Climate Investment Funds

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Washington DC
Monday, December 5, 2016

Agenda 5

Proposal for CTF 2.0

Contents

1 Introduction

1. The Clean Technology Fund (CTF) Trust Fund Committee (TFC), in November 2015, requested the CIF Administrative Unit, in collaboration with the MDBs and the Trustee, to explore detailed modalities, including legal and institutional changes required, to strengthen the current business model of the CTF by mobilizing additional capital from public and private sources and deploy its resources efficiently and effectively for enhanced mitigation actions in developing countries. As a follow-up, two modalities - one involving an financing structure capable of independently raising funds through the issuance of green bonds in the capital markets and another involving a risk mitigation facility - were explored into further detail and preliminary concepts were presented to the TFC in June 2016.

2. As a follow-up in June, the TFC requested the CIF Administrative Unit, working in close collaboration with the MDBs and the Trustee, to conduct due diligence and further develop the proposals for its further consideration before and during the December meetings. Following the June meetings, the CIF Administrative Unit carried out further due diligence in close consultation with Trustee, MDBs, as well as relevant teams of the World Bank such as Treasury, Credit Risk, Legal, among others. These consultations yielded useful feedback and inputs to help improve the proposal presented below for TFC's consideration at its December 5th meeting.

1.1 Building on CTF 1.0 legacy

3. The USD 5.6 billion Clean Technology Fund (CTF) was established in 2008 to provide emerging economies with scaled-up financing to contribute to the demonstration, deployment, and transfer of low-carbon technologies with a significant potential for long-term greenhouse gas (GHG) emission savings.

4. The CTF began with USD 4.5 billion pledges and contributions, 12 country investment plans, and a regional program for the Middle East and North Africa (MENA) Region. During its eight of years of operation, the CTF has grown to USD 5.6 billion in cumulative pledges and contributions, 15 country investment plans along with the MENA regional program and the Dedicated Private Sector Program (DPSP).

Table 1: Overview of CTF Portfolio (as of June 30, 2016)

	Project Allocations			Approved Funding		Disbursement
	TOTAL	IP	DPSP	TFC	MDB	
CTF Funding (USD M)	5,804.0	5,312.5	491.5	4,962.6	3,757.1	1,664.5
Number of projects	121	102	19	100	80	61

5. *Co-financing*: CTF funds are expected to mobilize over USD 52 billion in co-financing from private and public sectors, MDBs, bilateral, and other sources at a leverage ratio of 1 to 9, meaning for every USD 1 invested by the CTF, another USD 9 is invested by other financiers. Private sector is the largest source of co-financing with over USD 20 billion (1:3.5) in mobilization, followed by MDBs (1:2.6) and bilateral/other sources (1:1.9).

6. *Regions*: Asia and Africa have the largest share of CTF approved funding, accounting for over a third and over a quarter of the portfolio, respectively. Europe and Central Asia and Latin America and the Caribbean makes up about 18 percent of the portfolio each.

7. *Technology:* Renewable energy accounts for the largest share of approved funding with almost USD 3.4 billion or 69 percent of the portfolio, with solar accounting for almost USD 1.7 billion (48 percent), followed by geothermal (18 percent) and wind (14 percent). Energy efficiency, including investments in smart grids, accounts for 14 percent of the portfolio and sustainable transport for 11 percent.

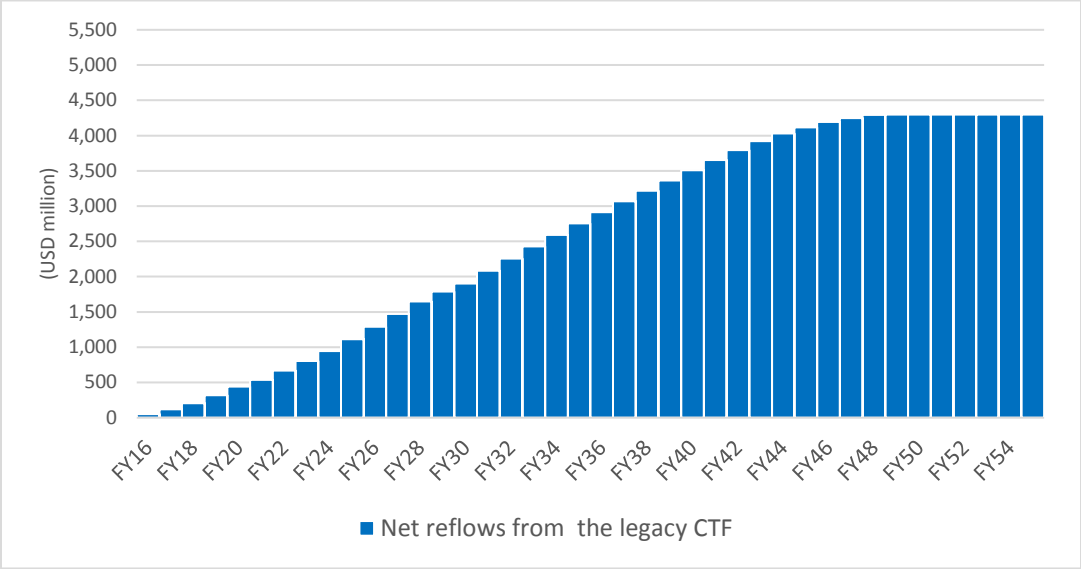
8. *Disbursement:* Disbursements, as a percentage of MDB approvals, have been marked by an upward trend over the past three years. As of June 30, 2016, 30 public and 31 private sector projects/programs have disbursed USD 1,664 million cumulatively, disbursing an annual average of USD 350 million for last four years. Of these, 20 projects and 13 sub-projects, mostly in renewable energy, have fully disbursed USD 1,209 million (USD 881 million in public sector, USD 328 million in private sector projects/programs). This includes the Noor CSP projects in Morocco (USD 435 million).

9. *Results:* Projects totaling over USD 3.5 billion in CTF investments are reporting actual results and are expected to achieve over 50 mtCO2 in GHG emission reduction annually, over 16 GW in new renewable energy capacity, and 10,300 GWh of energy saved, while mobilizing over USD 38 billion in co-financing from a range of sources, including the public and private sectors, MDBs, bilateral organizations, and others.

10. *Reflows:* CTF has committed most of its USD 5.6 billion resources to more than 100 projects and programs across 16 countries and regions. Reflows are now being realized from these concessional loans, and will continue to be realized over the next 40 years (see Fig. 1). In a 30 to 40-year timeframe, USD 4.3 billion in net reflows are expected.

