CEFIA
Cleaner Energy Future Initiative for ASEAN
ASEAN+3

Importance of Simplified Screening, Tracking and Visualization of Climate Indicators to Support the Scaling Up of Climate Finance through Financial Intermediaries

October 2021

FOREWORD

Visualization is an indispensable tool for change. From industrial process efficiency improvements to controlling body weight, the capacity to monitor databases on a daily basis has a powerful effect to make change happen. The Clean Energy Future Initiative for ASEAN ("CEFIA") aims to facilitate cleaner energy projects with the support of the Ministry of Economy, Trade, and Industry of Japan ("METI") coupled with Mitsubishi Research Institute, Inc. ("MRI)" as the secretariate.

Under this initiative, we have been reviewing how best to mobilize finance to cleaner energy projects. After discussions, we decided that financial institutions would engage more actively in cleaner energy projects if they had the ability to visually assess the amount of financing that was being directed to this area as well as to quantify the contributions their investments were making to GHG emission reductions and energy savings.

However, to achieve this, an appropriate platform that can perform these functions effectively is required and, currently, very few platforms exist that can accomplish this. Because of this, we chose to focus on the CAFI®.

International Finance Corporation's CAFI® platform, which we found to provide financial institutions with an excellent visualization of climate-friendly investments as well assessing the greenhouse gas emission reductions and energy savings impacts from these projects. This report is an attempt to share the importance of visualization and the CAFI® platform with a broader audience of stakeholders in the global financial industry.

This report would not have happened without the cooperation of the International Finance Corporation (IFC), and in particular, Mr. Gursimran Rooprai, the lead developer, for CAFI® and a member of the IFC Treasury team.

Thanks to his strong commitment to the project, he made time to form a strong collaboration between IFC and MRI as well as coordinating numerous and extensive interviews with financial institutions that were CAFI® users, in addition to other experts in the field. Thanks to this, we were able to perform an in-depth analysis and obtain valuable takeaways for potential readers. We cannot show him enough appreciation for these efforts.

We would also like to give special appreciation to IFC staff who supported this research and provided valuable inputs, in particular to Mr. Peter Cashion, Mr. William Trant Beloe, Ms. Pushkala Lakshmi Ratan and Victor C. Murphy. This research has been done under the Covid-19 restrictions which made the administration process very challenging. However, thanks to their support, the process went extremely smoothly, and everything was accomplished in a timely manner. We are extremely grateful for this.

We would also like to take this opportunity to thank the many IFC staff who took the time out of their busy schedules to be interviewed and share their relevant expertise. We would also like to express our gratitude to the many banks currently using CAFI® that took the time to speak to us about their

experiences and provide feedback. They helped bring the concept of “visualization” to life in this report. Finally, special thanks go to Dr. Gita Rao of MIT for her extremely valuable comments. Without all of their generous and kind support, this report would not have been possible.

We sincerely hope this report will be a good opportunity for readers to understand the importance of visualization in the climate finance area.

This report is written by Mr. Ajay Narayanan and Dr. Debra Perry, DaoLogic Consulting, LLC (https://daologic.co/index.html) with support from International Finance Corporation (IFC) under CEFIA initiative.

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EXECUTIVE SUMMARY

Climate change is the critical issue of our time and the ASEAN region will be one of the areas impacted the most. Without appropriate measures, it will be increasingly exposed to more intensive climatic events such as floods, typhoons, droughts and heat waves, which will push millions into extreme poverty. Addressing this challenge will require building a more resilient infrastructure while transitioning to cleaner sources of energy. This will entail investment on an unprecedented scale, for which the financial sector's role will be imperative.

The opportunities for green finance in the region are vast. In the region's rapidly growing cities alone there is a USD 20 trillion potential in climate-smart projects. Vietnam's climate-smart business investment potential, for example, will be over USD 750 billion by 2030. There has also never been a better time to attract green institutional financing. Sustainable investing is surging with USD 288 billion invested globally in sustainable mutual funds and Exchange Traded Funds in 2020, a 100 percent increase from 2019 and this trend looks set to accelerate. While investors agree they need impact measurement to monitor their progress towards the goals in the Paris Agreement, an enormous gap still exists on green finance definitions, data, reporting, and incentives to facilitate private sector participation.

For there to be a transition to a low carbon economy, a number of conditions have to be in place. There needs to be good lower carbon alternative technologies available. Also, policies and regulations that support this have to be in place. However, even if these two conditions are met, without the appropriate financing nothing will be achieved. It is estimated that the transition to a low-carbon economy in the region will require over USD 2 trillion in clean energy development alone for the period until 2030 and, while the flows of climate finance have been increasing dramatically, they are mainly from the public sector and are still nowhere near what is needed[1,2]. This means public funds alone will not be sufficient to meet the demand for green finance, making it is imperative that private sector capital is also mobilized. To accomplish this effectively, the financial sector is key.

Financial institutions fund the global economy through investments, lending, underwriting, etc., as well as being able to incentivize or require their borrowers to adhere to green standards. They can introduce users to new innovative green technology and play a crucial role in the transition to a low carbon economy. However, to engage banks to become more involved in green financing, they need to: 1) become familiar with new clean energy technology, 2) have clear and simple eligibility criteria that are aligned with their needs and 3) have the ability to measure and quantify their impact.

In the ASEAN region, the Japanese Ministry of Economy, Trade and Industry (METI) has been encouraging private sector leadership to aid in the transition to clean energy. METI launched the Cleaner Energy Future Initiative for ASEAN (CEFIA) to support this. The initiative believes that financial institutions

[1] Climate Investment Opportunities in Emerging Markets, An IFC Analysis, 2016.
[2] International Energy Agency (2017), World Energy Investment 2017.

need clear guidelines before undertaking many of these projects and it is therefore imperative that they are able to visualize and quantify their impacts.

An appropriate platform that can perform these functions is critical but unfortunately very few exist. CAFI, or the "Climate Assessment for Financial Institutions", developed by the International Finance Corporation (IFC), is one such tool. The CAFI® platform is web-based and designed for financial institutions to be able to quickly and easily assess whether a project is "green" and measure the greenhouse gas reductions using standard definitions and measurement tools.

This report is an attempt to share the importance of visualization and the CAFI® platform with a broader audience of stakeholders in the global financial industry. The report first outlines CAFI's development and functionality. It then turns to an evaluation of CAFI's current strengths and weaknesses through a series of interviews with financial institutions who are current CAFI® users, other MDBs who are current or potential users of CAFI® and, finally, IFC staff who are involved in the development, training and use of CAFI. The interviews showed CAFI's many benefits, including simplicity of use for a FI, a single point of entry and ease and speed of determining the eligibility of a project. Users felt CAFI® could also help build capacity in the financial sector as well as being good for marketing and business development. Lastly, all interviewees thought it offered excellent visualization and standardized reporting.

While CAFI's overall feedback was extremely positive, various suggestions were made for future CAFI® upgrades. In the short-term these included: 1) broadening CAFI's coverage to include an estimate of the financial institutions' footprint as well as the footprint of its investment portfolio, 2) adding modules for different levels of financial sophistication and, 3) adding impact measures for a non-technical audience such as the equivalent number of cars taken off the road, etc. Also, since CAFI® currently only covers ex-ante calculations, it was thought that, going forward, CAFI® should be retooled to include ex-poste measurements as this would greatly help reporting on impact targets for various stakeholders. In the longer-term, clients felt CAFI® could broaden its measurement to include the ESG/impact measurement indicators as well as expanding CAFI® to cover the carbon risks of a financial institution's portfolio - in other words, the losses that could occur due to extreme weather events.

The report concludes with the way forward for the ASEAN region to promote the transition to a low carbon economy. Suggestions include supporting the market drivers needed for the adoption of green technology, providing technical assistance to create capacity of the region's financial institutions in green finance, developing a clear, well understood harmonious taxonomy for the region as well as metrics that are verifiable, relevant and easy to report and, finally, have a simple tool such as CAFI® to assess, record, aggregate, visualize and report on green finance.

LIST OF TERMS AND ABBREVIATIONS

ADB	Asian Development Bank
AFD	Agence Française de Développement
Attribution	Assigning the development impact based in some proportion to the financial contribution to a green activity
Blended Finance	The strategic use of philanthropic or development funds to leverage private capital
CAFI	Climate Assessment for Financial Institutions
CBI	Climate Bonds Initiative
CDF	Carbon Disclosure Fund
CEEF	Central European Energy Facility
CEFIA	The Cleaner Energy Future Initiative for ASEAN
EDGE	Excellence in Design for Greater Efficiencies
EEEF	European Energy Efficiency Fund
E&S	Environmental and Social
ESG	Environmental, Social & Governance
EU	European Union
Ex-Ante	Before the fact
Ex-Poste	After the fact
FI	Financial Institutions
FSB	Financial Stability Board
GBP	Green Bond Principles
GBPA	Green Bond Pioneer Award
GEF	Global Environmental Facility
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
HFC	Hydrofluorocarbons
ICMA	International Capital Markets Association
IFC	International Finance Corporation
KPI	Key Performance Indicator
MDB	Multilateral Development Bank
METI	Ministry of Economy, Trade and Industry
MW	Megawatt
NDC	National Defined Contributions
NTFPSI	Norwegian Trust Fund for Private Sector and Infrastructure
OJK	Indonesian Financial Services Authority
PPA	Power Purchasing Agreement
Scope 1	All Direct Emissions from the activities of an organization
Scope 2	Indirect Emissions from electricity purchased and used by the organization
Scope 3	All other indirect emissions of an organization after Scope 1 and 2

SSE	Sustainable Stock Exchange
SUNREF	Sustainable Use of Natural Resources and Energy Finance
tCO2e	The sum of Scope 1 emissions (from direct operations) and Scope 2 emissions (from electricity purchased) during a given period, measured in metric tons of carbon dioxide equivalent.
TCFD	Task Force on Climate-related Financial Disclosures
UAT	User Acceptance Testing
UNCTAD	UN Conference on Trade & Development
USD	US Dollar

I. INTRODUCTION

Last year tied with 2016 as the hottest year on record within the hottest decade ever recorded, as witnessed by record wildfires, more extreme typhoons, and unprecedented droughts. This is due in a large part to the growth of human activity causing more burning of fossil fuels leading to higher levels of heat-trapping carbon dioxide in the atmosphere.

The advent of Covid 19 has only served to highlight the fragile link between human activities and climate. According to some of the world's top scientists, we could easily be entering a new era of pandemics caused by deforestation, urban crowding and wet markets for wild game. Hence, the pandemic has only strengthened the urgency to work cooperatively on a global basis.

While in the short-term, the lock downs have contributed to the largest drop in global emissions since World War II, we have yet to see how the long-term effects will play out. However, one thing is certain. Climate change will still be a problem and CO2 emissions will still remain in the atmosphere for a long time to come. Given this, there is an urgent need for a transition to a low carbon economy to reduce green-house gas emissions and slow the rise in global temperature.

In an attempt to address this issue, the Paris Agreement was signed at the United Nations Climate Change Conference (COP 21) in late 2015. Adopted by nearly every country, they pledged to substantially reduce global greenhouse gas ("GHG") emissions in an attempt to limit global warming to well below two degrees[3] . Developed countries in a position to do so also promised to help developing countries mitigate and increase resilience to climate change. However, while scientists agree this goal is still achievable, countries will require a significant effort to transition their industries away from "business as usual" into a cleaner energy future.

As part of its commitment to reducing its GHG emissions, the Japanese Ministry of Economy, Trade and Industry (METI) initiated a new flagship initiative focused on a Cleaner Energy Future Initiative for ASEAN (CEFIA) in September 2019 in Bangkok. The initiative serves as a platform to facilitate collaboration between the public and private sector as well as to promote innovation in technology and accelerate the deployment of cleaner energy and low carbon technology in the region. CEFIA will also work to develop and improve policy and the institutional framework required to support this.

CEFIA's main objective is to promote "business driven dissemination" of these technologies in parallel with policy development as follows:

1. Assist in enhancing the capability of local ASEAN Financial Institutions ("FIs") in projects with new technologies and products in the cleaner energy space;
2. Introduce an appropriate institutional framework in countries and targeted sector that will contribute to GHG emission reductions; and

[3] In October of last year, the Japanese Prime Minister, Mr. Suga, also pledged that Japan would commit to a goal of net zero emissions by the year 2030.

3. Engage in technology and product dissemination throughout the ASEAN region for those technologies once proof-of-concept has been achieved.

An overview of CEFIA priorities is shown in Figure 1 CEFIA and its priorities. Nevertheless, even with the correct policy framework in place and access to the most innovative technologies, without the appropriate financing available, nothing can be accomplished. However, financial institutions need clear guidelines before undertaking many of these projects. For example, they need to be able to determine which projects represent a profitable opportunity under CEFIA's framework as well as being able to measure the effectiveness of their investments at the individual project level, as well as at the portfolio level and the bank level. Coupled with the fact that financial institutions are facing more and more pressure to disclose climate-related information from bodies like TCFD, they need a reliable platform to be able to measure and report this. Interesting enough though, very few platforms exist expressly for this purpose.

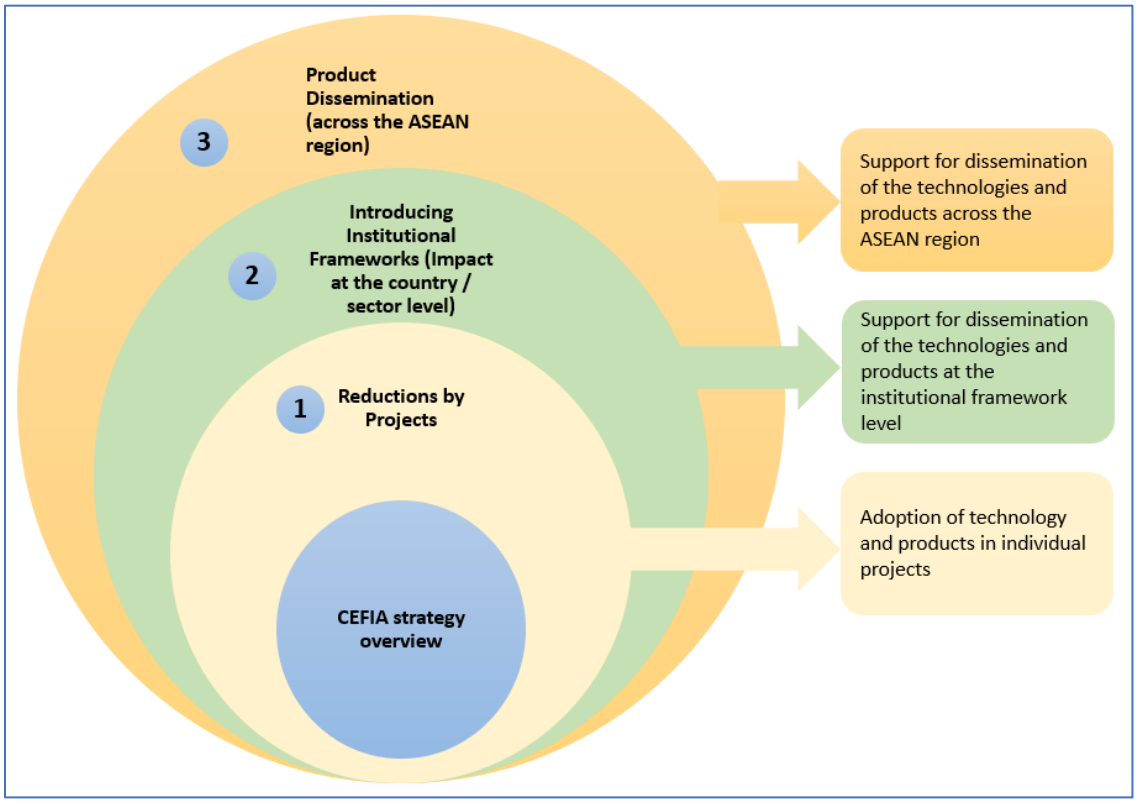

Figure 1 CEFIA and its priorities

For the purposes of this report, we will term the effort by financial institutions to capture these activities with quantitative data as "visualization". This concept is critical under the CEFIA initiative, since without the ability to quantify results, it is very difficult to channel funds into cleaner energy finance. Because of its importance, we would like to make the concept of "visualization" the main topic of discussion for our 2nd CEFIA forum.

While the concept of visualization is extremely useful for financial institutions to capture the risk and opportunities of green/cleaner finance, it is also relatively new. Because, as the old saying goes, “seeing is believe”, we have chosen to focus this report on a concrete and excellent example of visualization - IFC’s CAFI® platform. We hope that, by sharing this platform with a wider audience unfamiliar with visualization, they will understand and appreciate the importance and usefulness of this concept after reading this report.

Importance of Finance

A critical component to transition to a low-carbon economy is access to finance. While flows of climate finance have been increasing dramatically, they are mainly from the public sector and are still nowhere near what is needed to achieve an orderly transition to a climate-resilient world[4,5,6] .The global transition to a low-carbon economy will required an estimated USD 8 trillion dollars in clean energy development alone between 2015 and 2040[7]. This means public funds alone will not be sufficient to meet the demand for green finance, making it is imperative that private sector capital is also mobilized.

Because of this, during the 2nd CEFIA forum held virtually on February 2nd, 2021, there was a session devoted solely to finance. At that session, the following issues were discussed with the conclusions outlined below:

Issue	Conclusion
Expected roles and approaches of government in promoting Cleaner Energy Finance;	The government plays an essential role in developing enabling environments for cleaner energy finance. CEFIA can contribute to creating them as a "nexus" among the public sector, private sector, and financial institutions by sharing their needs and voices with the ASEAN secretary.
The current status of ESG investment, and the role of transition finance in the ASEAN region	One of the characteristics of ASEAN is its diversity in the economy. The concept of transition finance, which provides finance to broader industries for their transition to a more sustainable society, seems to fit such a region.
The effectiveness of "visualization" in measuring a financial institution's carbon footprint reduction	Measuring the carbon footprint in a portfolio is an effective tool for financial institutions to reduce GHG emissions. However, there are many challenges to implementing this. CEFIA recognizes that visualization is one such approach to be examined.

To mobilize private sector capital, the financial sector is key. Financial institutions fund the global economy through investments, lending, underwriting, etc. Apart from investing local capital in green assets, banks can incentivize or require their borrowers to adhere to green standards. They can introduce users to new innovative green technology and play a crucial role in the transition to a low carbon economy. Therefore, to support and accelerate this, CEFIA also plans to also act as a catalyst to mobilize green finance and investments from the financial sector and will also promote public/private partnerships.

