for-Results Financing (PforR)*. Retrieved from: <http://www.worldbank.org/en/programs/program-for-results-financing>

228 WBG (2017e). *Hebei Air Pollution and Prevention Control Program*. Washington DC, USA: WBG

229 WBG (2017f) *Community Development Carbon Fund*. Washington DC, USA: WBG

and are provided strong need-based technical assistance in order to replicate and expand their efforts<sup>230</sup>. This initiative in itself includes green finance and can be both scaled up by sector, geographies, or launched by other MDBs on a similar format as financing sources are often local to some degree. The initiative addresses the challenges of (2.C) competition between providers of specialized funds, (3.A) limited awareness of funding models, and (4.B) lack of specialized mechanisms. It uses the MDB characteristics within (4) know-how and technical assistance.

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230 WBG (2014). *World Bank Group Launches 2014 Development Marketplace in India*. Retrieved from: <http://www.worldbank.org/en/news/press-release/2014/02/13/world-bank-group-launches-2014-development-marketplace-in-india>





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