11. These reflows represent a considerable amount of cash that the CIF could use to continue supporting climate-smart projects. However, without changes to the current agreements and additional measures being put in place, the timing of cash flows will prevent the CTF from doing so. Only USD 1.1 billion of cash would be accumulated by FY25, and USD 1.9 billion by FY30. On average, that would equal roughly USD 150million per year for CTF business, enough to approve on average three projects a year.

Figure 1: Expected net reflows from the legacy CTF loans (USD 4.3 billion)



12. While these assets will yield progressively increasing cash flows over the next 40 years, there is a near and medium-term gap. Left unaddressed, this gap will lead to an interruption in the CTF's ability to offer financing. It is therefore proposed that the CTF TFC agrees to move forward with a CTF 2.0 under which the CTF's asset base would be leveraged to finance the next generation of CTF projects without needing to wait for reflows from the legacy portfolio to be realized.

2 Evolving from CTF 1.0 to CTF 2.0

13. The 2015 Paris Agreement calls for countries to keep the average global temperature rise from pre-industrial times below 2 degrees C and pursue efforts to limit it to 1.5 degrees. Buoyed by the recent ratifications by the United States, European Union, India, China, and a host of other countries that together account for over 79 percent of global greenhouse gas emissions, the agreement entered into force in November 2016, with the first meeting of its governing body held during COP22 in Marrakech.

14. Under the agreement, 189 countries have submitted "Intended Nationally Determined Contributions" (INDCs) to reduce greenhouse gas emissions and make economies resilient. Although the level of ambition and specificity of INDCs varies considerably across countries and sectors, they generally represent a significant ramping up of national action for both mitigation and adaptation, with an expectation to become more ambitious over time. Countries are now working to translate these INDCs into concrete plans for implementation.

15. Ensuring that global investment in infrastructure is compatible with both low carbon and climate resilient development will be essential for achieving INDCs, boosting global economic growth, and delivering on the 17 Sustainable Development Goals (SDGs) adopted by world leaders in 2015. The world economy requires annual investment in sustainable infrastructure of around USD 6 trillion over the next 15 years, which represents an increase of approximately 75 percent over the current annual infrastructure spend.[1] Roughly two-thirds of this investment, about USD 4 trillion, is needed in low and middle income countries. This investment will encompass both "hard" infrastructure (e.g., energy, water, transport, buildings, and telecommunication) and "natural" infrastructure (e.g., forests and watersheds)[2].

16. Mechanisms that facilitate exposure and investments from the large pools of capital available such as from institutional and/or sovereign investors will be key to help to meet these ambitious goals in developing countries.

17. The MDBs bring together a particular set of assets that make them well-positioned to address both development and global public goods challenges. These include their own financial resources, mobilization potential, deep technical expertise across a wide range of sectors, and strong fiduciary and legal capacity.

18. Over the period 2011-2015, the CIF partner MDBs collectively provided an average of more than USD 21 billion in climate finance to the public and private sectors. In 2015, the MDBs' climate finance commitments of USD 25 billion mobilized an additional USD 56 billion from other investors, including the private sector, in support of mitigation and adaptation actions.[3] MDBs are ramping up their support for investments that deliver both climate and development benefits. By 2020, it is expected that the CIF partner MDBs will commit about USD 35 billion in climate finance, a 75 percent increase over 2015.[4]

19. The CIF is designed to take full advantage of the MDBs' policy guidance, knowledge, technical assistance, project development and implementation expertise, and financial support delivered through a range of instruments, as well as their ability to leverage their capital to attract much larger volumes of finance from both public and private sources.

20. The CTF now has over eight years of experience working successfully under the MDB-collective model, providing concessional resources at scale, and ensuring wider deployment and scaling up of high-impact technologies such as concentrated solar power

[1] The Global Commission on the Economy and Climate, 2016.
[2] *Ibid.*
[3] 2011 – 2015 Joint Reports on Multilateral Development Banks' Climate Finance. Note that the USD 25 billion figure for MDB commitments and the USD 56 billion mobilization figure include data from the European Investment Bank, which is not a CIF partner MDB.
[4] Aggregate figure based on MDB 2020 climate finance targets announced in 2015.

(CSP) and geothermal. It has been a leader in providing innovative and targeted risk-bearing financial instruments, such as convertible grants to mitigate early-stage risks and facilitating private sector participation in key sectors.

21. Barriers remain that prevent the deployment of low carbon technologies at the scale and pace the world needs to achieve development targets while averting dangerous climate change. New instruments and financing structures are required to unlock significant private sector capital into riskier markets and green asset classes.

22. The CTF 2.0 underpinned by the new financing structure being proposed in this paper is expected to be able to achieve this because it would leverage the strengths of the CTF's existing assets and the institutional standing and credibility of the CIF's MDB partners in the capital markets.

23. As the only mitigation-focused multilateral fund whose model is specifically built around the operating model of the MDBs, the CTF is uniquely positioned to implement the innovative business models for mobilizing and delivering scaled up climate finance proposed for CTF 2.0.

3 Programming approach for CTF 2.0

24. Based on CTF's eight years of operational experience and lessons learned as well as the new challenges and opportunities faced by the international community, the key elements of the proposed CTF 2.0 entail adopting an *enhanced programmatic approach* and engaging in *priority investment areas*.

3.1 Enhanced programmatic approach

25. The CTF has employed a programmatic approach as its primary model of delivery. The CTF programmatic approach has several notable features, such as:

    a. MDB coordination and collaboration at the planning and project levels, and inter-ministerial coordination and policy dialogue at the highest levels to enhance national impacts of climate investment;
    b. Predictability of resource availability;
    c. Linking of public and private sector investments;
    d. Programmatic results measurement; and
    e. Efforts to enhance knowledge and learning, as well as gender and social inclusion across countries' programs.

26. The CTF programmatic approach has led to country-based and technology-based investment plans as well as a private sector oriented program called Dedicated Private Sector Programs (DPSP). The DPSP is underpinned by a thematic programmatic approach

with strong links to country priorities and CTF program objectives under which MDBs collaboratively identified pipeline opportunities that could deliver scalable investments within a reasonably short period of time.

27. Drawing on the lessons learnt from both country-led investment plans that focus on strategic areas prioritized by host countries, as well as thematic and technology-based programs across countries and regions, as exemplified by the existing DPSP model, it is proposed that CTF 2.0 adopt an enhanced programmatic approach under which both geography focused as well as thematic (i.e., technology, sector, or instrument based) focused programs would be considered for support. Such an approach can harness the benefits and scale of the MDB partnership in support of priority investment areas including new frontier areas, while providing agility and a predictable and strategic framework within which to develop and structure investments.