[4] We define climate finance as public, private or alternative sources of financing that seek to support mitigation and adaptation actions that will address climate change as per the UNFCC.

[5] This is generally agreed to be in the scale of trillions of dollars (again CPI – 3800 and 1,600 million)

[6] Climate Policy Initiative shows from USD 320 billion in 2013 to USD 600 billion in 2018.

[7] International Energy Agency (2017), World Energy Investment 2017, http://dx.doi.org/10.1787/9789264277854-en

Banks are paying increasing attention to climate change for two main reasons. The first is to evaluate their contribution to GHG emissions, both directly through their own activities as well as indirectly through their various investment portfolios. This was evidenced by the fact that during the time of the Paris Climate accord, many of the world's largest banks made commitments with respect to climate adaptation and mitigation by pledging to increase their financing of "green" investments while at the same time agreeing to decrease their investments in "brown" assets.

Secondly, banks understand that financing the transition to a low carbon economy will give rise to many new investment opportunities, but they also understand it subjects them to inherent risks. By definition, many of these innovative technologies are new and untested which means banks have limited product awareness and do not fully understand the technology. Because of this, even when pushed to lend to this area, banks lack a historical track record on which to price and often an unknown client base. Unfortunately, without an incentive such as a carbon price, financial institutions are often tempted to keep the status quo. This is further compounded by a limited common understanding of definitions, metrics and KPIs. Managing these risks while capturing new investment opportunities will be crucial for the survival of these institutions.

Both of these approaches will need different metrics and the appropriate metrics to track, use and report on each objective will be different. However, one of the primary issues facing the sector is the need for access to methods and tools for quantifying their GHG emissions, both from its own operations and its investment portfolio. This enables them to understand how climate change affects its operations and can serve as a basis for decision-making on finance and investment.

While designing and implementing effective frameworks for sustainable banking requires different strategies in different countries, the critical requirements for widespread adoption is market capacity of the key players. Therefore, any system that is implemented has to be:

- Simple and easy to use for local banks and FIs,
- Work to a common language on defining eligible projects and the key indicators,
- Include a system for recording, monitoring, aggregating, and reporting,
- Be able to identify climate projects across different sectors while allowing standard indicators to be captured and aggregated into portfolios.

In this regard, the Climate Assessment for Financial Institutions (CAFI) platform is such a tool. Developed by the International Finance Corporate to help both the IFC and its financial institution clients measure and quantify the impact of their growing climate investments, it is a first-of-its-kind web-based tool for climate impact data monitoring and reporting.

As CEFIA is particularly interested in the role of "visualization" in measuring a financial institution's carbon footprint reduction and would like to showcase and share good practices and challenges, this report will focus on CAFI® and its usefulness for green finance and impact measurement for the financial services industry.

Structure of the report

Chapter 1 will focus on the genesis of green finance and the CAFI® platform at the International Finance Corporation. Chapter 2 will cover the rationale for CAFI's development, an overview of its design and features and its adoption to date. Chapter 3 will consist of real-life feed-back from financial institutions that have implemented CAFI® in their day-to-day operations. It will also include feedback from IFC personnel who were key to supporting the platform and use it consistently in their work. We will also provide opinions from leading climate and finance specialists, as well as leading academics in the field. We will examine what has worked and what has not and how, if at all, it could be improved or broadened to different financial products and sectors. Chapter 4 will then comment on CAFI's usefulness for the ASEAN region and conclude with the potential ways to move forward in this critical area.

II. GREEN FINANCE AND VIZUALIZATION

Genesis of green finance

Before the early 2000's, considering environmental or local community impacts in investment decisions was frowned upon in corporate boardrooms. It normally represented an expense with an impact on profits and therefore was largely ignored.

In the early 2000's though, IFC, along with other MDB's, started to recognize that sustainable development should not be done at the expense of the environment. The initial focus was on the avoidance of environmental externalities, which were determined through due diligence on the project. Over time, this was expanded to include social factors even as the approach largely remained focused on avoidance of risk and a type of quasi-regulatory principle of "do no harm". Eventually the mindset of "avoidance of risk" moved to enabling opportunities or seeking out projects that had positive environmental impacts. This was the genesis of green or sustainable finance. Initial forays into green finance addressed projects in areas such as cleaner production and waste management, reflecting the expansion of the ESG risk management orientation.

As the issue of global warming became more apparent, the foundation was laid for GHG emission targets which led to the signing of the Kyoto Protocol in 1997. It was at that point that carbon finance was also recognized as part of green finance. Likely influenced by the Kyoto Protocol, Multilateral Development Banks ("MDBs") and governments began to push for targets and these targets were typically measured by the dollar volume of finance which had been directed towards green or climate finance. However, as the practice of adopting targets for climate finance became more widespread, the challenge was to determine: 1) what criteria should be used to determine whether a project can be classified as climate friendly; and 2) the methodology that should be used to determine and report that project's impact.

In 2011, MDBs joined forces to develop a methodology for tracking their climate finance contributions in a consistent, comparable and transparent manner. Since then, they have been publishing a "Joint Report on MDB Climate Finance" on an annual basis. These climate targets are being continually updated. In 2015, MDBs aligned their principles for tracking climate mitigation activities with those of the International Development Finance Club (IDFC) [89].

Since that time, the MDBs have reported jointly on climate finance and this has been central to scaling up climate finance. They have collectively financed over USD 100 billion in climate over the four years from 2011 to 2014, equivalent to an average of USD 26.5 billion per year. In 2019, this reached a new high of USD 46.4 billion, an increase of 7.7 percent from 2018.

[8] There are still some disparities on the measurement of climate adaptation which are in the process of being streamlined.
[9] In 2015, MDBs aligned their principles for tracking climate mitigation activities with those of the International Development Finance Club (IDFC).

IFC and Green Finance

Today, IFC is one of the leading financiers of private sector clean and efficient energy projects for developing countries and a top issuer of green bonds supporting climate-smart projects in emerging markets.

IFC first started explicitly tracking climate finance in 2005 when, that year, it invested USD 200 million. By FY15, its business in this area had grown to USD 2.3 billion[10]. In that same year, IFC also mobilized an additional USD 2.2 billion, for a total of USD 4.5 billion in new commitments. By FY19, this had grown to USD 5.8 billion including mobilization, resulting in 15.5 million metric tons in annual target GHG reductions. What started as four percent of IFC's overall business now accounts for around 30 percent.

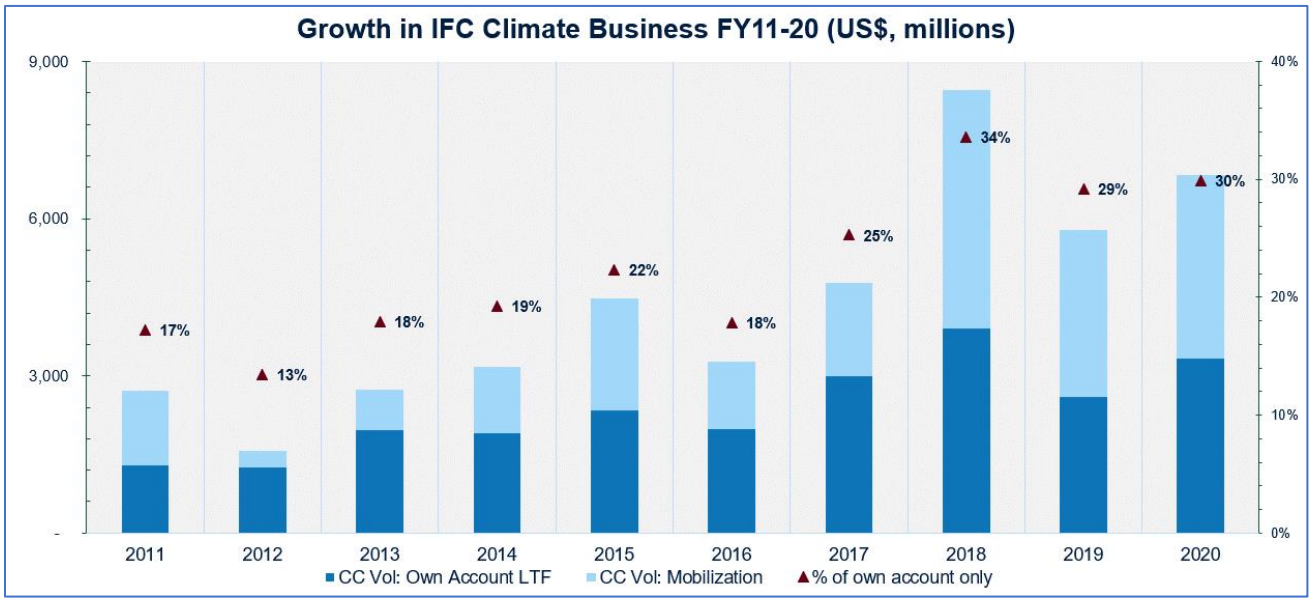

Figure 2 Year-on year growth in IFC Climate Business from all Sectors

Similarly, during this period, IFC's climate investments through financial institutions also grew, reaching around USD 2 billion in FY19. This is now projected to grow to USD 3.5 billion over the next five years, with half of this being done through financial institutions.

[10] This figure does not include short-term trade and any mobilization amounts.

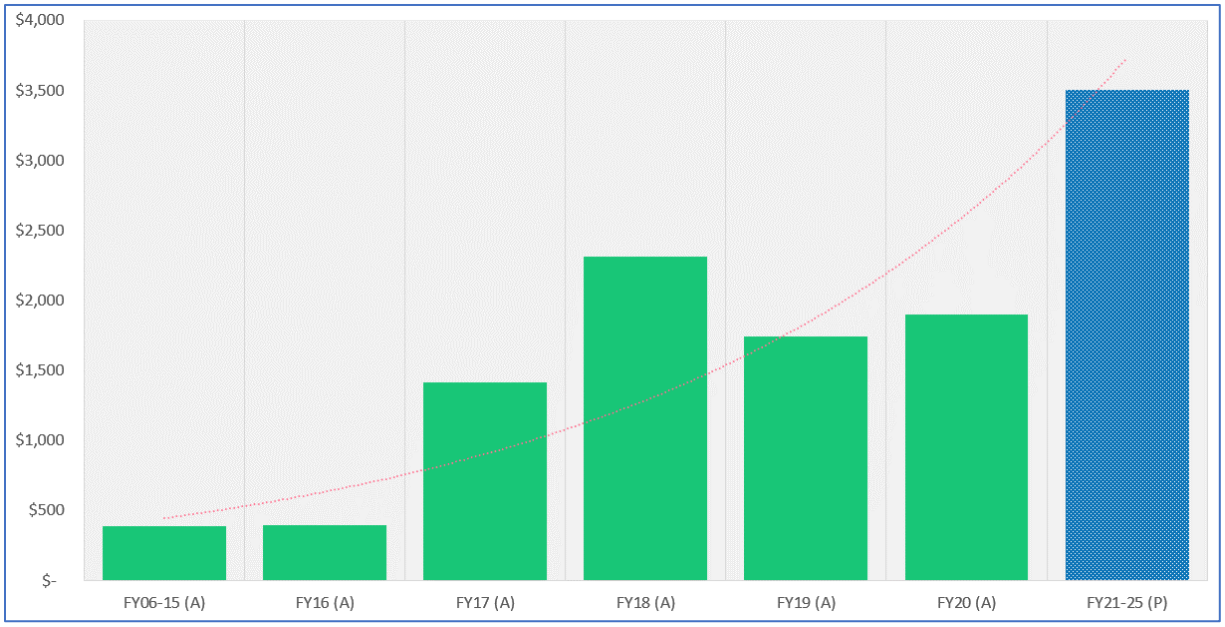

Figure 3 IFC's Historical and Forward-looking Climate Lending through Financial Institutions

Going forward, IFC's green finance strategy consists of scaling its climate investments to reach 35% of its total investment volume between 2020 and 2025[11]. Apart from directly investing in the traditional large-scale renewable energy and energy efficiency projects, it intends to do this by systematically developing new sectors like climate-smart agriculture, transport and green building investments through policies and lending solutions. In addition to focusing on investments that mitigate greenhouse gases, IFC also intends to help clients adapt to impacts of climate change. It also plans to develop new products that include working with financial institutions and corporate clients to develop their own green bonds.

Also, because of the growing demand for proper climate disclosure, IFC is now turning its attention even more towards creating standards for impact measurement[12]. As accounting for climate risk is becoming more main-streamed in financial institutions, IFC believes it can once again play a leading role with respect to screening and accounting for climate risk.

[11] The target for IFC's annual financing in FY20 is USD 3.5 billion of long-term finance. However, this figure has yet to be confirmed.

[12] Including the implementation of the Task Force on Climate-related Financial Disclosures.

IFC reporting standards

IFC has a rich history of developing and implementing standards for the private sector. It has been measuring the greenhouse gas emissions of its own investment portfolio since 2010. IFC measures its emissions impact on a project-by-project basis across the business – including real sector investments, advisory services and projects through financial intermediaries. In 2011, it developed and adopted metrics that its projects were required to comply with to qualify as climate-related. Under the "IFC Definitions and Metrics for Climate-Related Activities" Version 1, climate-related projects needed to do one of the following: (a) reduce emissions of greenhouse gases into the atmosphere; (b) remove greenhouse gases from the atmosphere; or (c) improve resilience against climate change risks. IFC measures its emissions impact on a project-by-project basis across the business – including real sector investments, advisory services and projects through financial intermediaries. IFC's GHG reduction accounting was designed to be as transparent as possible so that its clients and partners can understand and replicate it. It was first piloted in IFC's real sector investments in fiscal year 2012 and then extended to advisory and financial intermediary work in fiscal year 2013[13].

One of IFC's great influences of greening the private financial services sector has been its Performance Standards. These Standards, first developed in 2009, defined IFC clients' responsibilities for managing their environmental and social risks. Today, IFC's performance standards have become a global benchmark for sustainability practices in financial institutions. . Eight-four financial institutions in 35 countries, as well as other leading development institutions, have adopted the Equator Principles which are based on these standards. In addition, stock exchanges across the world increasingly rely on these standards to construct their sustainability indexes – a trend that could influence the flow of USD 120 trillion in institutional investor assets. In this sense, the Standards have been a great success as they have been responsible for changing financing practices across the emerging markets and have contributed to accelerating the spread of responsible business practices in the private sector.

In addition to its Performance Standards, IFC has developed several climate-specific measurement standards.

One such innovation is a green building certification system designed primarily for emerging markets termed EDGE or "Excellence in Design for Greater Efficiencies". Launched in July of 2014, EDGE shows developers how to reduce their buildings' energy and water consumption by 20 percent while simultaneously lowering utility bills and greenhouse-gas emissions. It also allows IFC to assess its own GHG savings made through its green building investments. It includes a free cloud-based software that allows builders to assess the cost of going green versus the savings in utility bills. The state-of-the-art system has a sophisticated set of city-based climate and cost data, consumption patterns and algorithms for predicting the most accurate performance results. Buildings that are EDGE certified have been shown

[13] Joint MDB Report on Climate Finance 2015; MDB-IFC Common Principles for Climate Mitigation Finance; IFI Framework for Harmonized Approach to Greenhouse Gas Accounting

to have a competitive marketing and sales edge over conventional buildings, which has led to tremendous growth in its use. Today EDGE is available in 140 countries and used in three global standards[14]. Above all, EDGE provides a user-friendly interface and clear visualization that enhance its user friendliness and have contributed to its widespread adoption.

In 2013, IFC developed its Climate Assessment for Financial Institutions, (CAFI) system, a first-of-its-kind online impact measurement platform to support its growing green financing to financial institutions. The system enables IFC's financial institution clients to assess the activities they finance to 1) ensure they are climate-eligible by IFC standards; and 2) estimate the GHG emission saved by the project. This, in turn, allows IFC to 1) ensure their funds are only directed to appropriate projects and 2) report the GHG emissions saved through these projects. To date, 125 financial institutions have access to CAFI® with USD 6.5 billion of climate finance volume reported through the platform. The resulting impact captured through the system is an annual reduction of 12.7 million tons of carbon dioxide equivalent, 27.5 GWh of renewable energy generated, 1.6 million square meters of green area built, and 2.7 million cubic meters of water saved[15].

[14] GRESB: GRESB includes EDGE as a qualifying certification system for improved scoring for the GRESB Real Estate Assessment and the GRESB Developer Assessment. GRESB is the global standard for ESG benchmarking and is used by investors to obtain data on the ESG performance of real assets. International Capital Markets Association: The International Capital Markets Association (ICMA) recognizes EDGE as a qualifying certification system in its green bond principles, which are a set of guidelines recommended for issuing a green bond. Climate Bonds Initiative: The Climate Bonds Initiative includes EDGE as a qualifying certification system to achieve The Climate Bonds Standard and Certification Scheme. EDGE certification fulfills both residential and commercial requirements for the allocation of proceeds from green bonds.

[15] It should be noted CAFI only measures ex-ante or expected GHG emission reductions and not ex-poste or realized results.

Increasing social awareness

There is a growing call - from shareholders and investors alike - for financial institutions to be better corporate citizens and account for the impact of climate on their assets. This includes not just the physical impacts of climate change from their investments but their contributions to GHG emissions reduction, both directly through their operations but, more importantly, through their investments.

This is evidenced by an explosion in capital flows to socially responsible - or sustainable - investing This is coupled with the fact that it is being increasingly recognized that sustainable funds provide comparable, if not higher, returns than traditional funds with lower risk. Researchers at Morningstar Inc. said USD 347 billion flowed into ESG funds globally in 2020 and more than 700 new funds were created. In the fourth quarter of 2020 alone, global inflows were up 88 percent to USD 152.3 billion - up from USD 82.6 billion in the prior quarter - while assets in this sector reached a record high of USD 1,652 billion as of the end of December, up 29 percent from the previous quarter. It is also worth noting that many asset managers are changing existing funds into sustainable funds as a way to avoid creating new funds from scratch. Consistent with record numbers of fund launches, so-called "repurposed" funds hit new highs last year. In their study, Morningstar identified 253 such funds, 87 percent of which reflected the change by rebranding and adding terms such as "sustainable", "ESG", "green", or "SRI" to their names as a way to increase their visibility among investors who are looking to invest more sustainably.