3.2 Priority investment areas

28. While there is a continued role for CTF to support the types of investments prevalent in its current portfolio in certain persistent high-risk markets, CTF 2.0 should push the boundaries of its engagement to emerging sectors that have potential to deliver high impact. Key priority investment areas identified for CTF 2.0 support include, among others:

    a. Energy storage
    b. Building energy efficiency
    c. Sustainable transport
    d. Distributed generation
    e. Solar energy

29. Based on preliminary scoping by the MDBs, over 50 project/program ideas have been submitted to the CIF Administrative Unit for consideration under CTF 2.0. In total, the estimated request for CTF funding would amount to approximately USD 6.5 billion. These project/programs ideas are at various stages of development for potential submission to the CTF during 2017-2020. Some concepts are more advanced than others in terms of consultation with relevant government agencies, private sector, co-financiers, and other stakeholders. Some proposals (from ADB and IDB) are country-based specific proposals; others (AfDB, EBRD, IFC, and World Bank) are mostly sector/technology-based or financial instrument-based programs, covering multiple countries in a region or across regions. Some proposals cover multiple investment areas, especially between energy storage and solar energy, between distributed generated and solar energy, and between building energy efficiency, distributed generated, and solar energy.

30. Below is a summary of the potential projects/program proposals by investment area/technology. Since the investment areas are not mutually exclusive, the number of

potential projects/programs as well as the size of the funding envelope under each investment area is indicative and preliminary. The MDBs may submit additional project/program ideas or make adjustments of the current submissions as more information becomes available.

Investment Area	*Number of Potential Projects/ Programs*	*Approximate Amount (billion USD)*
Energy Storage	10	0.8
Building Energy Efficiency	18	1.7
Sustainable Transport	4	0.3
Distributed Generation	10	0.4
Solar Energy/ Renewable Energy	22	3.3
Total	**54**	**6.5**

31. Other submissions were made that focused on low-income countries but what is presented in this paper relates only to the potential middle-income countries portfolio. Among the middle-income countries, most project/programs ideas are for the countries that have already received CTF funding, including Chile, Colombia, Egypt, India, Indonesia, Mexico, Nigeria, Philippines, South Africa, and Vietnam. However, a number project/program ideas are considered for middle-income countries that are currently non-CTF recipients, such as Argentina, Brazil, China, Guyana, Pakistan, Paraguay, Peru, and Uzbekistan.

3.3 Potential pipeline by investment area

Energy storage

32. Energy storage is emerging as a viable solution to manage the intermittent and distributed nature of renewable energy and improve grid efficiency. The focus on storage is relevant for a number of reasons. First, increased penetration of intermittent renewable energy sources causes imbalances in the grid that must be managed by increasingly expensive peaking plants. Second, aging transmission and distribution networks create bottlenecks that prevent cost-effective sources of energy from reaching the areas where it is needed most; moreover, the costs of laying down new lines are extremely high. Third, excess energy produced that cannot be absorbed by the grid is wasted, while at the same time there are reliability issues related to the existing sources of supply. These challenges can be addressed by pairing renewable energy sources with energy storage.

33. Energy storage is at the threshold of becoming economically viable, similar to the PV industry status 7-8 years ago. It is emerging from niche applications (such as mini-grids) to economic viability in mainstream settings (such as frequency regulation) mainly due to falling cost of components, growing demand to manage the intermittent and distributed

nature of renewables, and to improve grid efficiency. Despite the demand, there are barriers to widespread deployment including: a) cost of technology and payback time; b) lack of regulatory clarity; c) uncertain revenue streams; and, d) access to commercial finance. Concessional sources of financing can facilitate the penetration and scaling-up through interventions that help bridge the gap to commercial project viability, mitigate real and perceived business risks, finance first-of-its-kind projects and support technical assistance work to promote regulatory framework convergence, establish testing and certification standards to ensure quality and reliability, etc.

34. The existing CTF portfolio has no energy storage projects. Energy storage will be a new investment area under CTF 2.0, although it is typically linked with investments in solar energy. Out of the 54 project/program ideas submitted by the MDBs, about 10 will focus on energy storage, with a total request of more than USD 800 million in CTF funding.

Energy efficiency in Buildings

35. Cities consume around 66 percent of the world's energy and account for 70 percent of GHG emissions, with buildings accounting for about one-third of global energy use and related GHG emissions. If the right investment choices are not made today, we will be locking in high-cost, high-carbon urban infrastructure for the next 40-70 years. With short payback periods between two to eight years, every additional dollar invested in energy efficiency measures can potentially generate three dollars in future fuel savings by 2050. However, barriers still remain, such as: a) higher costs, up to 12 percent higher than traditional buildings; b) lack of a market entity to absorb these costs, as immediate affordability outweighs future energy and water savings; c) lack of a system to validate savings that hinders flow of capital to the sector; d) lack of information in the market, among others.

36. While many admit that green buildings may present a financially sound proposition, no party is willing to take the risk of higher upfront cost combined with unknown pattern of returns. This is where concessional finance can be critical, either absorbing incremental cost, associated with "greening" a building or providing performance assurances. The latter can be achieved by either setting up financial structures that can protect the overall investment returns or by establishing a standardized certification process that would guarantee certain minimal level of performance. With more experience and market penetration, the benefits of green buildings will become thoroughly understood, the market demand will pick up, and fully commercial financing will follow.

37. Energy efficiency accounts for less than 15 percent of the current CTF portfolio, and the share of energy efficiency has decreased over time with the revisions of the CTF country investment plans. The MDBs are planning to step up efforts in ramping up investments in energy efficiency, especially in the buildings sector. Overall, 18 out of 54 project/program

concepts have identified energy efficiency in buildings as a primary focus for the CTF 2.0 pipeline, totalling about USD 1.7 billion in CTF funding. Among the IDB's submissions in particular, 12 out of the 19 preliminary project concepts submitted will focus on or will be related to energy efficiency, in countries ranging from Colombia to Mexico (current recipients of CTF) and from Argentina to Guyana, Paraguay, and Peru (current non-recipients of CTF). EBRD will likely continue to invest in energy and resource efficiency projects in the region, while the World Bank is also planning to step up efforts to scale up energy efficiency investments in key middle-income countries.

Sustainable transport

38. Transport accounts for 23 percent of global (non-agricultural) CO2 emissions and business-as-usual projections suggest that by 2030, transport emissions will rise by roughly 70 percent, mostly from emerging economies. Not only is it possible to change the trajectory for transport emissions, but doing so would generate significant co-benefits such as reduced congestion, pollution and accidents, improved health, quality of life, enhanced productivity and economic growth. In many cases, switching to a lower carbon transport system requires a transformation that is complex and capital intensive. Though investments generate economic co-benefits, revenue generating ability is often limited by affordability concerns; even operational cost recovery is often a challenge, making it difficult to attract private sector funds at scale.

39. Technical assistance and policy support is needed to put in place stable regulatory and tax policies, to integrate transport and urban development policies, and to integrate low carbon and climate-resilient projects into planning decisions. Counterparty risk guarantees for transport concession agreements, credit enhancement, innovative land-use and building fee or tax mechanisms, and transport bonds could also be used as potential instruments to facilitate access to long-term debt, and concessional finance has a role to play to pilot and scale them up. The MDB-collective model is an optimal vehicle for delivering the desired results. First, because MDBs are critical to managing the governance and risks that are common to complex, sub-national transport investments that involve environmental, social, and inter-governmental, and public-private issues. Second, because MDBs bring trusted long-term relationships that allow them to work effectively with sub-national, municipal, national, and private sector actors. Finally, because a programmatic (vs a project-by-project) approach is required for the types of transformative investments that will be required—whether with sub-national interventions or for private sector-led initiatives.

40. Although the current submissions by the MDBs have not featured sustainable transport prominently (only four submissions totalling USD 350 million all from middle-income countries) it is anticipated that more sustainable transport project concepts will be

developed, especially from the World Bank, for consideration by CTF 2.0 as pipeline development continues to be advanced.

Distributed generation

41. Two primary forces will drive the growth of distributed generation in coming years: rising peak energy demands through localized energy solutions (peak shaving), and access to the 1.1 billion people who still lack basic energy services. Distributed generation assets are modular and adaptable to a variety of applications and hence are best suited to address both these needs.

42. Despite the significant demand and relevance of these investments they offer insufficient risk-reward to private sector investors and to lenders for the following reasons: a) regulatory risks, given a lack of specific policies for such project due to lack of experience; b) higher cost, when compared to the alternative fossil fuel choices; c) lack of access to long-term financing, due to absence of a revenue model; and, d) complex stakeholder interests, in the form of competing priorities, steep learning curve etc. As in the case of energy efficiency investments, Energy Service Companies and other third-party players have the potential of significantly scaling up distributed generation, but they face barriers in accessing adequate finance. Concessional finance that allows for a much higher degree of risk mitigation compared to on-grid RE financing, will be needed to get a lot of these projects off the ground. Concessional finance can support (a) lending for much longer tenors than MDBs to improve the project economics over business-as-usual diesel or other fossil fuel based distributed generation, (b) provision of subordinated loans to help establish viable business models and develop track records for fully commercial investors, and (c) provision of early-stage equity to help start-up ventures off the ground.

43. For CTF 2.0, the MDBs have identified about 10 potential projects/programs focusing on distributed generation linking to renewable energy, especially solar energy that could potentially use more than USD 400 million of concessional finance. Most of these projects/programs will likely be integrated into solar or other renewable energy or building energy efficiency initiatives.

Solar energy

44. Despite significant cost reductions in solar PV panels, solar deployment in many developing countries with good solar resources may remain slow, due to a weak enabling environment, high financing costs, and lack of the necessary capacity, infrastructure and resources to integrate variable solar generation. An inadequate enabling environment, including limited government capacity for contractual negotiations and efficient public procurement of private power generation, as well as high payment risks associated with public off-takers with weak credit slow down development and drive up the costs.

Technical challenges (real or perceived) are also partially responsible for the slow pace of solar deployment in some regions. Utilities are reluctant to deal with integrating variable generation, having been used to operating large, predictable, central thermal power stations. Utilities and governments may also have limited operating capacity and knowledge of advances in technology. Finally, the transmission grid is often weak to evacuate the new power generated, and the control systems in place often make it difficult to assess the impacts of integrating RE into existing systems.

45. Concessional finance can play a critical role in de-risking investments through the provision of mitigation instruments such as payment guarantees to reduce off-taker risks, partial credit/loan guarantees or political risk insurance. It can play a key role in supporting first movers, in countries where little or no solar capacity has been installed to date and where it may not yet be competitive. Concessional finance will be essential, even in those countries that have already integrated a limited amount of solar energy, for "greening the grid". The challenge – and cost – of integrating solar energy remains a concern even for middle-income countries that are rapidly increasing the level of solar (and wind) penetration. These countries need to modernize their regulatory frameworks, infrastructure and capacity to address areas such as RE technical standards, market design, the role of net metering, as well as the development of ancillary services for grid rationalization and demand response to achieve a flexible, balanced portfolio of energy assets.

46. Renewable energy accounts for about 70 percent of the current CTF portfolio, focusing on concentrated solar power, geothermal, and wind. Under CTF 2.0, the MDBs vary significantly in terms of potential interest in CTF concessional finance for solar or other types of renewable energy. The ADB and IDB have shown limited demand for CTF 2.0 concessional finance for solar or other renewable energy, unless it is linked to energy storage or combined with energy efficiency. For EBRD and IFC, solar/renewable energy (combined with distributed generation) accounts for about half of their submissions. Most of the identified demand so far has come from the World Bank, including about USD 2.3 billion that could be supported under the Risk Mitigation Facility (RMF).

4 CTF 2.0: Green Markets

47. It is proposed that CTF 2.0 introduces a financing structure, called in this paper CTF Green Markets, capable of independently raising funds from institutional investors through the issuance of green bonds in the capital markets. Legacy reflows from CTF 1.0 would serve as a "collateral" to provide credit enhancement for new securities issued by a newly-formed special purpose financing vehicle ("CTF Green Markets"). CTF Green Markets would build on the institutional legitimacy of the multi-MDB origination framework and preserve the flexibility and responsiveness of CTF instruments to support the next generation of low carbon investment projects, including new frontier investments.

48. International credit rating agencies would rate the green bonds issued by CTF Green Markets. To ensure efficient market financing, it is proposed that the securities target a minimum rating of Single-A. The creditworthiness of obligors may be weaker than the Single-A target, so credit enhancement in the form of overcollateralization[5] would be employed. The legacy reflows from existing CTF portfolio would provide this overcollateralization.