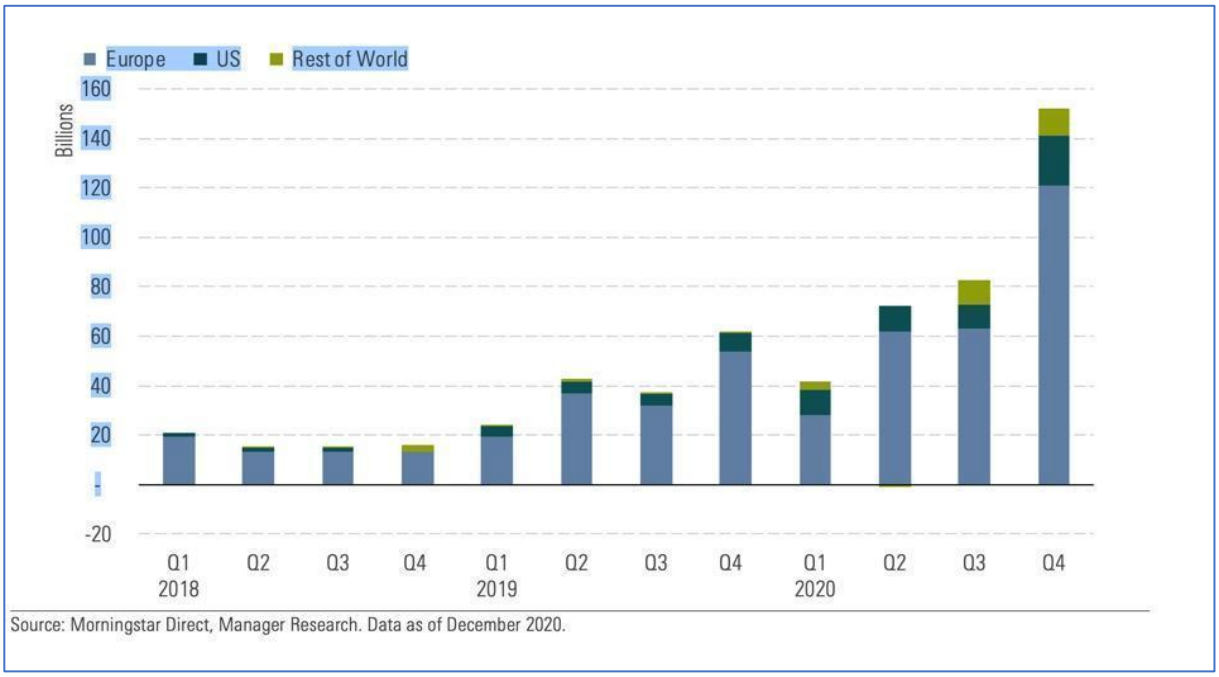

Figure 4 Quarterly Global Sustainable Fund Flows (USD Billion)

Benefits to Sustainable Investing

There are many benefits to sustainable investing, management and disclosure:

Increased Financial Returns: Companies who managing environmental, social and governance show increasingly positive outperformance[16]. According to the StoXX Global Climate Change Leaders Index, an index consisting of the leading global companies in terms of environmental criteria, there is ample evidence of financial outperformance from companies who measure, manage and report their climate risks. Recently, Morningstar examined the long-term performance of a sample of 745 Europe-based sustainable funds shows that the majority of strategies have done better than non-ESG funds as well as having a higher survivorship rate. Another Morgan Stanley report found that, from January 2020 to June 2020, U.S.-based sustainable equity funds outperformed their traditional peers by a median of 2.8 percent in terms of total returns and likewise lost 3.9% less during this time of pandemic-induced volatility [17] . This has also been confirmed in the green bond market as well when, in October 2020, green bond issuance beat the USD 1 trillion mark, they outperformed standard bonds.

- JPMorgan Chase & Co.: Commits to sourcing renewable energy for 100 percent of its global power needs by 2020 and to facilitate $200 billion in clean financing by 2025.
- Citibank: Promises to devote $100 billion to environmental finance.
- Goldman Sachs: Will deploy $150 billion in financing and investment toward clean energy by 2025.
- HSBC: Pledges to provide $100 billion in sustainable financing and investment by 2025.
- Deutsche Bank: Sets targets of arranging EUR 200 bn of sustainable financing by 2025.
- Bank of America: Pledges to mobilize $300 bn of capital for low carbon, sustainable business by 2030.
- Morgan Stanley: One of the first banks to disclose how much its loan and investments contribute to GHG emissions.
- In addition, HSBC, BoA and Deutsche Bank all claim to be carbon neutral in their operations.

Box 1 Green commitments of FIs

Lower Cost of Capital: Correspondingly, along with higher expected returns, companies are increasingly finding that those who follow good ES&G strategies have a lower cost of capital[18]. This finding is in line with another Oxford Study that has shown that companies who disclose environmental data have a lower cost of capital. Several other studies over the past years have confirmed this. In addition, institutions can take advantage of the fact that, because there is a stronger call by investors to be more socially responsible, more capital is flowing into this area.

[16] Prior to this period, there was not enough data to make any test results statistically significant. This result is not surprising given the strategy avoids many potential hazards for a company. It has also been shown to avoid extreme losses due to tail risk events. The BP Deepwater Horizon oil spill disaster, costing the company nearly USD 65 billion, is one such example.

[17] Morgan Stanley Sustainable Reality Report, 2020

[18] The Smith School of Enterprise and the Environment at the University of Oxford and Arabesque Asset Management, 2016.

Improved Reputation: Banks who practice and publish good ES&G standards, have an enhanced reputation in the market. This is particularly important for marketing purposes and to attract capital to the bank, either in the form of funding or deposits. Alternatively, being perceived as environmentally unfriendly, may discourage investors and cause loss of capital as investors divest from assets not considered sufficiently green.

Increased Awareness of Risks: Proper monitoring and disclosure could help banks to avoid sudden policy shifts and other transition risks resulting from transitioning to a low-carbon society. This could leave businesses with a myriad of problems and unplanned disruptions including asset price drops, input price rises, legal liabilities or obsolete technologies and stranded assets. Shareholders and investors need more strategic climate information disclosed and more forward-looking information to ensure they remain ahead of the curve as much as possible in this area. Increased Awareness of Opportunities: Proper awareness of ES&G risks in a portfolio can also bring an increased focus on possible new business opportunities and more efficient capital allocation. These benefits imply financial institutions who can call themselves "green" and practice proper disclosure should be able to attract more funding at a lower cost, giving them a competitive advantage in relationship to their peers. Because of this, more and more banks are trying to position themselves as "sustainable banks" to the point which today it is hard not to find a financial institution claiming some sort of social responsibility. Coupled with this, the number of companies disclosing climate information is also increasing[19].

However, for this to be truly relevant to the responsible investor, this information needs to be reliable, comparable and material and not appear as an attempt to engage in "greenwashing" [20]. While a bank's carbon position in its operation may be verifiable, a bank's major influence is through its investments and this is extremely hard to corroborate[21]. Unfortunately, much of the information that banks publish is currently patchy and hard to compare.

According to the Climate Disclosure Standards Board, after surveying the top 50 companies in the EU, users of reporting data had three major issues:

1. 70% believe companies fail to disclosure relevant information.
2. 74% believe information is not reliable.
3. 84% find information is not comparable across companies and sectors.

[19] NAVEX GLOBAL STUDY: ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) GLOBAL SURVEY CONDUCTED BY NAVEX GLOBAL REVEALS STRONG ADOPTION ACROSS PUBLIC AND PRIVATE COMPANIES

[20] Greenwashing refers to a company providing misleading information so as to present an environmentally responsible public image.

[21] According to TCFD standards, this is referred to a bank's Scope 3 carbon emissions where Scope 1 is all direct emissions from the activities of an organization; Scope 2 is all indirect emissions from electricity purchased and used by the organization; Scope 3 includes all other indirect emissions of an organization.

- According to the Climate Disclosure Standards Board, the number of companies disclosing climate information and the quality of disclosure information is also increasing. In the last x, the number of companies disclosing has increased by 20% with an overall improvement in the quality of data. Seventy percent of large-listed companies already disclose more than 70% of TCFD requirements.
- The world has reached an all-time high for ESG reporting with almost 90% of publicly traded companies publishing sustainability reports in 2020. Listed companies are under increasing stakeholder and regulatory pressure to describe the impacts of their operations in an integral sense, as a global citizen, and not just in a narrow economic sense.
- McKinsey's Global Survey13 showed that 83% of 439 of C-suite leaders and 119 investment professionals said that ESG programs will add more shareholder value in the next five years and that they would pay a median 10% premium to acquire an ESG aligned company.

Box 2 ESG disclosure trends

Another study by DFID found 70% of respondents would like to invest in sustainability but do not trust the reporting.

This underscores the need for objective metrics that enable a reliable comparison between financial institutions, along with metrics that are verifiable and relevant. Investors need to trust the disclosures.

Taxonomy for climate and sustainable development finance

One of the challenges facing institutions is the taxonomy for climate and sustainable development finance. At the broadest level, there is some emerging alignment on the definitions and overlaps between climate, green and sustainable (development) finance. Climate finance typically covers the financing of climate mitigation and adaptation, while green finance includes projects and activities with environmental benefits where the climate benefit is not direct. Cases of the latter include projects that mitigate air pollution and water pollution and support waste management. There are also aspects of financing climate/green, vs shifting the overall financing portfolio of an institution towards a lower carbon emission trajectory. This indicator, captured in the carbon footprint of the finance portfolio, captures whether the Bank/FI is shifting the overall trajectory of its portfolio, as against just selectively showcasing its green financing, while also financing projects with significant carbon emissions. This is controversial as it sometimes entails taking a stance towards GHG intensive sources of energy such as coal, that creates tensions around energy needs of developing countries. Climate/green finance can further be seen as being part of a larger subset of the finance associated with sustainable development. This fits into a larger context of the Sustainable Development Goals (SDGs) that cover 17 different goals, many of which have climate benefits. The infographic, adopted form the UNEP FI enquiry, captures the span of taxonomies included within Development finance.

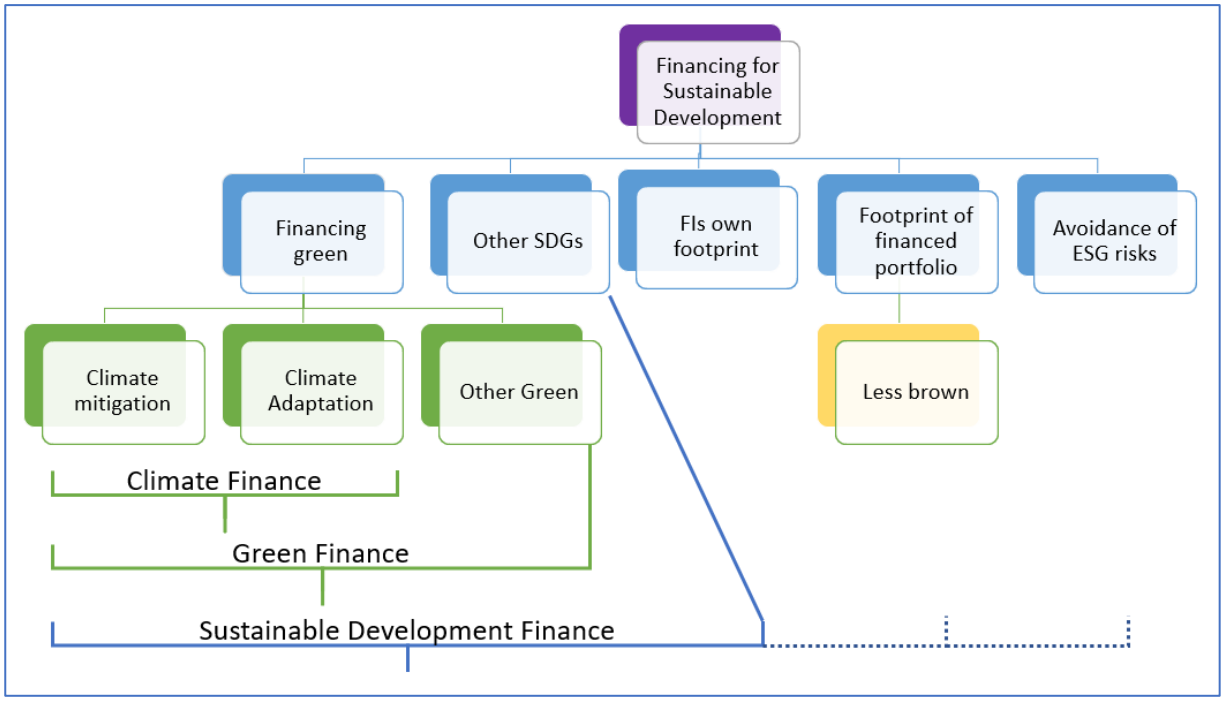

Figure 5 A taxonomy for development finance

SDGs and climate finance potential

This infographic highlights the SDGs and the ones that have a direct relevance to climate finance as circled with the number one, while those with indirect/possible climate potential are circled with the number two. Each of the unmarked SDG goals and the associated sectors can also have climate benefits.

Figure 6 Climate opportunities within the SGDs

Current standards

Network of Central Banks and Supervisors for Greening the Financial System

Within a year of the Paris Agreement, the Network of Central Banks and Supervisors for Greening the Financial System ("NGFS") was formed to help strengthen the global response required to meet its goals. NGFS is a network of central banks and supervisors focusing on managing the risks arising out of climate change and aims to mobilize capital for green and low-carbon investments. The network defines and promotes best practices and commissions studies in the green finance area and environmentally sustainability. The network initially consisted of eight central banks but now has over 83 members as well as 13 observers which consists of the major MDB's and international financial institutions such as BIS and the IMF. Members must have a proven commitment to sustainable finance and agree to contribute to the work and objectives of the NGFS.

The Task Force on climate-related Financial Disclosure ("TCFD")

There have been many attempts to harmonize disclosure standards in both the international and national policy framework. One that is gaining the most traction is The Task Force on Climate-related Financial Disclosures (TCFD) which was set up by the Financial Stability Board (FSB) and spearheaded by Mark Carney, former Bank of England governor and Michael Bloomberg, media entrepreneur and former New York City mayor. The TCFD was created to address these issues through its recommendations directed to help companies disclose GHG emissions (both direct and indirect) and climate-related financial risks and opportunities[22]. The report calls for GHG emissions to be calculated in line with the GHG Protocol methodology to allow for aggregation and comparability across organizations and jurisdictions. While currently it is a voluntary standard, many countries have already started implementation. TCFD's goal is that all well-managed companies need to be disclosing TCFD requirements by COP 26 (now late 2021) and including this information in its main-stream reporting. In addition, all companies need to be setting a five-year science-based target and a zero-based target which have to be disclosed.

The EU Taxonomy

The European Union published its Taxonomy Regulation on 22 June 2020 which entered into force on 12 July 2020. In order to meet the EU's climate and energy targets for 2030, and reach the objectives of the European Green Deal, it is fundamental to direct investments towards sustainable projects and activities. The EU taxonomy is a classification system, establishing a list of environmentally sustainable economic activities. It is like a dictionary dictating to what degree an economic activity can be considered

[22] Scope 1 – All Direct Emissions from the activities of an organization; Scope 2 - Indirect Emissions from electricity purchased and used by the organization; Scope 3 – all other indirect emissions of an organization. Therefore, for a bank this includes investment portfolio.

environmentally sustainable. This taxonomy is an important enabler to scale up sustainable investment by providing appropriate definitions to companies, investors and policymakers on which economic activities can be considered environmentally sustainable. It is expected to create security for investors in that it protects private investors from greenwashing, assist companies to plan the transition, mitigate market fragmentation and eventually help shift investments where they are most needed.

National Green Banking Standards

Currently few countries have moved into the definition and reporting space yet. Bangladesh, Brazil, China, and South Africa are some of the few which have defined green assets and sectors for investment. As an example, the Brazilian Federation of Banks developed a methodology and tool to systematically track and report green loans and credit financing. Bangladesh and China are requiring financial institutions to report periodically on green flows data. China is also providing them with a tool to report complex indicators, such as environmental benefits.

In emerging markets, IFC has been working with banks through their Sustainable Banking Network on National Green Banking Standards and a large percentage of countries are in various stages of implementation. As an example, Colombia introduced a Green Protocol which is a set of voluntary guidelines developed by the Colombian Banking Association[23]. It was aimed at generating environmental benefits and includes different strategies and guidelines for banks to offer credit lines and investments that will contribute to quality of life and sustainable use of renewable natural resources and has been adopted by most of Colombia's major banks.

Green bond market

The Green bond market is generally acknowledged as one of the most advanced in the world in terms of policy guidance and support. Green bonds, or bonds where the use of proceeds must go to finance green projects, has been recognized by the United Nations as "one of the most significant developments in the financing of low-carbon, climate-resilient investment opportunities" [24]. They facilitate capital-raising and investments for new and existing projects. This market has been growing exponentially over the past five years and global issuance surpassed over USD 250 billion in issuance in 2019.

[23] The "Protocolo Verde" by Asobancaria- Poser 2014.

[24] UN report confirms key role of green bonds in climate investment, (October 13, 2015), https://renewablesnow.com/news/un-report-confirms-key-role-of-green-bonds-in-climate-investment-497005.