49. Many of the key design features of CTF Green Markets draw on the institutional strengths of the existing CTF structure:

- Backed by a loan portfolio of diversified CTF assets originated by AAA-rated MDBs
- Retain the current set of CTF financing products offered by the CTF through the MDBs (e.g., loans, equity, guarantee)
- Preserve fundamental features of the CTF business model; for example, the CTF Trust Fund Committee will continue to be the governing and decision-making body, the MDBs would remain the lenders of record and be responsible for loan servicing, on a limited recourse basis, for all assets they originate

50. At the same time, the new structure would introduce innovative features that build on the CTF's mission in keeping with new imperatives:

- The green bonds would be the first rated asset in the debt capital markets backed by multilateral climate finance flows[6]
- Impose greater efficiency in operational programming by dynamically linking financing capacity with new asset generation
- Reinforce discipline in CTF accounting and reporting through recurrent rigor of the credit rating process and disclosure requirements in connection with the issue of green bonds
- Structure CTF Green Markets and the underlying collateral pool to wind down over time or be self-sustaining as an evergreen market entity

4.1 Structure

51. The objective of Green Markets is to leverage CTF's significant asset base to access additional funds in the capital markets quickly in order to finance the next generation of CTF projects without needing to wait for reflows from the legacy portfolio to be realized.

[5] *Overcollateralization* refers to the use of more collateral than is needed to obtain or secure financing; and is often used as a method of credit enhancement by lowering the creditor's exposure to default risk.

[6] Per OECD definition

52. Under this proposal, a separate legal entity, CTF Green Markets, would be established to issue green bonds in the international capital markets and the proceeds from these bonds would then be used to finance a new generation of projects. IBRD, as Trustee[7] of CTF, would pass through reflows from existing CTF assets (net of obligations to loan contributors), as well as those from new CTF Green Markets investments, to the new issuing entity, CTF Green Markets. CTF Green Markets would then use those reflows to support the issuance of green bonds in the international capital markets.

53. Under this structure, the Trustee would continue to meet obligations to loan contributors with reflows from the legacy portfolio. This kind of allocation of assets between different categories of creditors is common in this type of capital markets vehicle.

54. IBRD would continue to serve as Trustee for the CTF Trust Fund, executing amendments to the Financial Procedures Agreements and the Contribution Agreements to enable the establishment of CTF Green Markets. The CIF Administrative Unit would continue to provide programmatic support to the CTF Trust Fund Committee and MDBs.

55. The CTF Trust Fund Committee would make the decision to incorporate the Green Markets issuing entity, and would select a corporate service provider and legal counsel, instructing them to establish the entity. Further assessment in terms of tax, legal and other implications is being undertaken in order to determine the ideal jurisdiction for the incorporation. The CTF Trust Fund Committee would also select an independent Bond Trustee for CTF Green Markets and be given various rights in connection with important decisions, such as whether or not to issue new series of green bonds.

56. If some of the current CTF Contributors do not wish to participate by contributing to CTF 2.0 a CTF 2.0 Trust Fund Committee would also be established to make these and other decisions pertaining to CTF 2.0, membership of which would be limited to Contributors making commitments to CTF 2.0, consistent with the current governance structure principles and an equal number of representatives from elegible recipient countries.

57. The role of the corporate services provider would be limited to formal corporate management functions, such as executing transaction documents, providing the Board for CTF Green Markets, and preparing statutory financial accounts.

58. The SPV's Board would not play any active strategic role in the governance of the program, and the governing documentation would provide that the entity is not entitled to make decisions without the consent of the CTF Trust Fund Committee (or CTF 2.0 TFC, if applicable).

[7] Should IBRD Trustee not want to continue, this role may also be transferred to another MDB.

59. The MDBs would continue to serve as originators and servicers of CTF financial products.

4.2 Key issues

60. For CTF Green Markets to be effective, issues related to the obligations to loan contributors and credit rating must be considered.

Obligations to Loan contributors

61. As indicated earlier on in the paper approximately USD 1.1 billion of the CTF's USD 5.6 billion legacy portfolio is being financed with contributions received in the form of loans from three contributor countries (Germany, France, and Canada). Prior to the maturity time of the corresponding loan contributions (i.e., in 2030 and 2032), loan contributors effectively enjoy a priority right to repayment from the reflows of CTF assets. These loan contributors' priority rights will be preserved under the new financing modalities being proposed. The Loan Contribution Agreements would need to be amended to preserve these interests through the following proposed mechanisms:

- *Senior Claim to Legacy Portfolio Reflows:* Reflows from the legacy portfolio would be used to repay loan contributors first. Reflows from the CTF's legacy portfolio are expected to significantly exceed repayment obligations to loan contributors (by 100 to 200 percent in every year) during the repayment period: USD 3.0 billion of expected reflows versus USD 1.1 billion of repayment obligations.
- *Maximum Annual Debt Service (MADS) Reserve:* In 2017, prior to launching any new financing modalities, a reserve would be established in an amount equivalent to the maximum annual principal and interest repayment obligations to each of the three loan contributors. In the unlikely event that, in a given year, reflows from the legacy portfolio are less than the amount of repayment obligations to loan contributors (e.g., due to credit losses), funds will be drawn down from the MADS Reserve to ensure loan contributors are fully repaid. This reserve would be replenished from excess reflows realized in subsequent years. The initial amount of this reserve would be approximately USD 108 million accumulated from the legacy reflows in 2017.
- *Loss sharing and CTF Net Income:* In order to avoid any negative impact on the amount of CTF Net Income (by agreeing to the new financing modalities of CTF), pro-rata share of which was expected to offset CTF Default Pro-Rata Share of the Loan contributors after covering for the administrative expenses, under the Principles regarding Contributions to the CTF as included in the Loan Agreements/Arrangements and Contribution Agreements/Arrangements, additional measures will be agreed upon by the TFC.

Contingent liquidity support

62. In any organization, liquidity management is important. When issuing debt, provisions have to be made to ensure the interest and principal on the debt can be paid on time. Limiting the debt issuance amount to the reflows would reduce the issuance flexibility from an amount and maturity point of view, and hence the effectiveness of CTF Green Markets. Introducing refinancing risk would hurt the credit rating obtainable, unless the risk is mitigated, which can be achieved in two ways:

- *Maturity extension provisions:* These can take various forms, such as an automatic extension at a new spread or a very long legal maturity with step-up and call provisions. In this option, the bond holders provide the liquidity through a maturity extension option. The investors are remunerated for the extension through the provision of a higher spread. This would be the preferred option, but feasibility and price impact must be further assessed.
- *Backstop funding arrangement:* This would establish a Contingent Liquidity Facility to ensure that CTF Green Markets is able to meet its redemption obligations for green bonds if it is unable to issue new bonds due to a market disruption or other reasons. One or more contributors or other appropriately rated sovereign entities would need to provide funding for this facility. It would give investors comfort and have a direct effect on the levels of potential funding that could be raised in the market. Based on the current financial modeling results, a contingent liquidity support of USD 645 million provided by one or more contributors could allow the CTF to raise an additional USD 1.7 billion over the next five years compared to a scenario where a contingent liquidity facility is not available (see Section 5). The liquidity support would apply on a bond by bond basis, and be available for the entire issuance program. It is thus possible to start the CTF Green Markets program without liquidity support, and introduce this should the need arise to protect the rating of the program.

4.3 Implementation arrangements

63. The Governance Framework for the CTF was first adopted in November 2008 by way of a Trust Fund Committee decision, and decision by the Executive Directors of the World Bank authorizing the trustee to establish the CTF and SCF Trust Funds, and amended in June 2014. Through the Governance Framework the CTF Trust Fund Committee was established to oversee the operations and activities of the CTF. The responsibilities of the Committee are listed below and are expected to remain the same for CTF 2.0 (CTF Green Markets).

CTF Trust Fund Committee

64. The committee's current responsibilities include:

- approving programming and pipeline priorities, operational criteria and financing modalities;
- ensuring that the strategic orientation of the CTF is guided by the principles of the UNFCCC;
- endorsing further development of activities in investment plans/programs for CTF financing;
- approving allocation of CTF resources for programs and projects;
- approving allocation of CTF resources for administrative budgets;
- ensuring monitoring and periodic independent evaluation of performance and financial accountability of the MDBs;
- approving annual reports of the CTF;
- ensuring that annual reports and evaluations, including lessons learned, are transmitted to the UNFCCC;
- reviewing reports from the Trustee on the financial status of the CTF; and
- exercising such other functions as the CTF Trust Fund Committee may deem appropriate to fulfill the purposes of the CTF.

65. The current structure of the CTF Trust Fund Committee provides for equal representation of the contributor countries and eligible recipient countries to govern the CTF and consists of eight representatives from contributor countries (or group of such countries) and eight representatives from eligible recipient counties (or group of such countries). These representatives (the Members) are considered the decision making Members.

66. In addition to the decision making Members, the CTF Trust Fund Committee has non-decision making Members as follows: (i) when the CTF Trust Fund Committee considers an investment plan, program or project for a country, a representative of such recipient country, during deliberations of the Trust Fund Committee on the investment plan, program or project; (ii) a senior representative of the World Bank, recognizing the role of the World Bank as the overall coordinator of the CIF partnership; (iii) a representative of the MDBs.

67. Under CTF Green Markets, the number of contributor countries may change (i.e., decrease if some of the current contributors decide not to contribute to CTF 2.0 and no new contributors contribute to the CTF). If this occurs, the CTF Governance Framework will need to be amended. Moreover, to hold the principle of equal representation of contributor countries and eligible recipient countries, the number of CTF Trust Fund Committee members representing eligible recipient countries will need to be changed

accordingly. Any change to the CTF Governance Framework requires the agreement of all Contributors and all recipient countries which have been allocated funding from the CTF, as well as the Trustee.

CIF Administrative Unit

68. The CIF Administrative Unit was established to support the work of the CIF, including the CTF, and to support the CTF Trust Fund Committee and other bodies of the CIF. The Administrative Unit is currently, and could continue to be, responsible for:

- preparing, in consultation with the MDB Committee, all documentation required for review by the CTF Trust Fund Committee, including developing an agenda for the CTF Trust Fund Committee meeting;
- making recommendations, in consultation with the MDB Committee, on program criteria and priorities and the activity cycle for approval by the CTF Trust Fund Committee;
- conducting background research and analyses as requested by the CTF Trust Fund Committee;
- preparing an annual consolidated report on the CTF's activities, performance, and lessons, including details of the CTF's portfolio, status of implementation, funding allocations for the previous period, pipeline of projects and funding projections, administrative costs incurred, and other pertinent information;
- managing a comprehensive database of the CTF's activities, knowledge management system, result measurements system and learning program;
- servicing the meetings of the CTF Trust Fund Committee;
- managing partnerships and external relations, including convening meetings of the MDB Committee;
- collaborating with the Trustee to ensure that the Trustee receives all the information necessary to carry out its responsibilities; and
- performing any other functions assigned to it by the CTF Trust Fund Committee.

CTF Trustee

69. The current CTF Governance Framework also stipulates a range of functions to be performed by the Trustee. This would require review and amendment if arrangements for CTF Green Markets are put in place.

CTF Green Markets Board of Directors

70. The board of directors of CTF Green Markets would be professional corporate directors, provided by a specialist corporate services provdier. They would be responsible for formal management functions of the SPV, such as executing transaction documentation, preparing statutory financial accounts, etc.

71. The Board of Directors would not be responsible for any of the functions which are currently performed by the CTF TFC or the CIF Administrative Unit. The SPV would enter into service agreements with the CIF Administrative Unit, and the transaction documentation would provide for the CTF TFC to continue and other decision-making bodies to continue to perform their existing roles.

72. CTF Green Markets would also appoint one or more paying agents and cash administrators who would be responsible for managing its various cashflows and providing other treasury support functions. Some of the MDBs or a number of commercial banks can provide these services for this type of capital markets vehicle.

Green Bondholders

73. Green Bondholders would play no role in governance of the CTF. In particular, they would have no say in terms of which projects should receive funding or when additional Green Bonds would be issued. These factors would all be governed by the various governance policies (based on the existing CTF Governance Framework, as supplemented to reflect the CTF 2.0 structure).

74. CTF Green Markets would undertake to Green Bondholders that it would at all times comply with those policies, and Green Bondholders would only be entitled to take action should it fail to do so. Under a properly-structured transaction this should never occur.

Contribution Agreements and Financial Arrangements

75. It will be necessary to make a number of amendments to the Contribution Agreements and the CTF Standard Provisions (which are incorporated into each Contribution Agreement) as well as Financial Procedures Agreements in order to implement CTF Green Markets. Those amendments will be identified, discussed and agreed upon with the contributors and MDBs after a decision by the TFC on CTF 2.0 and its new financing structure.

Ownership of the CTF portfolio

76. CTF does not provide credit directly to the projects. Rather, CTF makes commitments available to the MDBs, and the MDBs then provide credit to the underlying projects. The

MDBs are, therefore, the "lenders of record" or owners of the underlying project loans under the CTF 1.0 structure, and are responsible for the servicing and management of those loans. This will not change under CTF 2.0.

77. Under the Financial Procedures Agreements, the MDBs are obliged to hold the amounts they receive from the underlying project borrowers in a trust fund for the CTF. In due course, these amounts are returned to the CTF Trustee. Thus, under the current arrangements, the CTF Trust Fund is entitled to those reflows once they have been received by the MDBs.