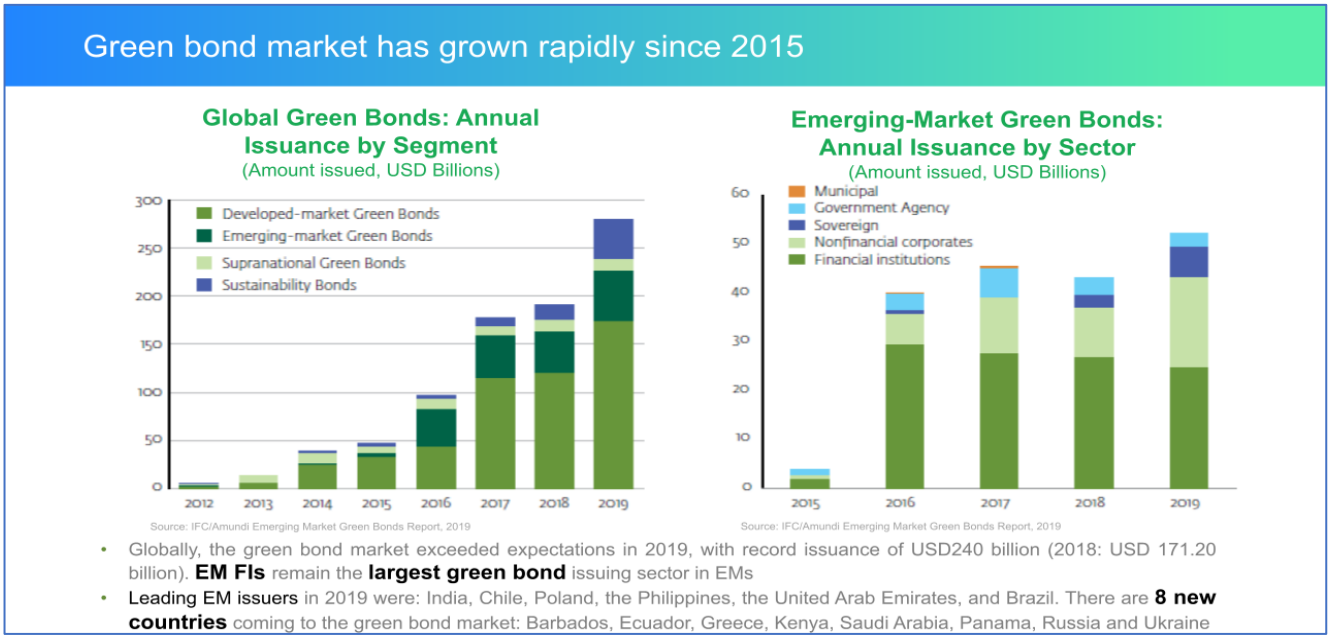

Figure 7 Green Bond Market since 2015 (source IFC and Amundi EM Green Bond report, 2019)

The International Capital Market Association "ICMA" has put together the Green Bond Principles ("GBP") to provide guidance to green bond issuers. It recommends transparency and disclosure and promotes integrity in the development of the Green Bond market". Issuers need to fulfill the following four components as specified under the Green Bond Principles:

1. Use of proceeds should contribute to environmental objectives such as climate change mitigation, natural resource conservation and pollution prevention and control.
2. Green bond issuers should clearly communicate the process for project evaluation and selection to their investors.
3. The Green Bond Principles specify that proceeds (funds) are managed properly in a sub-account, a sub-portfolio, or are attested by the issuer in a formal internal process.
4. Reporting is key for an issuer of a Green Bond. Issuers are required to report on the allocation of proceeds. This is normally done through an annual report where the issuer can specify the list of green projects, provide a brief description of the projects and stipulate the respective allocations. The issuer may also report on the expected impact of its green bonds.

The experience of the green bond market shows how important clearly defined, suitable standards are. While investors agree they need impact measurement to monitor their progress towards the goals in the Paris Agreement, an enormous gap still exists on green finance definitions, data, reporting, and incentives to facilitate private sector participation. Unfortunately, there is currently no universally agreed standard for financial institutions. Because of this, CAFI® has the potential to be one of the resources in the much-needed toolkit that could help with standardized climate-smart project screening and estimating GHG emission reductions.

III. OVERVIEW OF CAFI®

Evolution of CAFI®

Since the early 2000's, IFC has been building experience in private sector climate solutions, project by project, to make it one of the world's largest financiers of private sector renewable energy for developing countries today. Starting in 2006, IFC realized it needed to scale its impact to have a greater effect and a loan-by-loan approach could only go so far. Therefore, to create maximum leverage, IFC began climate-finance lending through financial institutions which also minimized the high transaction costs incurred on a single project basis. However, given "green finance" was a relatively new field for financial institutions, coupled with the fact that most FI's had limited technical capacity in this area, IFC wanted to ensure that its clients could identify whether a project financed by IFC was indeed green. In addition, IFC needed to estimate the amount of GHG emission reductions its credit line was financing. This would then allow IFC to consolidate and aggregate this information for reporting purposes.

Because of this, IFC needed a tool that would help financial institutions: 1) assess the eligibility of a project; and 2) estimate the development impact in terms of GHG emissions reduction of the activities they were financing. Given most bankers are not technical and face difficulties tagging climate-smart projects consistently, it was important that the methodology being used was clear, simple and understandable for a non-technical user. Also, IFC needed to ensure the integrity of the process and make sure data was valid to minimize the risk of greenwashing. On the other hand, financial institutions would not take kindly to additional reporting burdens being placed on them, so the process needed to be as simple and easy as possible. There was also a transparency issue as often FI's cannot disclose too much data due to client confidentiality requirements and also do not want to reveal too much information to its competitors. This leads to a natural tension between transparency and integrity of the approach and the simplicity and ease of use at the local level. In response, IFC created the excel-based user-friendly CAFI® tool, to help banks reduce transaction cost by quickly and easily determining if an investment is green eligible.

To ensure that FIs using the platform were able to relate to the frameworks and data entry requirements, IFC conducted comprehensive User Acceptance Testing (UAT) of CAFI® and its functionality. The first round of UATs was done using the climate FI specialists in IFC who were delivering the advisory services to FIs. Following their feedback, and associated updates, IFC then identified two Turkish banks, who were already involved in climate finance through IFC's work to review and test the interfaces and data entry fields. CAFI® was updated based on this feedback and rolled out to other FI clients in IFC's climate finance program.

CAFI® owes its genesis to its Advisory Services unit. Excel spreadsheets which IFC originally provided to clients in which to enter their data. However, there is often a major issue with inefficiency in terms of

data entry and reentry when using Excel. In an Excel framework, reporting is often static and cumbersome to update, and, because of this, methodology updates are difficult to be maintained to the latest standards. Therefore, IFC eventually migrated to a web-based system and therefore, CAFI, as an online, web-based tool, reduces the risk of input errors, allowing for automatic updates to methodologies, as well as providing real-time reporting[25].

About CAFI®

Initially, access to CAFI® was limited to banks which had a green credit line with IFC but then eventually this was broadened to include IFC's clients getting technical assistance. IFC has since allowed financial institutions and other development banks to purchase it as a stand-alone product.

CAFI® is a simple and harmonized solution to climate eligibility, assessment and reporting. CAFI's monitoring, analytics and reporting functionality are currently available in multiple languages including Chinese, English, French, Russian, and Spanish with plans to add Arabic and Bahasa. Users in low-bandwidth countries will benefit from a new "CAFI® Lite" feature. It provides real-time analytics and a centralized view of the entire climate portfolio and all climate transactions and their impact indicators can be easily extracted from the platform. It also allows for a seamless communication with internal and external stakeholders. It is a project-by-project based assessment but also does portfolio analytics. CAFI® covers three areas of climate projects:

- Climate Mitigation: Projections leading to reduction in emissions of GHG (calculated);
- Climate Adaptation: Projects leading to reduction to the effects of climate change and climate variability
- Special Climate: Projects leading to reduction to the effects of climate change and climate variability[26].

[25] Thanks to a grant from the Norwegian Trust Fund for Private Sector and Infrastructure

[26] Special climate includes categories such as energy storage, energy T&D, wastewater treatment, etc.

Discussion with Anup Jagwani and Francisco Avendano, IFC Climate Business Department

Q: Why did IFC first start developing CAFI?
IFC initially started investing in climate finance through direct investments in real sector projects where IFC could confirm the eligibility of use of proceeds during the appraisal process. This meant that at time of appraisal the KPIs could be identified so they could be easily monitored. However, once it started scaling up its business through FI's, it was much more difficult and expensive to check if the client was allocating the proceeds into eligible activities and assets – as an example solar - as well as trying to get a handle on the respective impact of the use of proceeds such as the quantity of GHG emission reductions. CAFI® is a climate finance information platform that uses a standard language and labels (e.g. renewable energy) and avoids not accurate labels. The long-term goal for CAFI® is for it to become a one-stop-shop for climate related information for FIs. This includes not only supporting the assessment of green financing but also on how to make the traditional plain-vanilla finance greener as well. As an example, in the future CAFI® can be used to support not only the assessment of green assets of a bank, but also how to strategically reduce FI exposure to assets that are not green such as coal and other highly polluting assets. In this sense, CAFI® has a role to support the IFC Green Equity approach for FIs, where we aim at the decarbonization of FI portfolios where IFC is an equity investor

Q: Are there any checks on CAFI® to ensure the data inputted is correct?
A: Yes, we do checks to try to ensure it is as accurate as possible. First, we start with an internal review with two specialists. That is our "first line of defense." Then we conduct quality control by looking at appropriate ranges of impact indicators (e.g. energy savings) for each climate eligible asset or For example, if a rooftop solar transaction is entered into CAFI® and shows a number for energy generation we compare that number with official statistics from IRENA to confirm if the referred number falls within the reasonable range, otherwise it is labelled as an outlier and the team follows us with the FI to make sure that the number is not the result of a typo or an error in calculations

Q*: What type of role can CAFI® play to help the growth of green finance?*
A: It can help financial institutions in a number of ways. Many FIs don't know that they are sitting on green assets, CAFI® helps them document in a systematic way what is green in their portfolio. CAFI® can help FI's to confirm green eligibility of their assets and avoid greenwashing. CAFI® enables FIs to comply with transparency expectations, such as climate assessment of transactions and impact reporting, from green investors. are often more long-term, buy-and-hold and engage with their investees. This can also help them attract impact investors which is currently an exponentially growing field.

Box 3 IFC's view on CAFI®I

Recently, as more and more banks are looking to issue green bonds, there is a strong need for financial institutions to understand exactly what can be classified as green. Because of this, and the need to issue an Annual Report to investors, CAFI® can be beneficial in greatly simplifying these tasks. To date, IFC has helped over 20 first-time issuers to place green bonds using the IFC climate eligibility criteria as well as following the ICMA Green Bond Principles.

Below are examples of three institutions who have publicly stated that they are using CAFI® for their green bond issuances. CAFI® can also support impact bond issuances and can be used to support companies' TCFD climate disclosures.

Figure 8 CAFI® support for Green Bonds

CAFI® applies the MDB harmonized approach to meet global standards in a consistent, centralized manner. It uses publicly available inputs for calculation. The definition and typology used is obtained from the IFC Climate Definitions and Metrics for Climate-Related Activity discussed earlier[27]. The greenhouse gas emission reduction calculation is calculated in line with IFC's Greenhouse Gas Reduction Accounting[28]. Its taxonomy is based on the UNEP FI Initiative for Banks[29] In addition, all its methodology is explained in publicly available documents which increases transparency in communication to stakeholders and limits greenwashing.

The chart below presents how partner FIs globally are using CAFI® across all regions.

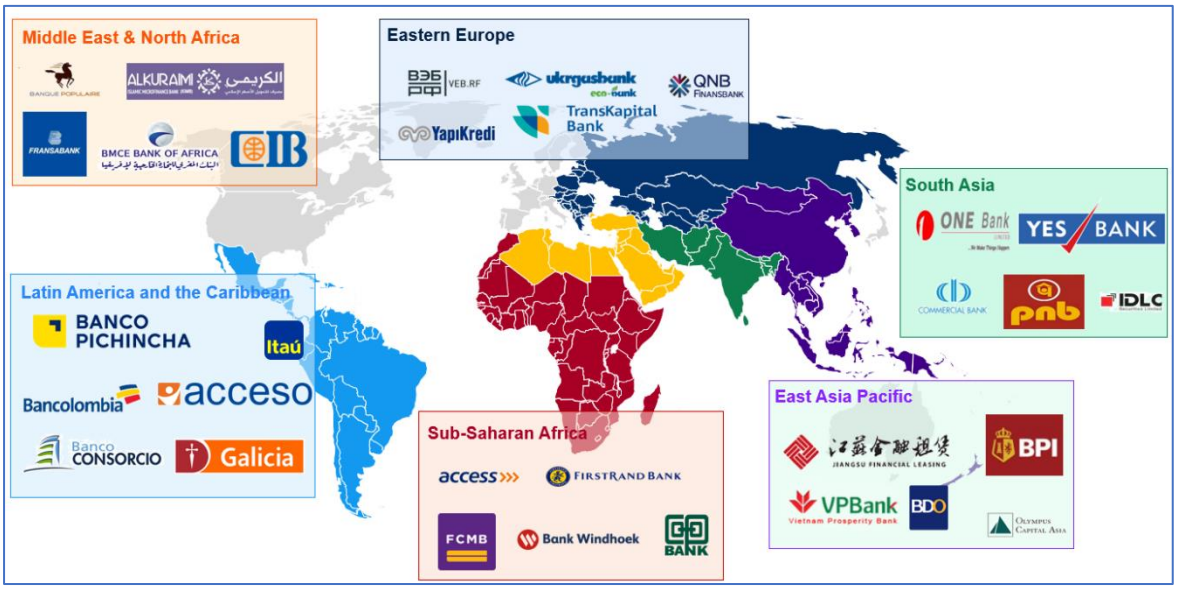

Figure 9 Current users of CAFI®

[27] IFC Climate Definitions and Metrics for Climate Related Activity
[28] IFC's Greenhouse Gas Reduction Accounting
[29] UNEP Finance Initiative: Impact identification and assessment for bank portfolios.

CAFI® Functionality and features

The focus of CAFI® is to make the technical complexity of climate assessment and tracking accessible for the financial sector. This section seeks to provide an overview of the functionality that has been designed into CAFI® to be usable by banks and FIs.

System design

User levels

At the system level, CAFI® is a web-based platform and database that is designed for the ex-ante eligibility assessment at the FI level. CAFI® is designed with the intention to permit multiple classes of users. The system has four user levels as follows: 1) Admin; 2) IFC Global User; 3) IFC Regional User; and 4) FI User. The Admin user is able to see all the information in its entirety while access for global and regional users is restricted to their own clients. The FI user is only able to see the data that they enter in CAFI® and remains strictly confidential to other financial institutions.

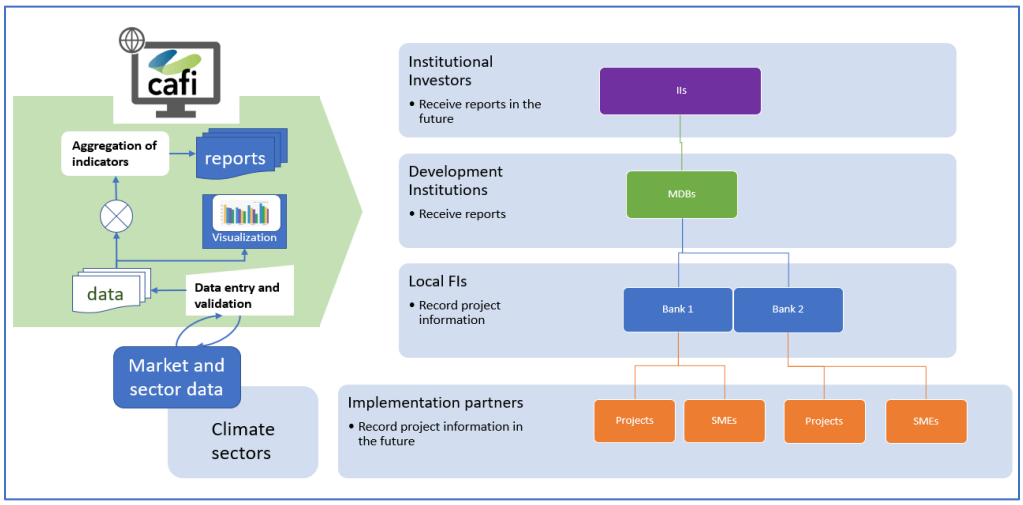

Figure 10 CAFI® User levels

Currently, the system focuses on the financial flows between MDBs, local financial FIs, and projects supported by the FIs. Current user levels are limited to the FIs to input information about projects and SMEs being financed as shown in the infographic in Figure 10. Some immediate opportunities exist to expand system access to the projects and SMEs supported by FIs to allow them to update information directly as well as enable reporting and visualization access for the institutional and impact investors subscribing to green bonds issued by the MDBs and other market players. Given the modular nature of the system, and ability to restrict information fields between levels and between different users at the same level, CAFI® can potentially also be expanded to provide access to a range of other stakeholders including shareholders, regulators, and the public at large.

Entering project level information

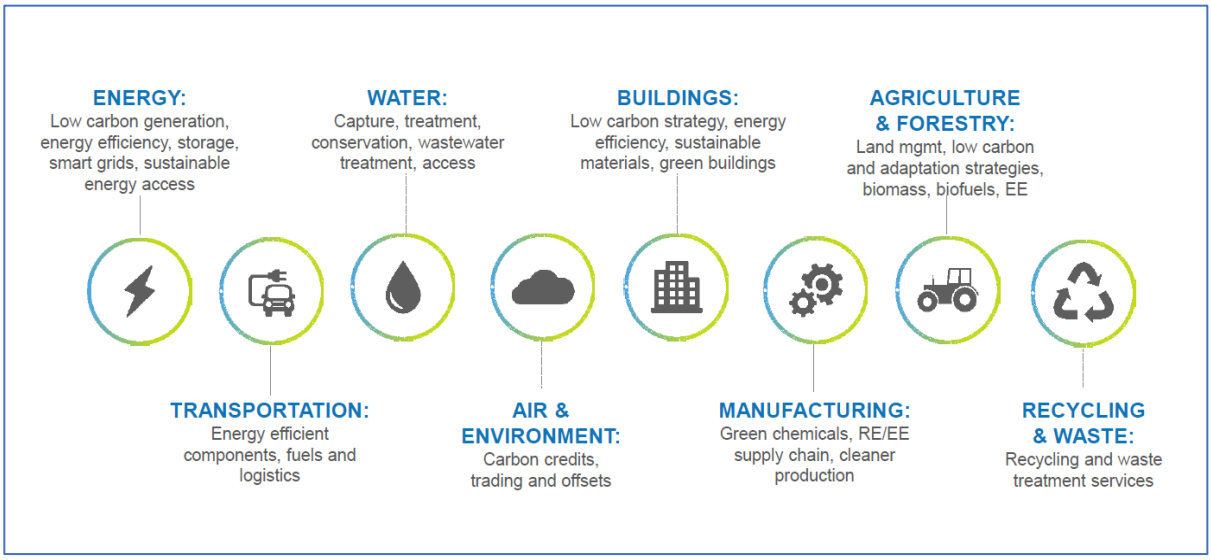

Figure 11 Climate categories in CAFI®

With the current data entry being done at the FI level, the information fields have been designed to be aligned with information that would typically be provided by an SME to a local bank/FI when seeking a loan. Each FI can establish multiple users who can enter the relevant project /loan data into the system, allowing banks to roll CAFI® out across branches. The typical scenario would entail the loan officer for a loan would enter the relevant information into CAFI® based on information shared by the project/SME. CAFI® currently recognizes the investment categories investments shown in Figure 11. However, it is constantly being updated and it is currently in the process of being expanded to cover three additional sectors: climate-smart agriculture, green buildings and blue finance, where the latter covers financing sustainable ocean and marine life. The data entry to capture and assess the climate impact of a project includes:

1. Basic level information that covers:

- the project description
- the stage of the project in the bank's project appraisal life cycle including the business development stage, appraisal stage, post approval stage and post disbursement. This has been provided to enable the bank to track its green/climate business both in pipeline and portfolio
- validation of units for technical information such as energy use and rating
- options for different currencies (recognizing the use across emerging market banks)
- tagging of sources of funding to enable attribution of the development impact of a project from different sources of funding.

2. Specific technical information depending on the category of climate benefit. Data entry requirements include:

- Description of the project and the nature of the activity expected to have a climate benefit

- For categories that pertain to replacement or modernization, information before and after implementation of the change are required
- The total loan/finance amount for the project, and the cost of the climate component of the project and the tenor of the loan; In keeping with its international audience, CAFI® supports all currencies. This allows for easier aggregation of climate finance volumes.
- Information specific to the category. For instance, for energy efficiency projects, pre-loan and post loan utilization of electricity and fuel are entered based on information supplied by the project/SME to the bank. All technical information requires the selection of units that are available as drop-down choices.

There is also the option to upload documents and other information in support of the climate benefit claimed.

Eligibility determination

Once the FI loan officer has entered required data, the system runs some basic data integrity and validation checks and indicates whether the project is eligible or not, as well as the expected development impact of the project using indicators appropriate to the climate category.

Climate categories and methodology

CAFI® can determine climate eligibility in seven categories, each with its own set of data input requirements and indicators. Each climate category has its own set of methodologies and impact measurements. As mentioned previously, this is based on IFC's Greenhouse Gas Reduction Accounting Guidance for Climate-Related Projects published in November 2018. Conservativeness is to be followed in all calculations to address uncertainty and is detailed in calculations when applicable. Given ex-ante calculations often require some level of assumption, IFC assumes that the project options and emission factors resulting in the lowest GHG reduction in order to not overstate project GHG emission reductions. IFC also excludes GHG emission sources that constitute less than 3% of the GHG reduction calculation from GHG emission reduction calculation.

Renewable energy (RE)

IFC defines RE generation projects as those that are derived from natural processes and replenished constantly, where increasing RE generation reduces generation demands from more GHG-emission intense sources. These projects are grouped under a single methodology given their low impact on surrounding activities and GHG emission sources. However, in certain project cases such as biomass, where given additional leakage considerations, the generation projects follow a separate RE guidance. However, in each case, IFC assessment is done based on the technical data that is provided by the partner FI which is used to estimate the GHG emission reductions.

Energy Efficiency (EE)

IFC requires the Financial Institutions to ensure that the EE project must achieve any of the following minimum thresholds within the project boundary to qualify as EE: 1) reduce absolute energy consumption by at least 15 percent or 2) reduce GHG emissions by at least 25,000 tCO2e/year or 3) reduce electricity consumption by at least 50 GWh/year. Based on this technical data, CAFI® is able to assess the eligibility of the sub-project and measure the development impact in terms of GHG reduction and energy savings.

Transport (TR)

Here the FI is able to enter projects that are fuel switch (FS) related and where the retrofits from existing utility and industrial activities shift away from one fuel-type currently in use to another, lower-GHG emission fuel-type. In such cases, the eligibility requirement is set to ensure reduction in absolute energy consumption by at least 20 percent. Based on this technical data, CAFI® is able to assess the eligibility of the sub-project and measure the development impact in terms of GHG reduction and energy savings. However, in transport projects, IFC requires FI users to confirm that the old fleet has been decommissioned or removed from the operational boundary of the borrower.

Green Buildings

The green building category is a bit more intricate in nature. The IFC definition of a green building is based on (a) EDGE, LEED, and BREEAM certifications and projects must be able to have at least 20% in energy savings compared to a baseline which must be recorded. Within two years of the post-design certification, or the letter of commitment, the FI has to provide a post-construction certificate for the project to remain eligible. IFC also requires FI users to upload the green building certificate that correctly displays the project name and/or the certificate number. Based on the data entered by the partner FI, IFC uses an internal approach to estimate the eligibility of each sub-project and measure the development impact using a proprietary methodology in terms of GHG reductions, energy savings, water savings. IFC is currently looking at how it can automate its assessment methodology.

Water Efficiency

IFC qualifies a sub-project as water efficient if it materially reduces the use of water per unit of production. The decrease of water consumption per unit of production is required to be estimated before and after the investment. Water efficiency measures can take the form of a retrofit of an existing facility, a process change that consumes less water, a water recycle/reuse project or a project that will use tertiary advanced treated sewage measures. In terms of eligibility, IFC requires a 10 percent threshold savings.

Adaptation

IFC qualifies climate adaptation projects as those that reduce the vulnerability of human or natural systems to the effects of climate change and climate variability–related risks by maintaining or increasing adaptive capacity and resilience. For such projects, IFC requires the FI to provide evidence that covers the following three aspects: (a) setting out the climate vulnerability context of the project; (b) making an explicit statement of intent to address climate vulnerability as part of the project; and (c) articulating a clear and direct link between the climate vulnerability context and the specific project activities. Based on this information, IFC makes a technical assessment for each adaptation related project.

Special Climate

IFC defines Special Climate activities as those that contribute to mitigation but for which GHG reduction calculations are not available. For that reason, IFC includes a certain list of projects that can be classified under this category and whose development impact results cannot be measured, for example, financing of electric vehicles, manufacturing of renewable energy equipment, etc.

An additional category for Climate-smart Agriculture is currently under development. Climate-smart Agriculture is an approach to managing landscapes, cropland, livestock, forests and fisheries that aims to achieve: (1) Increase productivity; (2) Enhance resilience to drought, pests, disease and other shocks; and (3) reduce GHG emissions. At the moment, these types of projects are being reported under the Special Climate category. Activities related to Climate Smart Agriculture include: (1) sustainably increasing animal

productivity without increasing GHG emissions; (2) producing crops efficiently and increasing crop productivity while reducing input use and GHG emissions; and (3) reducing food losses to lower energy, water and other resources along the value chain.

Figure 12 below summarizes the climate categories and impact indicators captured in CAFI.

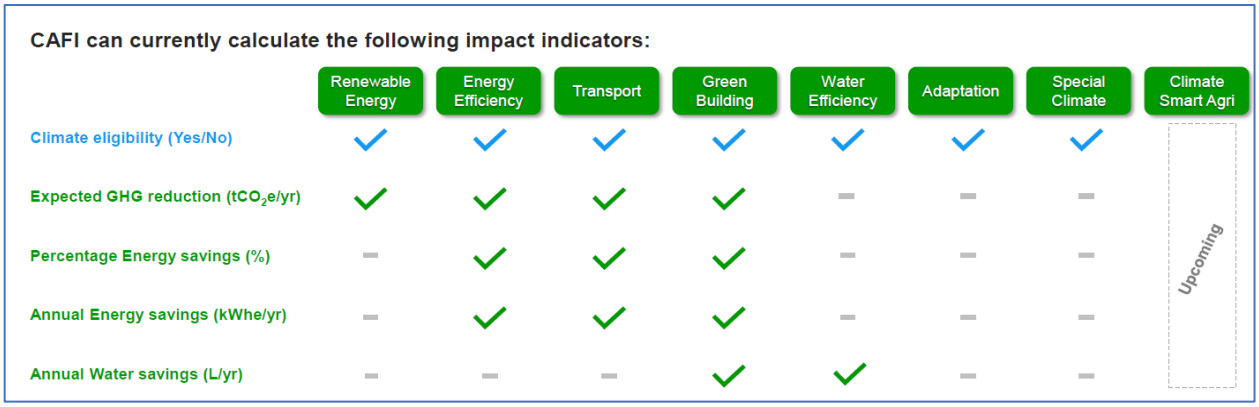

Figure 12 CAFI® categories and impact indicators

Visualization and reporting

Once the project is accepted as being eligible based on the data entry and the screening against the CAFI/IFC methodology, the project is included in the portfolio of the FI within CAFI.

CAFI® offers a range of visualization options for an FI. It can view its performance against its objectives and commitments, compare the loan amount with the total size of the project and examine a breakdown of the portfolio by climate categories. It also provides an overview of the loan amount versus the GHG impact which enables the cost per tonne of CO_2 reduction per country, sector and technology to be estimated. Some examples of CAFI's visualization outputs are shown in Figure 13

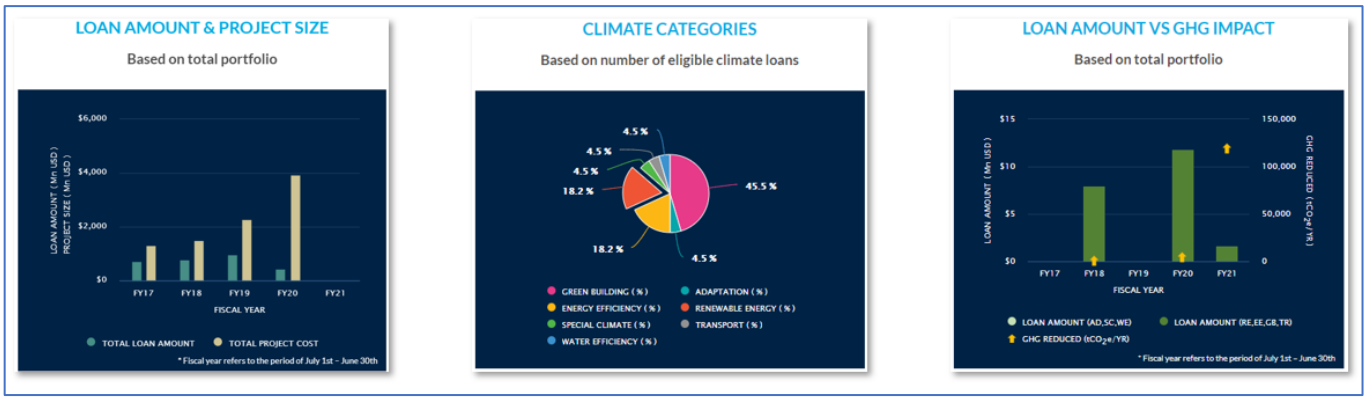

Figure 13 CAFI® visualization functionality

Factors enabling the adoption

Even as CAFI, by design, seeks to make the data collection and entry requirements for project eligibility as simple as possible, there are still a number of factors that need to be addressed beyond the design of CAFI. These relate to:

1. The need to build the capacity of the FI client to be able to enter the required technical information; and
2. creating confidence around the methodology and integrity of the platform.

Advisory Services Role in CAFI® Scale-up

IFC's approach to promoting climate finance through FIs has evolved since its inception with the Commercializing Energy Efficiency Finance (CEEF) program in Eastern Europe where GEF funding was available for both technical assistance and blended finance[30]. The technical assistance component was vital in building the capacity of the FI and this was done through a combination of training programs and providing on-demand technical support as the FIs adopted and rolled out their climate lending programs.

[30] Blended Finance is a mix of government or non-profit grants and private sector capital to reduce the risk/cost of the financing to the financial institution.

As IFC's business volume began to grow, and the limited availability of grant funds to support the TA, IFC moved to a model of Advisory Services with recovery of some or all of the costs from the clients. As part of this shift, IFC was able to establish advisory programs across a range of emerging markets focusing on climate finance through FIs.

IFC's Advisory team has played an important part in the scale up and adoption of CAFI® by an increasing number of banks and FIs. When green finance banking lines were first introduced, the investment team at IFC did not have the technical capacity to capture the GHG emission reduction impact. Because of this, IFC's Advisory technical team was called in to help the FI assess the investment's impact and calculate the GHG emissions calculations. Initially, however, the process was non-standardized, and each team would use its own procedures to perform impact measurement such as local grid emission factors as an example.

Eventually CAFI® was turned into a reporting platform for banks to use directly, which not only lessened the burden on IFC's Advisory team but helped train banks in green taxonomy. IFC's Advisory staff also began to offer training to the client if required on the use of CAFI. This was normally required because often the initial relationship is with the FI's funding team but it is the business/SME team that has to do the eventual CAFI® input. Therefore, they need training on the taxonomy and the exact data that had to be collected. This connection between the FI advisory teams and investments in FIG allowed for the relatively rapid adoption of CAFI® by IFC clients in particular.

Since its inception, IFC's Financial Institutions Advisory team have conducted programs in Eastern Europe, Russia, China, East Asia including Vietnam and Philippines, Latin America (Brazil, Colombia, Mexico), the MENA region, Kenya, South Africa, and Nigeria. Many of these advisory programs, being based in the region, had good working relationships with regional MDBs and this also contributed to the interest of the other MDBs and bilateral agencies in considering using CAFI® for their own FI climate finance needs. Because of this, several MDBs are either already using or are in the process of adopting CAFI® for their own climate business through FIs.

Creating confidence in CAFI

While IFC's credibility as a leader in climate finance through FIs, and its list of trusted FI clients already part of its portfolio contributed to the credibility of CAFI, IFC needed to also provide confidence in the methodology and approach. At its core, IFC focused on aligning the CAFI® methodology to international standards and the harmonized MDB frameworks. IFC also disclosed all aspects of its methodology to the public as well as adopting the tool for its own public and annual reporting. An important step here included getting independent assurance of the adoption of CAFI.

> "In our opinion, the IFC CAFI tool complies, in all material aspects, with IFC's Guidance Notes on Climate-Related Metrics through Financial Institutions"

Box 4 Assurance provider's quote on CAFI

IFC received its first independent audit certification in December 2018 from Ernst & Young (France) and was awarded a Reasonable Assurance Certificate.

At that time, the auditors confirmed that:

1. CAFI's functionality as implemented is consistent with IFC's published climate methodologies. This includes CAFI's functionality in determining eligibility of projects, estimating the development impact and climate benefits and its reporting on the aggregate portfolio; and
2. Data entry and analysis is accurate after reviewing CAFI® thoroughly to correct for potential glitches and shortcomings.

This assurance is performed annually and has been published as part of IFC's annual reporting. IFC has also been actively working with other MDBs, green bond investors and other stakeholders to promote the use of CAFI.

IFC also adopted an open license approach to allowing other parties to use the platform. IFC's approach entails that it can share CAFI® with other multilateral development banks, international finance institutions, public and private sector institutions - anyone within the financial services industry who invests at scale in climate friendly projects. Based on this approach, in December 2020, IDB Invest, a member of the Inter-American Development Bank Group, agreed to share CAFI, making it easier for financial institutions within the Latin American region to estimate the climate change related impact of their financial activities. The approach allows IFC to focus on the private sector to offer CAFI® to a larger number of financial institutions.

The active outreach with stakeholders, annual auditing, and the open license approach all build confidence for new parties to consider adopting CAFI.

IV. USER EXPERIENCE OF CAFI® TO DATE

Adoption of CAFI

IFC initially deployed CAFI® to IFC financial institution clients who were obtaining credit lines for green financing. CAFI® was a fast and accurate way to help them 1) decide if the investment they were about to finance qualified for IFC funding; and 2) estimate the GHG emission reductions from the investment. Eventually, IFC broadened its use to cover equity and other forms of financing for financial institutions. Currently, IFC is also expanding its use to include coverage of green bonds and other treasury products.

To evaluate CAFI's strengths, weaknesses, along with its future potential, a series of interviews were conducted. These interviews included financial institutions that are current users of CAFI, IFC staff who were involved with the development, training and use of CAFI, other MDB's who were current or potential users of CAFI, as well as leading academics in the climate finance field.

- Banca Transilvania, Romania
- Commercial Bank of Ceylon, Sri Lanka
- Ukrgasbank, Ukraine
- Windhoek Bank, Namibia
- BDO, Philippines
- Davivienda, Colombia
- Banca Galicia, Argentina

Box 5 FI Clients Interviewed

- IDB Invest, Washington DC
- CDC, UK
- IFC Asset Management Company
- IFC Treasury
- IFC Climate Business Department
- IFC FI Climate Unit

Box 6 Other CAFI user perspectives

When conducting the interviews, we wanted to identify the needs of these financial institutions and MDB's to continue greening their portfolios[31]. We also wanted to discover the main drivers of their entry into the green finance area such as:

- financial sector regulation,
- signing up to a voluntary standard,
- stakeholder needs,
- public opinion
- brand and image considerations.

For current users of CAFI, we asked when and why they adopted CAFI® and how it was used in the organization, i.e. through their lending departments, treasury function or advisory services, and if they used another product before CAFI. Lastly, we wanted to know in what ways CAFI® has benefitted their organization and if there were areas for improvement or enhancements to meet other needs of the organization. The questionnaire used is provided in Annex A.

[31] Green Finance is referred to as a project or business that has a positive environmental or climate impact.

Feedback on CAFI®

With the adoption of CAFI® by numerous FIs and other stakeholders, there was substantive feedback provided on CAFI® for assessing, recording, and reporting on climate finance.

Stories of CAFI® implementation

A Comprehensive Approach to Sustainable Finance - Davivienda, Colombia

Case Study - 1

Colombia has been at the forefront of green and sustainable banking. In 2012, Banco Davivienda subscribed to Colombia's green banking protocol, a voluntary framework and set of guidelines designed to promote green investments by financial institutions. The protocol required banks to:

- begin monitoring their own footprint - engage to establish an eco- efficiency program (water, energy, waste, materials) to improve their resources efficiency, measure and monitoring their carbon footprint
- engage in Environmental & Social Monitoring assessments
- promote the funding of green/sustainable credit lines investments

Davivienda immediately saw this as a business opportunity. They believed that to truly promote green or sustainable lending, their clients would trust them more if they "led by example" and became a "green bank" themselves. To do this, they implemented several actions which included:

- Becoming a follower or signatory to various voluntary protocols (Dow Jones, CDP, GRI, TCFD Compliant)
- Publishing sustainability reporting
- Conducting sustainable management objectives and business development
- Establishing an ESRM Department for Environmental & Social assessments and monitoring for the applicable loans.
- Conducting internal training in green financing (with the CEO introducing the training and its benefits)
- Holding Roundtables with clients on RE and EE
- Holding Seminars/Webinars on Green investment training for clients
- Having an EDGE expert that works with the whole group (bank, construction, insurance, investment management) since 2017 on green building certification
- Recently, working on the Circular Economy concept.