78. Under the CTF Green Markets structure, this would not change. The MDBs would continue to hold the reflows in a trust fund for the CTF. The CTF Trustee would then, after deducting amounts to meet obligations to Loan Contributors, pay those amounts over to CTF Green Markets under the pass-through arrangements. There would not, however, be any additional support provided by the MDBs over and above their obligation to account for the project reflows which they actually receive. Should there be any shortfall in those project reflows, this shortfall would be borne by CTF and CTF Green Markets. MDBs would not be providing any direct liquidity of credit support in relation to the Green Bonds themselves.

79. If it is decided that the CTF Green Markets arrangements should provide for a predefined termination date, this will mean that upon that predefined termination date, once any outstanding Green Bonds have been redeemed in full, CTF Green Markets would pay any residual cash which it is holding back to the CTF Trustee, to be dealt with in accordance with the Contribution Agreements. In addition, the pass-through arrangements between the CTF Trustee and CTF Green Markets would also be terminated at that time, so any future reflows received by the MDBs and distributed to the CTF Trustee would no longer be passed-through to CTF Green Markets.

Ownership of the CTF assets

80. The assets of CTF currently comprise its claims against the MDBs under the Financial Procedures Agreements (which, in turn, comprises its interest in the project reflows received by the MDBs from underlying project borrowers, as well as any investment income generated by the MDB on funds it is holding prior to making distributions to the CTF Trustee), as well as any other undisbursed funds held by the CTF Trust pending it being provided to MDBs for lending in connection with projects.

81. Legally, the CTF assets are currently held by the CTF Trustee, in its capacity as trustee. However, on a termination or winding up of the CTF Trust, the Contributions Agreements provide for the CTF assets to be distributed to the Contributors.

82. Under the CTF Green Market structure, the CTF Trustee would either assign its rights to the project reflows to CTF Green Markets (after deducting amounts required to meet obligations to Loan Contributors), or enter into pass-through arrangements pursuant to which it would pay amounts equal to the project reflows received by it from the MDBs to CTF Green Markets (again, after deducting amounts required to meet obligations to Loan Contributors). Thus, ownership of these funds would pass to CTF Green Markets. Ownership of other CTF assets would remain with the CTF Trust. However, the CTF Trustee would in return receive a right to any remaining funds in CTF Green Markets once the Green Bonds have been redeemed in full, and this residual right would be a CTF asset, and would be owned by the CTF Trustee in its capacity as trustee. Thus, on a winding up or termination of CTF, once the Green Bonds have been redeemed in full, any such surplus would be distributed to Contributors in the same way as under the existing structure.

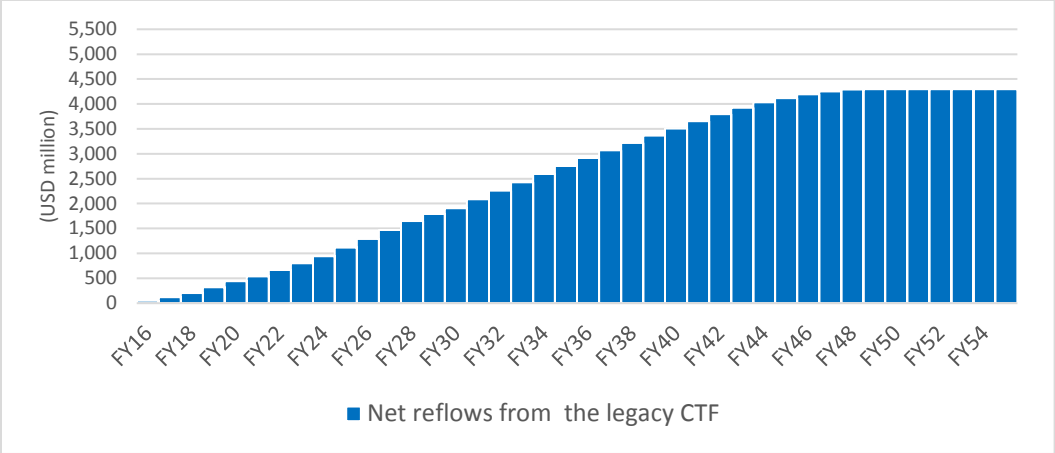
5 Scenario Analysis

83. To assess the potential of the proposed CTF Green Market financing structure a few scenarios were modeled, results of which are presented herein:

5.1 Scenario 1: Use CTF 1.0 reflows for BUSINESS-AS-USUAL

84. USD 4.3 billion in net reflows from CTF concessional loans to more than 100 projects and programs across the world are currently being realized, and will continue to be realized over the next 40 years. However, without any mechanism to use those reflows, the timing of cash flows would critically constrain the CTF. Only USD 665 million of cash would be accumulated by FY22, and USD 1.9 billion by FY30 (see Figure 2). On average, that would equal roughly USD 150 million per year for CTF business, enough to approve on average three projects a year.

Figure 2: Expected net reflows from the legacy CTF loans (USD 4.3 billion)



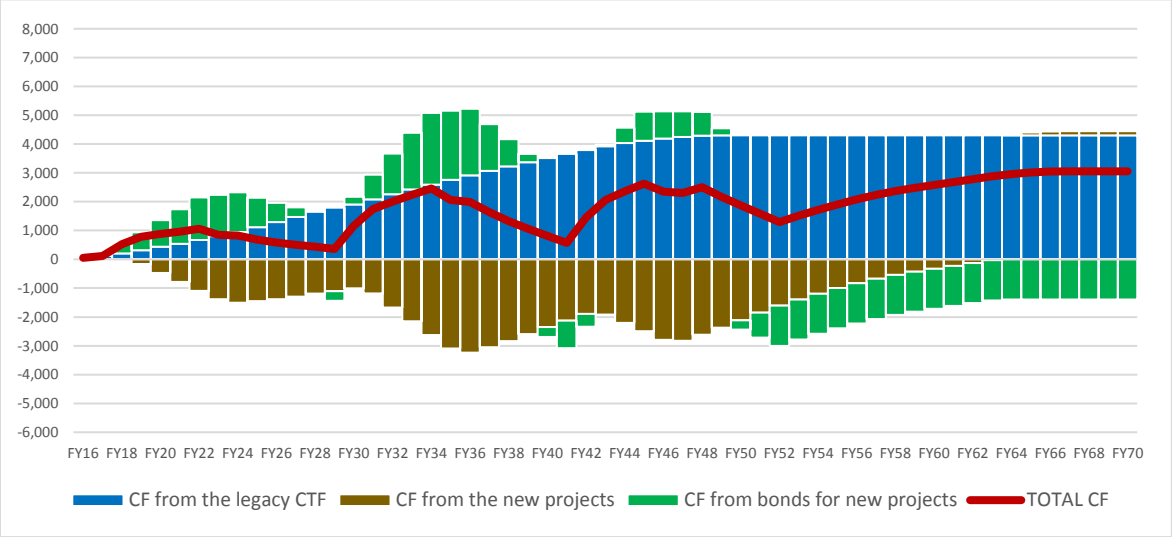
5.2 Scenario 2: CTF Green Markets Scenarios