This strategy paid off and led to an increase in green investments. Because of this, Davivienda now operates in the following fields: EE, RE, green buildings, water efficiency and clean production.

In 2017, Davivienda issued its first green bond and has been using CAFI® since then for its green bond reporting requirements. Davivienda finds CAFI® extremely useful for:

- Project eligibility screening
- Visualization
- Investor reporting

Possible enhancements Davivienda thinks could improve CAFI® include:

1. its taxonomy become aligned with government policy

2. there is a separation of portfolios and confidentiality of projects/clients
3. clients could import their own information directly into CAFI

Leveraging Market Opportunities to Create a New Business Line - Bank Windhoek, Namibia

Case Study - 2

Following Namibia's Renewable Energy Feed-In Tariff (Refit) Program, initiated by the Electricity Control Board (ECB), it had 14 Power Purchasing Agreements (PPAs) each for 5MW, which were signed between NamPower and various Independent Power Producers (IPPs). This initiative created financing requirements and Bank Windhoek responded by swiftly building capacity to support this type of investment and started to understand the risks and opportunities involved in financing solar Photovoltaic projects. As one of the implementing partners of the Sustainable Use of Natural Resources and Energy Finance (SUNREF) program by Agence Française de Développement's (AFD) who availed favorable funding facilities (in addition to two other local banks) with an added Technical Assistance Grant Facility, Bank Windhoek was encouraged to investigate the viability of expanding its green lending activities, by raising funds in the local debt market through a Green Bond Issuance. The Bank Windhoek Green Bond complies with the Sustainable Stock Exchanges (SSE) Initiative, a UN Partnership Program of the UN Conference on Trade and Development (UNCTAD), and the UN Global Compact. The Bank Windhoek Green Bond Framework also complies with the International Capital Markets Association (ICMA) Green Bond Principles and therefore is required to report annually on the bond's environmental impact. Because of this, they engaged with IFC to assist with the Green Bond Framework's project selection and reporting criteria by using the CAFI® online tool. Bank Windhoek also adopted the International Finance Corporation (IFC) Definitions and Metrics for Climate Related Activities to assist with the evaluation and selection of potential sustainable projects for its Green Bond program, in order to classify potential sustainable projects as "Green". International accolades soon followed. Bank Windhoek was awarded the Green Bond Pioneer Award by the Climate Bonds Initiative at the 4th Annual Green Bond Pioneer Awards (GBPA), announced before an international audience in London on the eve of the 2019 Climate Bonds Annual Conference. In addition to receiving the GBPA, Bank Windhoek is a recipient of a "Certificate of Recognition" for issuing the first green bond from Namibia.

Windhoek's expansion into green lending was also assisted by the IFC's EDGE (Excellence in Design for Greater Efficiency) tool which certifies green buildings eligible to be financed through the Green Bond funding facility. Furthermore, Bank Windhoek, in collaboration with the IFC, hosted an "EDGE Certified Green Buildings - Discovery Workshop" in Windhoek, Namibia, to create awareness about the investment opportunities and long-term benefits for the property sector to design and build green. As Namibia is a water scare country, developing water-efficient buildings, helps to reduce the impact on this scarce resource.

As the only locally owned commercial bank in Namibia, Bank Windhoek shares the responsibility to protect our country for future generations by actively contributing to and facilitating the transition to a low-carbon and climate resilient economy. It is planning to finance more sustainable agriculture, energy efficiency and water efficiency projects and start monitoring its own footprint in the future.

Bank Windhoek finds the main benefits of CAFI® are its ability to:

- Assist with the project selection and screening against the eligibility criteria.
- Quantify the Environmental impact in terms of Annual Greenhouse Gas (GHG) emissions reduced /avoided in tonnes of (carbon dioxide) equivalent per annum
- Keep track of qualifying green projects and portfolio management
- Add piece of mind about the project eligibility

Possible enhancements to CAFI® that Windhoek would welcome include:

- The ability to access specialists through an on-line CHAT function
- An ex-poste calculation ability as well as ex-ante as it is often hard to estimate the investments contribution ex-ante
- An add-in function to double-check the Compulsory fields i.e. RE installed capacity and Expected Annual Generation
- To add GIS satellite mapping for the solar radiation in the project location, to ensure that the expected annual energy in kWh the installer provides, are correct
- For non-technical users, CAFI® could also report GHG emission savings in a non-technical manner, i.e. the savings equivalent to the number of passenger cars off the road as an example or some interesting CO_2 emissions equivalent saved (i.e. amount of oil less consumed, electricity to power X amount of normal households, practical examples.
- CAFI® could also add in risk functions in the future, i.e. the risk of a solar park being flooded to be added to each project
- Improve user-friendliness

A "human bank" supporting sustainable business ideas - Banca Transilvania, Romania

Case Study - 3

Banca Transilvania ("BT") has a long history in financing energy efficiency transactions and renewable energy projects. BT has also been doing ESG in its credit analysis for a lengthy period of time, as well as more recently using complex models for environmental risk assessment of large Corporate counterparties. In 2017, it was the first partner bank to start lending under EBRD's EUR 100 million Green Economy Financing Facility (GEFF), a fund to support Romanian households invest in energy efficiency, renewable energy and water-saving solutions. Besides partnerships such as these, the bank also supports environmentally friendly projects from its own sources. It invests a substantial amount in the agricultural sector, especially in energy efficiency and adaptation, due to its focus on entrepreneurs and micro/small medium enterprises. It has also financed public lighting projects in several cities around the country.

These projects consist of replacing old lighting with technologically advanced LED lights, leading to a reduction in energy consumption of 15% or more. It is also active in financing smart transportation, both through bank financing, but also leasing promoted via the leasing subsidiary of BT Group. Yet, we estimate the higher proportion of green loans to be energy efficiency projects undertaken by manufacturing companies so as to diminish the energy consumption of their production lines.

Notwithstanding, Banca Transylvania is a relatively new user of CAFI. The bank issued a new sustainability policy recently and, as a result of this, it needed to be able to determine what projects could be labelled as green. As there was no standardized green finance taxonomy in Romania, they turned to/approached IFC for help. IFC suggested the CAFI platform.

BT found CAFI relatively easy to implement. Given there was a general lack of awareness of green finance among many staff, it held a two-day training on the platform which helped considerably. The bank finds CAFI easy to use and have plans to attach a CAFI request to its credit check to help the efficiency of their underwriting process.

They find green finance good for business as it is consistent with their label as a "human bank" focusing on small entrepreneurs. It also helps with lower NPL's, as most energy efficiency projects are usually lower risk, debt service being covered from the savings triggered by the investment

In terms of going forward, Banca Transilvania would like to see a clear taxonomy for green finance. If it is going to have reporting obligations in the future, these requirements need to be made clear and uniform. Currently everyone is reporting differently. Eventually, BT would like to determine the carbon footprint of its portfolio and, as CAFI is continually being updated, it would like to see this feature incorporated.

Banco de Oro, BDO, Philippines

Case Study - 4

BDO has always been in the forefront of green finance in the Philippines, having established its Sustainable Finance Program in 2010. It initially started with sustainable energy finance which focused on renewable energy, energy efficiency and green buildings. In 2019 though, BDO greatly expanded its scope and began promoting all forms of sustainable practices such as clean transportation, source efficiency, pollution prevention and control, environmentally sustainable management of living natural resources and land use, sustainable water and waste-water management, employment generation and food security.

"The target to achieve global goals requires a strategic shift in the banking industry's orientation on risks and opportunities. Sustainable finance requires environmental, social and governance (ESG) factors in evaluating investments." Teresita T. Sy, BDO Chairperson

"The Bank's Sustainability Framework does not only serve as a guidepost in achieving our commitment but reflects how we intend to do business." Nestor V. Tan, President and Chief Executive Officer

Box 7 Quotes from BDO executives on sustainability

BDO first started using CAFI® when it partnered with IFC for the Sustainable Energy Finance program in 2010. During this partnership, the CAFI® tool was introduced to the bank who utilized it to measure environmental and social impacts. In 2017, BDO issued its first Green Bond in the amount of Php 150 million - where IFC was the sole investor - and the bank used CAFI® once again to measure and report the impacts of the Green Bond proceeds.

Before CAFI, BDO used a Techno-Financial Evaluation Modelling tool which is more detailed in terms of required data and its respective results. However, it finds CAFI® simpler, more helpful and user-friendly and helpful, especially with respect to the initial assessment of projects.

CAFI® has helped the organization in standardizing its impact measurement and helped quantify the bank's progress towards their green finance goal. It believes CAFI® would be very helpful to small and medium sized banks in the Philippines that have no access to this type of tool. This would greatly facilitate them in fulfilling the requirements of the Central Bank of Philippines' Sustainable Finance Framework which was issued in April 2020.

Overall feedback on CAFI

Benefits

1) Simplicity of Use at Different Levels

By far the most consistent feedback provided on CAFI® was its relative ease of use. All the FIs interviewed found CAFI® comparatively easy to use and appreciated its interface and easy to understand data forms. It is also an excellent pass-through of information either from the individual project to the financial institution, the financial institution to the MDB or from the MDB to the bond investors.

- Simplicity of use for an FI
- Single point of entry
- Ease and speed of project eligibility determination
- Visualization & Reporting Features
- Confidence in system integrity and robustness
- Building capacity of the financial sector
- Marketing/business development
- Standardized reporting standards.

Box 8 CAFI®I Benefits

2) Single Point of Entry

Clients noted that CAFI® worked to the IT principle of a single point of data entry that minimized risk of errors when the information was aggregated and reported. Even though currently FIs enter the project level data, there was an appreciation of the possibility of the FI's clients also being able to enter their data in future CAFI® upgrades.

Some clients recalled the traditional reporting on climate portfolios that entailed excel sheets and word documents, and that CAFI® had streamlined this process by enabling a direct pass through of their portfolio to IFC, when the FI was using CAFI® for an IFC credit line.

Feedback on CAFI

"We really appreciate the ability to view our portfolio visually and break it down into categories"
"CAFI gives an estimated GHG avoidance number that can be used for investor reporting – it is probably it's most important function"
"Thanks to CAFI, we have the taxonomy on green financing and can tag investments"
"The CAFI tool standardized the bank's impact management platform to a globally accepted standard"
"The information required for CAFI helps create awareness on the climate impact of our lending."
"Green lending is good business with lower NPL's"
"CAFI is so easy to use we hope to attach a CAFI request to credit to help efficiency of the underwriting process."
"CAFI is simpler and user-friendly and helpful - especially in the initial assessment of the project."
"The attraction of CAFI is that it shows the impact of GHG mitigants besides just verifying it is a green investment."
"Knowing emissions helps portfolio strategy and targeted investment."
"It is important for climate risk to be understood better and it helps FIs understand their portfolio."
"Using IFC's CAFI provides additional credibility as it is IFC approved"

Box 9 Quotes from CAFI® users

3) Speed of Decisions on Project Eligibility

Clients appreciated the speed with which CAFI® could indicate whether a project met climate eligibility requirements upon entry of the project level data. Earlier approaches had often necessitated interactions between IFC's climate specialists and the FI's team screening the projects for climate eligibility. Although training is provided for clients to understand IFC's eligibility requirements, there is also functionality to show what further conditions need to be added to meet these requirements.

4) Visualization/Reporting Function

For FIs using CAFI® with specific climate finance targets, the visualization function was particularly appreciated. The tool provides banks with the ability to disaggregate their portfolio so they can review performance by specific categories, as well as aggregated indicators, financing volumes by category, impact realization by dollar volume and a number of other options. This aspect of CAFI® enables more meaningful and clear reporting to boards, clients and investors. The ability to view and understand the underlying portfolio also enables the bank to recognize and monitor where the various risks are in their portfolio.

5) CAFI's Integrity and Robustness

Most of the FIs using CAFI® were IFC clients and their comfort with integrity and robustness of CAFI® was based on the IFC relationship. However, for the MDBs interviewed, the transparency, independent assurance on the methodology and the open license model of IFC were considered positively in their decision to adopt CAFI® for their purposes.

6) Building Green Finance Capacity of Financial Sector

Several FIs found CAFI® useful in building internal awareness on climate finance. All the FIs interviewed had specialized departments, with technical professionals who were knowledgeable on climate eligibility and were the primary users of CAFI. However, more often than not, non-technical investment officers do not have a good understanding of CAFI® and therefore some type of technical training is usually always required which deepens their understanding of green finance in general.

7) Good for Marketing/Business Development

Many banks cited the fact that being labelled as a "green bank" was very good for their image and marketing strategy. They felt it gave their bank an edge to be able to report GHG reduction numbers from their investments to their board, clients and investors. It also gave clients the opportunity to develop possible business opportunities.

8) Using Standardized Reporting Requirements

Using CAFI® to report GHG emissions reductions gives more credibility as the tool is IFC developed and approved and CAFI® applies the MDB harmonized approach to meet global standards in a consistent, centralized manner.

Areas for Improvement

While there was much appreciation for the value that CAFI® added, the interviews also identified areas in which respondents would have liked additional functionality and features. These are outlined below:

1) Further simplification
2) Less technical indicators
3) Addressing confidentiality of information
4) Footprint functionality
5) Expanding scope of CAFI
6) Alignment with changing taxonomies
7) On-line chat function

Box 10 CAFI areas for improvement

1) Further Simplification

Although the simplicity of CAFI® was appreciated, some of the respondents felt that CAFI® could be simplified even further. An important data point was that none of the Bank/FI loan officers were using CAFI® directly, with the CAFI® users in all the FIs being technical professionals in a central climate/ESG/sustainability function. Given the complexity of climate eligibility assessments, it was however not clear how this could be achieved.

2) Less Technical Indicators

The measure of aggregated impact is currently reported in technical terms such as GHG savings or cubic meters of water savings. Feedback indicates that this type of technical information does not provide a lay reader with a sense of the actual significance of the impact as these are abstract measures in the absence of a benchmark or yardstick. Behavioral studies find that a lay audience can comprehend and act upon reporting when it is interpretable in concrete terms.

3) Issue of Confidentiality

While most FIs had all their climate business tied to IFC credit lines, one FI had additional commitments to green financing based on national banking regulation. This FI was using CAFI® only for the IFC line and was not using CAFI® for their other green financing programs. The reason for this was a concern around the confidentiality of the names of the FI's clients that were currently also visible to IFC. Even though CAFI® does not require the name of the client to be inputted, this still appears to be an issue[32].

[32] This could arise because anyone with access to the data can often work out the client's identity, especially for larger projects.

4) Additional Footprint Functionality

A few FIs also expressed the need for CAFI® to have additional functionality related to estimating the footprint of the bank's overall operations beyond their green financing work. The interest was for CAFI® to be able to estimate the footprint of the portfolio of the FI and track it over time to see if there was a positive trajectory in the bank's portfolio footprint. There was also an interest from some banks for CAFI® to be able to track carbon risk. MDBs were particularly concerned with the fact that they would be giving a green loan to an FI that had or would have a large amount of brown lending in its portfolio

5) Expanding CAFI's Use

To date, CAFI® has been used by IFC FI clients for green credit lines and green bonds; however there was considerable interest in the potential for CAFI® to be expanded. The need for simple, yet accurate and credible data to be collected and reported is a significant issue for institutional investors who seek green investments. CAFI's functionality could definitely be enhanced to fill this need.

6) Aligning CAFI® with the Current/Appropriate Taxonomy

All the stakeholders interviewed also noted that alignment to international approaches to climate indicators and impact reporting was a challenging area. Even as CAFI® was appreciated for its alignment with current approaches, CAFIs ability to remain aligned with these standards, given their constant evolution was considered a key factor in the continued growth of CAFI's use in the industry.

7) On-line Chat Function

As commercial banks often do not have the internal technical expertise, staff may still struggle with specific technical questions even after they have been trained in CAFI's use. Currently, clients have access to IFC technical staff only via email and this can mean a delay of a day or so in receiving an answer. Therefore, an on-line chat function being available would greatly enhance the user's ability to receive answers to their queries in an expedited manner.

Challenges for CAFI

The evolving standards for impact indicators and reporting formats pointed to several challenges that CAFI® would continue to face, that extend beyond the scope of the platform itself. These are outlined below.

1) Data Entry Error and Self Reporting Biases

CAFI® is primarily a platform that enables a desktop review and screening for projects relying on data entered by the FI. There is currently no mechanism for the validation of the data that is in place within CAFI. There is little validation of the information by the FIs interviewed and the project information provided by their clients is taken on face value. Creating additional due diligence steps at the FI level to validate this may also pose additional cost burdens and affect the competitiveness of the FI. Statistical approaches such as the error rate used by the European Court of Auditors to validate project expenditures would need to be considered. This will require creating an infrastructure for data validation.

2) No ex-poste performance data

The information currently entered into CAFI® captures the project eligibility at the time that the FIs are considering a project. Thus, CAFI® establishes the eligibility of a project based on ex-ante estimates of the project features. There is currently no capability in CAFI® to capture the performance of the project over time using actual performance indicators from the project.

3) Double Counting

CAFI® has some good functionality in attributing the climate benefits from a project to the different sources of financing used by the FI to support the project. This however does not rule out scenarios where the same project is also attributed to other MDB green lines to the same FI, as each lending entity is claiming the climate benefit of the total project rather than only its own attribution[33].

4) Target setting

While CAFI® offers excellent functionality for measuring performance against a target, there are challenges associated with target setting for an FI. For a financial institution that is growing, there may be concerns with setting overall GHG goals for the portfolio of the bank. Thus, an FI may choose to adopt goals that capture the carbon intensity of the portfolio, which could either be climate or green finance being a percentage of overall volumes (most common), or a GHG intensity/$ invested.

[33] This could be mitigated by a verification system which some potential regulations have posited, but this adds costs and another layer of complexity to an already challenging problem.

Factors enabling the adoption

1) Capacity Building

Even as CAFI, by design, seeks to make the data collection and entry requirements for project eligibility as simple as possible, there is still the need to build the capacity of the FI client to be able to enter the required technical information. As discussed previously, most banks do not have the personnel with the appropriate technical backgrounds capable of understanding the requirements and therefore bank personnel need initial and possibly, ongoing training. An on-line help function would be an important enhancement.

2) Presence of a market

Financial institutions are a key enabler of economic development but are reliant on the presence of projects to be present in the market that need financing. This is a critical need for climate finance as banks/FIs rarely create markets, even though they may take leadership positions in responding to a market need. From the interviews, all clients, whether local banks or IFIs, were always responding to market needs – national policy and regulations supporting renewable energy, banking regulations providing incentives for green finance or MDB concessional lines that incentivize banks. This aspect has direct implications for positioning CAFI® on key issues such as data recording, analysis and visualization. This can best be seen against the success of more targeted tools such as EDGE[34].

Comparing EDGE and CAFI

EDGE focuses on greening a sector by creating a pipeline of projects that can be supported by a bank. This is similar to the development of the renewable energy sector that created a green financing opportunity for FIs. CAFI focuses on the FI and the investors as the primary clients. This requires the market to be organically derived. EDGE has also started creating a network of auditors and experts in the local region to support green buildings and construction. A similar endeavor for CAFI would need to span a wide range of industries.

Box 11 Comparing EDGE and CAFI

EDGE, at its core, provides a tool for building real estate developers to adopt greener standards. With the outreach and marketing of EDGE focusing on the real estate sector, its adoption by developers, creates the market that needs financing. At this stage, bringing in the FIs to support EDGE certified buildings becomes an easier task. Further, by affiliating with local green building councils and other industry bodies, EDGE has created a network of local experts and consultants who can support the project and the bank. Creating the equivalent for CAFI® would require a coverage of all the sectors of the economy where there is a potential for a climate-related project. In turn this would require collaborating directly with each sector to create the market.

[34] For a discussion on the EDGE ("Excellence in Design for Greater Efficiencies" platform, please refer to Chapter 1.

Effectiveness of a Standardized Platform for FIs

From the research conducted on the experience of CAFI® so far, it fulfils a number of the requirements that FIs need to support the transition to a green economy. These include:

- Simplicity of use for an FI
- Single point of entry
- Ease and speed of project eligibility determination
- Visualization & reporting features
- Confidence of system integrity and robustness
- Building capacity of the financial sector
- Marketing/business development
- Standardized reporting standards.

Expanding the scope for standardized platforms

The history of the development and adoption of the tool globally has highlighted the value of a simple tools to assess, record, aggregate, visualize and report on green finance. However, there are various points of improvement that IFC and other donors could invest in to make the tool even more effective.

1) Short-Term Actions

- Initially, CAFI® could be broaden its coverage to include:
    - An estimate of the footprint of the institution. Initially, this can only include direct emissions (TCFD: Scope 1) but eventually incorporate indirect emissions from purchased electricity as well (TCFD: Scope 2) and,
    - Measuring the footprint of the institutions' investment portfolio.

While these actions are being undertaken, the following measures could also be investigated:

- Further simplify and automate CAFI® as well as including impact measures for a non-technical audience such as the equivalent number of cars taken off the road, gallons of water saved, etc.,
- Add modules for different levels of financial sophistication,
- Strengthen anonymization features to protect institutional information,
- Retool CAFI® to accommodate ex-poste as well as ex-ante data measurements. This will enable financial institutions to report periodically to both internal and external stakeholders. It would also help senior management assess major portfolio changes and targets as well as avoid possible reputational risks from overpromising and under-delivering. In addition, this function would be particularly important for the increasing number of sustainable fund managers as well as Green Bond Reporting Standards where annual impact reporting is required.

2) Medium-Term Actions

- *Avoidance of ESG Risks*: Expand CAFI® to cover the carbon risk of the financial institution's underlying portfolio, in other words, the loss which could occur due to extreme weather events such as flooding, droughts, heat waves, wildfires, etc. due to climate change,
- *Other SDGs*: Broaden CAFI® to cover the ESG/impact measurement space. This is extremely important for institutional investors, fund managers as well as fund of fund managers as they are required to issue Annual Climate Impact reports. For the latter, this means they need to collect information on their underlying assets from their investment managers and this can often be well over 100 different investment funds. Currently most fund managers are not able to do this correctly. However, since there is a significant need for credible and consistent data reporting for institutional investors seeking green investments, CAFI® has the potential to fill this need by enhancing its functionality.

The Figure 14 below highlights the current measures that can be taken to enhance the CAFI® platform (labelled "1") versus the future actions (labelled "2") in relation to how they benefit the various stakeholders.

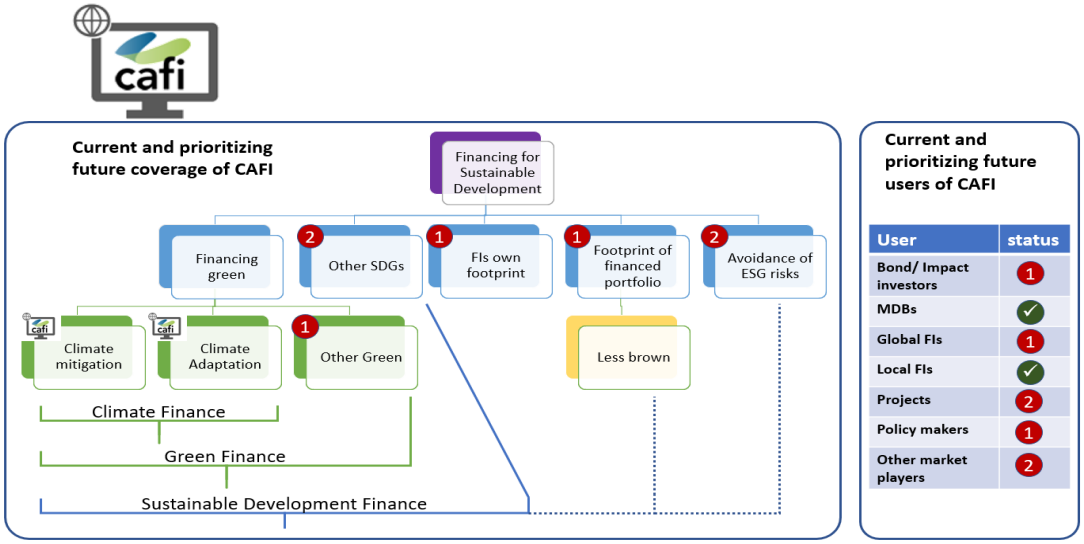

Figure 14 Prioritizing the current and future directions for CAFI

Longer-term Actions

The advent of new technological innovations such as big data, blockchain and artificial intelligence, brings a myriad of enhancements in monitoring and reporting data that could be incorporated into CAFI® in the longer-term. As data integrity is key for decision making and investment purposes as well as to prevent greenwashing, CAFI® currently ensures data definitions are standardized and are automated as much as possible. It also incorporates data integrity checks by ensuring data outside standardized limits is not accepted. As a short-term measure to supplement this, data audits could be done on a regular basis - say yearly – to ensure data quality is maintained. However, it would be impractical to audit the total portfolio given the huge transaction costs this would incur. Therefore, random spot checks could be done which would incentivize correct data entry.

Apart from this, using GIS satellite data or “big data” techniques could validate data integrity even further. For example, the solar radiation of a project could be calculated by using its exact GPS coordinates. This is not just important to prevent greenwashing but also critical for a financial institution’s reputation risk as all credibility could be lost if incorrect data is reported and could even lead to a loss of funding.

Blockchain Technology is another new technology on the scene and is a system in which a record of transactions made in bitcoin or another cryptocurrency are maintained across several computers linked in a peer-to-peer network which are immutable. It is akin to a spreadsheet which is not operated by one central party, but by a network of computers that verifies and time stamps each entry. This spreadsheet then contains a complete audit trail of all transactions conducted over the network. Blockchain works by creating a mechanism for trust between market participants without the need for a regulatory intermediary. This could help immeasurably with supply chain credibility data for measuring an institution’s carbon risk.

Case studies on CAFI's future potential

A conversation with Denise Odaro, Head of Investor Relations, IFC

IFC started its green bond program in 2010 and in 2014 it became one of the first institutions to begin producing impact reports for green bond investors. I believe harmonized standards in green and social bond impact reporting is critical to the integrity of the market and IFC has collaborated with other DFIs to produce a Harmonized Framework for Impact Reporting [for green and social bonds respectively] which recommends KPIs for the purpose. Impact reporting remains an issue but one that also carries with it an opportunity:

- Identification of eligible assets – as an opportunity to grow pipelines of projects
- Tracking performance and impact of projects – an accountability mechanism
- Manner of reporting an overwhelming amount of information to investors – Awareness building

There has been a huge shift into ESG investing recently – arising from societal awareness of these existential climate and social issues which has led to investor interest, related policy and regulation. The Green Bond Principles, initially published in 2014, have contributed to growth of green bond issuance by providing a framework for best practice issuance. Personally, I believe a growing proportion of green projects are and will increasingly be funded by green bonds in the future, given the global bond market is so large and the need for climate mitigating infrastructure is enormous.

Of course, with issuing green bonds comes the responsibility of annual reporting as required by the Green Bond Principles and numerous regional frameworks that have followed. Impact Reporting is the often derided as the bane of most issuers given the sheer volume of capacity it takes to create these reports which is an entirely new venture for Treasuries. That each issuer presents data differently also presents an issue for investors who have to consolidate impact numbers for their portfolios. There are some existing challenges to impact reporting, for example:

- Confidentiality is an issue where some impact information may be private information and commercially sensitive.
- Another area is the time lag required to gather and produce outputs versus outcomes data, so investors and stakeholders who wish to access ex-poste impact data can only do so during the life of the bond or near its maturity in some instances.
- An investor with several green bonds in its holdings may also be cognizant of the risk of double counting in cases where a big project syndicate issued individual bonds that financed the said project. These issues may be mitigated by a verification system which some potential regulations have posited but this adds costs and another layer of complexity for issuers to consider.

Looking ahead, as green bonds begin to finance more transition projects, the reliance and need for transparent impact reporting will increase. The recently published Climate Transition Finance Handbook lays out how to credibly access green bonds for the purpose of financing transition. A tool where institutions can enter information to see determine eligible projects and pro forma reporting KPIs confidentially could be of advantageous.

This is going to be a significant area of focus over the next few years as we race towards halving emissions by 2030 and meeting the global 2030 agenda on climate.

IDB Invest's Implementation of CAFI

IDB Invest, a member of the Inter-American Development Bank Group focusing on the private sector, recently decided to adopt CAFI® to enable their Financial Institution clients estimate the climate change related impact on their investment activities. CAFI® was chosen for several reasons. IDB Invest's green finance targets have been rising in terms of dollar volumes every year and currently stands at 30 percent of their lending. IDB Invest also follows the standard MDB Definitions and as well as following IFC Performance Standard #3 which means it reports its GHG emissions. However, it wanted to be able to show its Board of Directors more than just dollars invested but also the impact in terms of GHG emissions reduction. For the real sector projects like infrastructure, can be easily calculated through the emission reduction by MW, but for lending credit lines through Financial Institutions, there was a need to calculate the amount of GHG reduction per dollar invested. Rather than reinvent the wheel, it turned to CAFI® for assistance. Now CAFI® is being used in both its lending and associated advisory operations and it is also being incorporated into new business lines.

IDB Invest hopes the cooperation will improve transparency and disclosure for their investors as well as standardizing the approach to reporting for many of their clients. It also hopes it will raise awareness to green finance for many of their FI clients and provide IDB Invest with business development opportunities.

V. CAFI® AND CLIMATE FINANCE TOOL FOR THE ASEAN REGION

The ASEAN region is one of the most highly vulnerable regions in the world to climate change which is displayed in Figure 15. Every decade since 1960, average temperatures in this area have risen. It has been experiencing more frequent and extreme weather events in the form of flooding, droughts, and typhoons, not to mention rising heat and humidity. Unfortunately, global warming is projected to intensify these types of hazardous weather events with even more intense flooding, more severe droughts, and more destructive storms.

Studies have shown Thailand, Myanmar and the Philippines are among 10 countries in the world most affected by climate change in the past 20 years and the World Bank lists Vietnam as one of the five countries most likely to be affected by global warming going forward [35,36]. This is owing to the fact that a large proportion of its population lives and works along coastlines and the region is also heavily reliant on agriculture, tourism, and natural resources, all of which have a high degree of climate exposure[37].

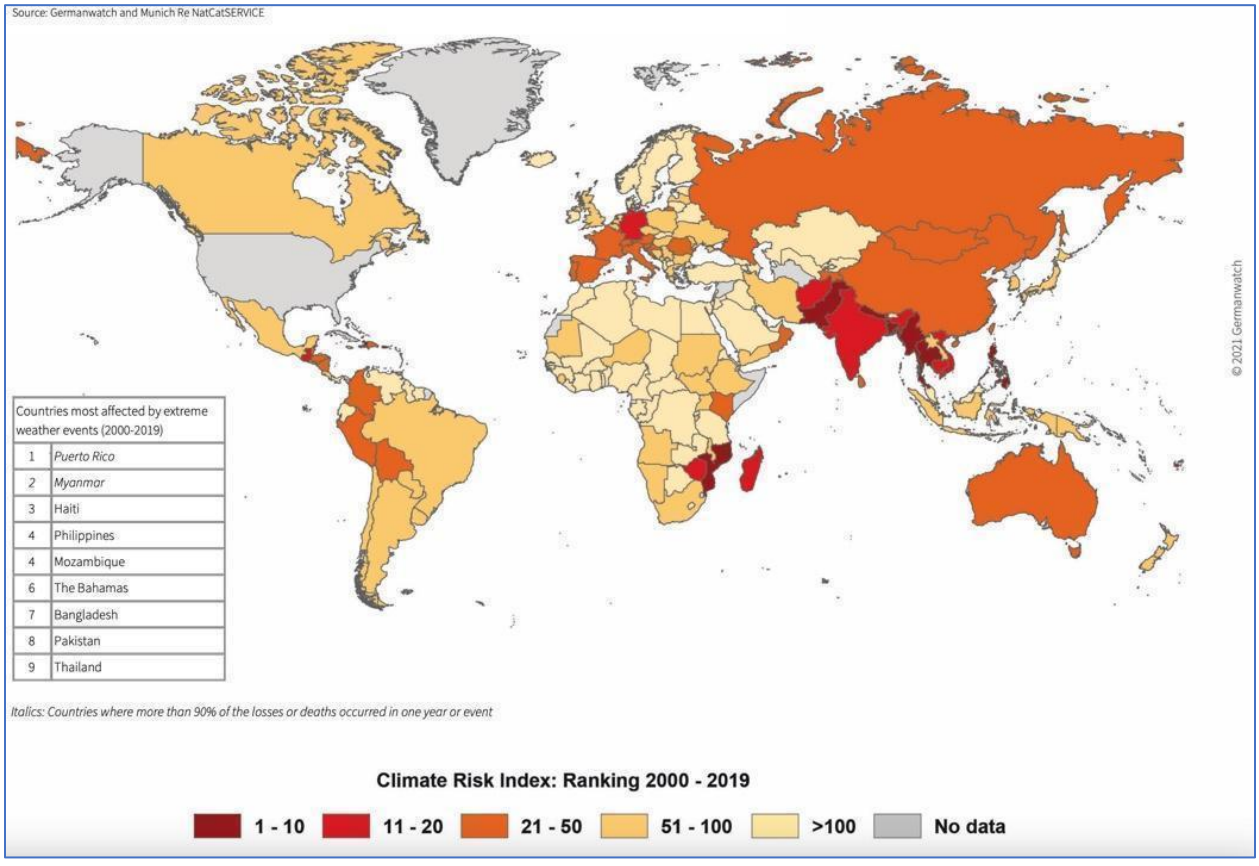

Figure 15 Climate Risk Index: Ranking 2000-2019

[35] The Long-Term Climate Risk Index (CRI): The 10 countries most affected from 2000 to 2019 (annual averages)
[36] https://www.gfdrr.org/en/region/vietnam
[37] Such as fishing, forestry and tourism.

According to the Asian Development Bank, South East Asia is more likely to sustain larger economic losses from climate change than most other areas of the world [38]. In its estimate, losses could be as high as 11 percent of GDP by 2100 under the "Business as Usual" scenario. Coastal flooding made worse by rising sea levels is a severe risk and reports have estimated trillions of dollars could be on the line from damaged assets in the future.

Similar studies have shown that, by 2050, anywhere between 8 percent to 13 percent of GDP could be at risk. As an example, in Vietnam, increased flooding in Ho Chi Minh City could result in infrastructure damage costing between USD 500 million and USD 1 billion by 2050. Secondary costs in the form of disruptions to clean water supplies, wastewater treatment, and activities like transport could be between an additional USD 1.5 billion and USD 8.5 billion [39]. Similar research shows chances of extreme precipitation could increase by 300 to 400 percent in Indonesia leading to massive damage[40].

Because of this, it is crucial that ASEAN countries become more resilient to climate change. If the region fails to take the appropriate measures to address this risk, it will suffer severe humanitarian issues, with incomes and food security dropping, especially for the region's poorest.

Several ASEAN Member States have started to take actions to address this, with some economies in the region already investing in low-carbon, clean energy investments. Luckily, the region is well positioned to transition to green finance and there are many opportunities where the benefits outweigh the costs. Also, the vicinity boasts some of the leading technologies in areas such as renewable energy and energy efficiency. It is also home to some of the fastest growing cities in the world and is still in the process of building its infrastructure. This means it can ensure buildings are constructed to a higher standard of resilience with enhanced energy efficient features.

[38] South-East Asia and the Economics of Global Climate Stabilization, 2015.

[39] https://www.cnbc.com/2020/07/30/climate-change-coastal-flooding-could-hit-20 percent-of-gdp-by-2100.html

[40] "https://www.cnbc.com/2020/07/30/climate-change-coastal-flooding-could-hit-20 percent-of-gdp-by-2100.html"

The value and potential for a platform like CAFI® to significantly impact the climate business in the ASEAN region is predicated on its business potential. In a study done by IFC in 2016, this was estimated to be in excess of USD 3 trillion for the period for the period until 2030[41]. The potential in the three countries analyzed in detail is show in Figure 16. Due to its rapid urban growth, the opportunity to develop the region's cities is immense and is largely composed of three primary sectors: buildings, transport and waste. The potential construction of new green buildings in Indonesia, the Philippines and Vietnam is estimated at USD 345 billion. There are also opportunities in climate-smart agriculture, forestry, and land-use projects across the region[42]. The report found the largest investment potential was in Vietnam, Indonesia and the Philippines.

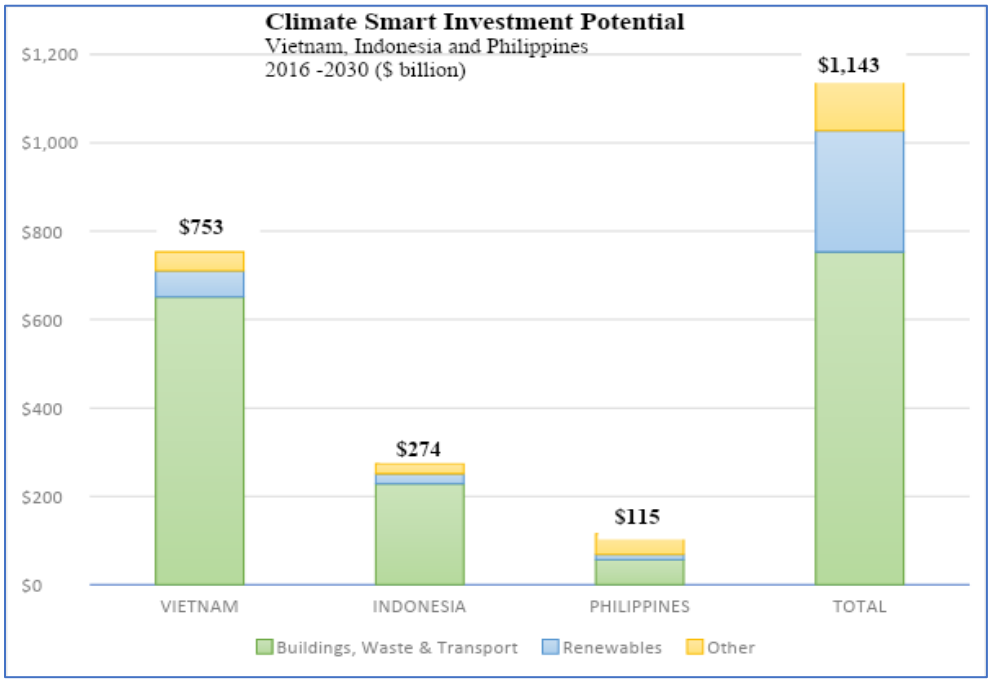

Figure 16 Investment Potential in Vietnam, Indonesia and Philippines

Vietnam

Vietnam's climate-smart business investment potential is an estimated USD 753 billion

Vietnam's political and economic stability make it an attractive investment destination for infrastructure projects such as power generation, roads, railways, and water treatment. To meet growing economic demand, Vietnam needs an estimated USD 170 billion in additional infrastructure development. In energy alone, the Vietnam General Statistics Office estimates that electricity demand will continue to grow at a rate of between 10 percent and 12 percent per year.

[41] Climate Investment Opportunities in Emerging Markets, An IFC Analysis, 2016.

[42] Unfortunately, the current lack of data availability for these sectors hindered IFC's ability to produce investment estimates of sufficient quality.

Vietnam's NDC pledges to reduce greenhouse-gas emissions by 8 percent from business-as-usual levels by 2030 and to reduce greenhouse-gas intensity per unit of GDP by 20 percent by 2030 from 2010 levels[43]. The country has nine categories of mitigation measures within its NDC.

Vietnam's climate-smart business investment potential is an estimated USD 753 billion, with the majority (USD 571 billion) going towards the country's transportation infrastructure needs by 2030. Potential investment in renewable energy totals USD 59 billion, with over half of this (USD 31 billion) in solar PV and another USD 19 billion for small hydropower projects. New green buildings represent an almost USD 80 billion investment opportunity.

According to the IFC report, Vietnam's immediate needs are around USD 192 billion, broken down as follows:

1) Renewable Energy

In 2016, Vietnam's prime minister approved the revised Power Development Plan VII for 2016–2030. The Plan emphasizes renewable growth, fuel diversification, and transmission reliability. This will have a major effect on the country's development of renewable energy as it currently only has a small percentage of installed capacity, but the Plan increases the target to 10.7 percent by 2030. It also adds technology-specific targets for biomass and solar power, in addition to previously set for wind power. The IFC report estimates the country's investment potential in this area is currently over USD 12 billion, the bulk of which (USD 8 billion) is for small hydropower, followed by wind and solar PV at USD 2 billion each and biomass at USD 0.4 million.

2) Urban Infrastructure

Vietnam is Southeast Asia's six most populated country and has had one of the most rapid urban growths. Vietnam's two largest cities are among the top 10 fastest growing cities in the world, with Ho Chi Minh City being in the third position and Hanoi in the seventh and both cities set to have among the highest economic growth on a global basis over the next several years[44]. IFC estimates the current investment potential in urban infrastructure to be USD 179 million, with the majority of this being in low-carbon transport. As this is considered a critical need, the national priorities focus on developing sustainable public transport (specifically rapid transport in large urban areas) and new policies around fuel quality, emission standards and vehicle maintenance. The investment opportunity for low carbon buildings and waste management is estimated to be about USD 8 billion to .3 billion respectively.

3) Policy Recommendations

According to the IFC report, the policy priorities to promote more climate-smart investments in Vietnam are:

[43] National Determined Contributions are country-driven targets that were invited for submission by the United Nations Framework Convention on Climate Change.

[44] According to the City Momentum Index 2020 which measures 130 cities around the world and is published by American investment management company Jones Lang LaSalle Incl.

- Building up green finance capacity in banks by providing clearer guidance and incentives to enable financial intermediaries to play a greater role in supporting green investment
- Removing barriers to greater utilization of renewable energy in the sugar sector through advanced regional biomass energy planning and developing new financing mechanisms and business models to transform the grid-connected biomass power industry
- Revising the wind feed-in tariffs that were introduced for the biomass and wind-to-energy sectors in 2004

Indonesia

Indonesia's climate-smart investment potential is USD 38 billion

Indonesia is the fourth most populous country in the world after China, India, and the United States. With an expanding middle class, Indonesia's economy has grown rapidly over the past 10 years. Indonesia can be a challenging environment for businesses, but its stable economy makes it an attractive destination for investors looking to make climate-smart investments.

Indonesia's NDC includes a greenhouse-gas emissions reduction target of 29 percent below business-as-usual emissions. It does not elaborate on specific sectors, but it has ambitious infrastructure improvement plans, with a focus on expanding access to energy, building roads, ports, railways, and airports, as well as improving agricultural production. It also has several Nationally Appropriate Mitigation Action (NAMA) projects for which it requires private sector financing to help implement.

Currently, Indonesia's climate-smart investment potential is USD 38 billion broken down as follows:

1) Renewable Energy

The country aims to generate 23 percent of its primary energy consumption from renewable energy by 2025, up from its current levels of between 5 and 6 percent. Indonesia has a large geothermal power potential and also has considerable biomass and hydro resources. IFC estimates that solid biomass power projects will present a nearly USD 3 billion in investment potential and USD 1 billion will be needed for small hydropower projects. The government aims to install 7.2 GW of geothermal energy by 2025 but the full amount is considered unlikely to materialize by this date.

2) Urban Infrastructure

Indonesia's population is expected to exceed 300 million by 2030, with half of the country's people living in urban areas. The low-carbon buildings sector in Indonesia is expected to grow as a result of new green building codes and energy efficiency incentives, representing a $23 billion investment opportunity by 2020. In Jakarta alone, there is about $30 billion investment opportunity, particularly in green buildings, electric vehicles, and renewable energy, while the transport and waste sectors are expected to require $7 billion in investment combined. The largest sales by transport mode are in the motorcycle market with expected sales of USD 8.1 million by 2030.

3) Policy Recommendations

The government has taken significant steps over the past few years to improve its policy framework for climate investments, passing 13 separate pieces of legislation from 2012 to 2015 in areas such as permitting, licensing, purchasing policies, and feed-in-tariffs for renewable sources of energy, along with support for green buildings. However, to further private sector investments, IFC's report suggests the following policy actions are needed:

- Champion Retrofitting of Existing buildings
- Develop clearer land laws, regulations and procedures on ownership and acquisition policies to facilitate infrastructure investment
- Align efforts to implement Indonesia's NDC with the sustainable finance roadmap being developed by the Indonesian Financial Services Authority ("OJK") to unlock more green finance across the financial sector. Also, there is a need to foster increased coordinated market awareness through OJK-led training, supplemented by regulations that enable increased green portfolios among banks.

Philippines

The Philippines' estimated climate-smart investment potential is nearly USD 115 billion

The Philippines is becoming an attractive investment destination. The country's growing middle class and stable political environment have helped the economy grow over the past six years at an average rate of 6.2 percent. The government is eager to increase investments in several key sectors, including infrastructure, agriculture, manufacturing, green buildings and power generation.

The Philippines' NDC establishes a conditional greenhouse-gas reduction target of 70 percent below business-as-usual levels by 2030. However, analysis has shown that if the planned National Renewable Energy Program and the Energy Efficiency and Conservation Roadmap are fully implemented, the country would only be able to meet its NDC target halfway.

The Philippines's climate-smart business investment potential is estimated at nearly USD 115 billion by 2030. This includes investment in renewable energy of USD 11 billion, while new green buildings, waste, and transport will see investment of USD 57 billion, USD 2 billion and USD 41 billion, respectively. This total reflects only a small portion of the 5.4 GW national hydropower target that is designated for small hydro. The remaining investment opportunity is with large hydro and is up to USD 22.7 billion.

In the near-term, the Philippines has USD 22 billion in green finance investment potential as shown below.

1) Renewable Energy

The Philippines' main source of electricity in 2015 was coal (44 percent), followed by gas (25 percent). Geothermal and hydropower each generated about 12 percent while there was very little wind and solar power generated. However, the Philippines Energy Plan plans to add 9.9 GW of new renewable capacity by 2030, including 5.4 GW from hydropower (including large hydropower), 2.3 GW from wind power and 1.5 GW from geothermal energy.

Along with Indonesia, the Philippines has a large scope for geothermal capacity with nearly 2 GW of installed capacity. IFC therefore estimates USD 5 billion in commercial potential for geothermal investments by 2020. The Philippines Energy Plan will also facilitate an additional USD 1 billion for new wind power and USD 1 billion for small hydropower.

2) Urban Infrastructure

Given the Philippines is mainly a group of islands, cities in the Philippines have not been able to match the economic growth of its neighbors in the region. Therefore, the country's current needs for transport infrastructure are estimated to be about USD 12 billion. In addition, the country's energy plan projects a need to replace 7,000 public buses to run on compressed natural gas and a market penetration of hydrogen and fuel cell vehicles by 2030. The investment opportunity for low-carbon buildings and waste will be about USD 2 billion and USD 1billion respectively.

3) Policy recommendations

- Establish an effective regulatory policy framework and network infrastructure to promote the use of renewable/clean energy and achieve a sustainable and equitable energy mix
- Establish a coordinated and effective regulatory framework to promote green urbanization and connectivity by enabling investment in water/sanitation management, green buildings, smart-grid and distributed generation, energy efficient inter- and intra-city mass transportation and energy efficient vehicles
- Enhance national climate resilience through retrofitting critical infrastructure such as reservoirs, power transmissions and distribution networks, etc. as well as helping farmers and small businesses with risk management techniques such as catastrophic insurance, risk pools, etc.

Steps to transition to a green economy

For there to be a transition to a low carbon economy, green finance and greening the financial markets are critical enablers. However, there are a number of conditions that need to be in place for the transition to happen.

- There needs to be a pipeline of projects that represent low carbon alternatives to the "business as usual" scenario. With an increasing part of this development being in the private sector, this shift in project development needs to arise from changes in market incentives and regulations.
- Policy makers need to create policies that promote green project development while creating disincentives for development that is carbon intensive. These strategies, together with the adoption of green technologies by institutions, will support the shift in project development that will require new technologies.
- It is critical that this project development activity have the active involvement of the financial sector, responding to the policy and project development shifts and enabling widespread adoption and scale up. This is shown in Figure 17 below.

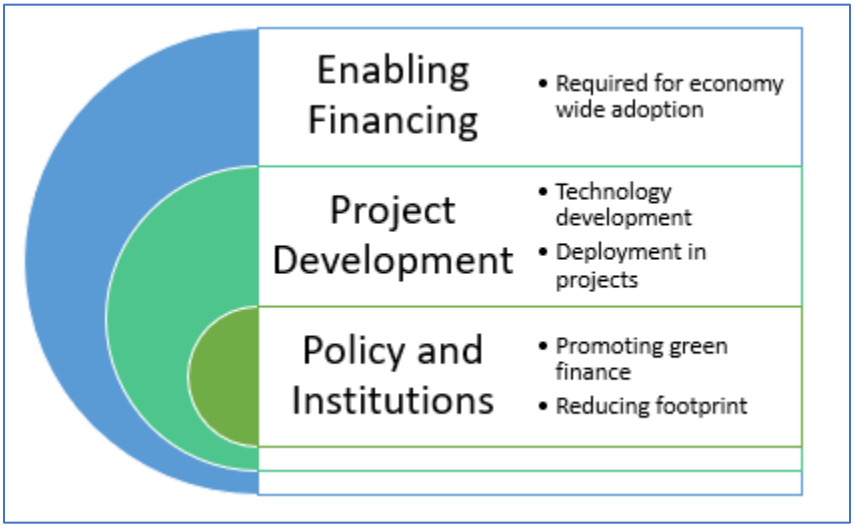

Figure 17 Ecosystem requirements to enable the transition

In addition, the following conditions need to be in place:

1. Criteria and standards for the market to be able to define and develop green projects,
2. Expertise present in the market to enable the evaluation of the technologies being deployed,
3. Credible project developers and technology providers,
4. A uniform taxonomy of what counts as climate so that the market and the players are able to converse in a transparent and consistent manner.

CEFIA - Way Forward

To promote the transition to clean energy, the next steps would be to focus on supporting the drivers needed for the market adoption of green technology.

- A crucial need is to create capacity of the region's financial institutions around green finance through technical assistance and other methods. Education is critical, particularly for an institution's board members and senior management. This can be done through organizations like the Sustainable Banking Network as well as with local banking associations. They can also hold regular networking events or webinars. They should liaise as much as possible with MDBs that work in this area to help with capacity building. These MDBs may also often provide de-risking incentives such as blended finance for banks to grow a green business and pave the way for public/private partnerships.
- Green climate investments need strong market drivers. Therefore, holding sessions with local business organizations and trade bodies to link technology providers with financers is important. This way opportunities in the market that would classify as climate eligible can create an incentive for a bank to develop the portfolio, as happened with Bank Windhoek in Namibia. This type of incentive can also be enabled by MDBs who can help create the market, such as happened with the EDGE model.
- Collaborate with banking regulators/policy makers to help get policies put in place that promote green finance where-ever possible. This could be in the form of green finance obligations by banks, footprint requirements or other conditions, as is the case in countries such as Colombia and Indonesia.
- Work towards the development of a harmonized taxonomy within the region, aligned as much as possible with TCDF and other international standards. Non-harmonized standards create an extra reporting burden on institutions which can deter investments. Once there is a driver, the key barriers for the effective adoption and scaling up of green/climate finance relate to the ability to establish eligibility, record, aggregate and report on the transactions. Therefore, a clear and consistent taxonomy is vital for aggregation.
- Support the adoption of platforms like CAFI. Tools such as CAFI® offer a single platform that has had a significant impact in the adoption of green finance by banks. In this sense, having platforms like CAFI® can create equivalences between taxonomies and indicators and would be a worthwhile endeavor. It also holds great potential for institutional and green bond investors as, once green finance/climate finance is up to scale with a critical mass, the region should attract more institutional investors looking to invest in climate finance as well as expanding its green bond market. Green bonds in particular are an excellent way to direct global private capital flows towards climate-resilient investment opportunities in the region. At this point, eligibility and reporting will be vital.

The key to all of the above is the collection of the correct and consistent data. This means, to implement an effective green/clean finance program that can be managed, measured and reported on, the definition of taxonomy is indispensable. Many countries are in the process of developing their own taxonomies – such as China, Canada and the EU – but there is a global movement towards standardization – with the EU Taxonomy trying to set the standard. Nevertheless, it is crucial that a taxonomy reflects each region's individual needs.

Unlike the EU, the ASEAN region is extremely diverse with varying countries in different stages of economic development. Countries range from a high degree of sophistication like Singapore to a country at the beginning of its financial development, such as Myanmar. To accommodate each country's own economic needs, the ASEAN region needs a reporting platform that can adapt to each country's requirements and therefore must have a high degree of flexibility.

In this respect, a tool such as CAFI® seems ideal. It can accommodate separate modules for differing needs, can encompass different languages and varying bandwidths, as well as being simple to use and easy to perform data entry. It also applies the MDB harmonized approach to meet global standards in a consistent, centralized manner and uses publicly available inputs for calculation. All these benefits make a standardized platform such as CAFI® an excellent tool for promoting green finance while also allowing a consistent methodology to be integrated through the ASEAN region.

ANNEX A - QUESTIONNAIRE

Thank you very much for agreeing to take part in our CAFI® survey.

The purpose of the interview is to identify the needs of financial institutions in establishing and expanding their green finance portfolios. When we refer to Green finance, we are referring to the provision of finance to support projects and businesses that have a positive environmental or climate impact.

1. Does your financial institution have a guideline or a goal for green finance (examples of goals, % of total lending, a target volume of lending, a target volume of environment benefit such as GHG avoidance)
2. What is the source(s) of this guideline/goal (please elaborate)?

- Stakeholder needs, if so, explain which stakeholder
- Public opinion
- Brand and image considerations
- Signing up to a voluntary standard
- Other (please clarify)

3. When did your organization start using CAFI?
4. How did your organization decide to adopt CAFI?
5. How is CAFI® used in your organization

- What is the process of using CAFI® within your organization?
- What institutional need does it fulfil?

6. What financial products is it used with?

- Lending
- Advisory
- Treasury/bonds
- other

7. How has CAFI® helped your organization? Please explain each applicable item

- Measure progress towards green finance goal
- Improve efficiency in meeting goals
- Standardize impact measurement
- Risk Management
- Business development for sustainability/climate finance
- Brand development
- Create awareness of climate and sustainability amongst your staff
- Creating transparency/disclosure for your investors/stakeholders
- Other (please explain)

8. How can CAFI® be improved to meet other needs that you may have?
9. What tool did you use for green finance/climate finance before CAFI, and what are the key differences?
10. Do you have any ideas on how CAFI® can help support other MDBs/FIs and the broader finance sector in your market going forward, even as TCFD and other international disclosure initiatives are much more appealing in the world?

Thank you for your help and we look forward to talking to you.