85. Two sub-scenarios were considered to ascertain indicative future cash flows from CTF Green Markets: *without* and *with* a contingent liquidity facility provided by one or more contributors. The following assumptions were made under this scenario: Public-private composition: 50-50; Public terms: 10 years grace period/ 20 years maturity/ 0.75 percent interest rate; Private terms: 3 years grace period/ 12 years maturity/ 2.5 percent interest rate; first bond issuance in the 2nd semester of FY18; lending starts in FY19.

86. Under a scenario where CTF Green Markets operated *without* contingent liquidity, the current assessment shows that the following upper levels of capital could be raised (see Figure 3):

- Initial cycle of bond issuance (FY18-22) would be USD 1.6 billion
- Total bond issuance amount by FY30 would be USD 2.2 billion
- Total bond issuance amount by FY45 would be USD 6.6 billion

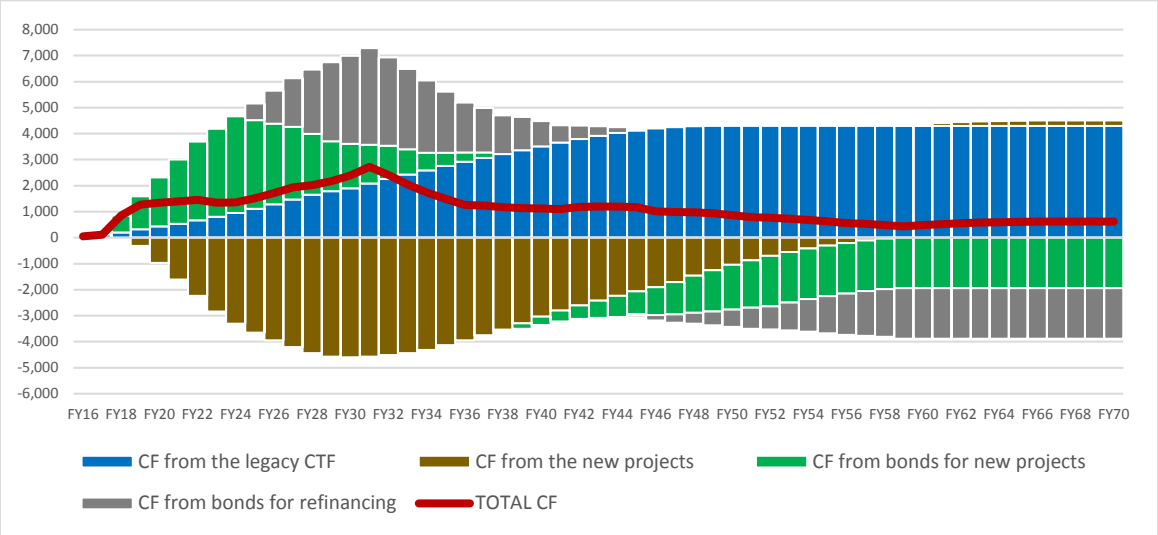
Figure 3: Cumulative cash flow projection *without* contingent liquidity (USD million)



87. Under a scenario where CTF Green Markets operated *with* a contingent liquidity provided by one of more contributors, the preliminary assessment shows the following levels of capital that could be raised (see Figure 4):

- Initial cycle of bond issuance (FY18-22) would be USD 3.2 billion
- Total bond issuance amount by FY30 would be USD 6.4 billion
- Total bond issuance amount by FY45 would be USD 9.3 billion

Figure 4: Cumulative cash flow projection *with* contingent liquidity (USD million)



Additional CTF Green Markets scenarios

88. Based on consultations with relevant stakeholders, including MDBs and contributors, additional scenarios were further considered to ascertain the different levels of potential mobilization under CTF Green Markets.

89. *High concessionality for initial five years (same as CTF 1.0 financial terms):* Based on a phased approach in which CTF Green Markets would continue to offer loans at current concessional terms for initial five years, before re-evaluating its offers based on experience and market demand, the following levels of mobilization were estimated (see Table 4).

Table 4: Mobilization potential using high concessionality for initial five years

	WITHOUT contingent liquidity	WITH contingent liquidity
Initial bond issuance (FY18-22)	USD 1.4 billion	USD 2.5 billion
Total bond issuance (by FY30)	USD 1.9 billion	USD 5.7 billion
Total bond issuance (by FY45)	USD 6.3 billion	USD 9.1 billion

Assumptions: Public-private: 75:25; public terms: 10 years grace period/ 32 years maturity/ 0.4% interest rate; private terms: 4.5 years grace period/ 12 years maturity/ 1.3% interest rate

90. Given this scenario's change in portfolio composition compared to the baseline case (75 percent public *versus* 50 percent in the baseline), more concessional terms have an adverse impact on the cash flow timing of the portfolio. As a result, reflows from the initial five years of new CTF projects would be substantively diminished and, accordingly, the bond-issuance capacity cut by 10 to 20 percent until around FY30.

91. *USD 1 billion of additional equity contribution:* Based on the assumption of an additional equity injection by FY17, the following levels of mobilization were estimated (see Table 5).

Table 5: Mobilization potential of CTF Green Markets using USD 1 billion of additional equity contribution

	WITHOUT contingent liquidity	WITH contingent liquidity
Initial bond issuance (FY18-22)	USD 2.6 billion	USD 4 billion
Total bond issuance (by FY30)	USD 3.3 billion	USD 7.9 billion
Total bond issuance (by FY45)	USD 8.7 billion	USD 11.4 billion

92. Availability of 1 billion of additional equity would have a positive impact especially during the initial bond issuance stage.The following graphs summarize the mobilization potential under both, *without* and *with* a contingent liquidity support scenarios. Figure 5 below reflects the potential mobilization under CTF Green Markets for the first five years after launch between FY18 – 22 while Figure 6 reflects the same leverage potential between FY18--30.

Figure 5: Potential leverage in capital markets from FY18-22 under different scenarios

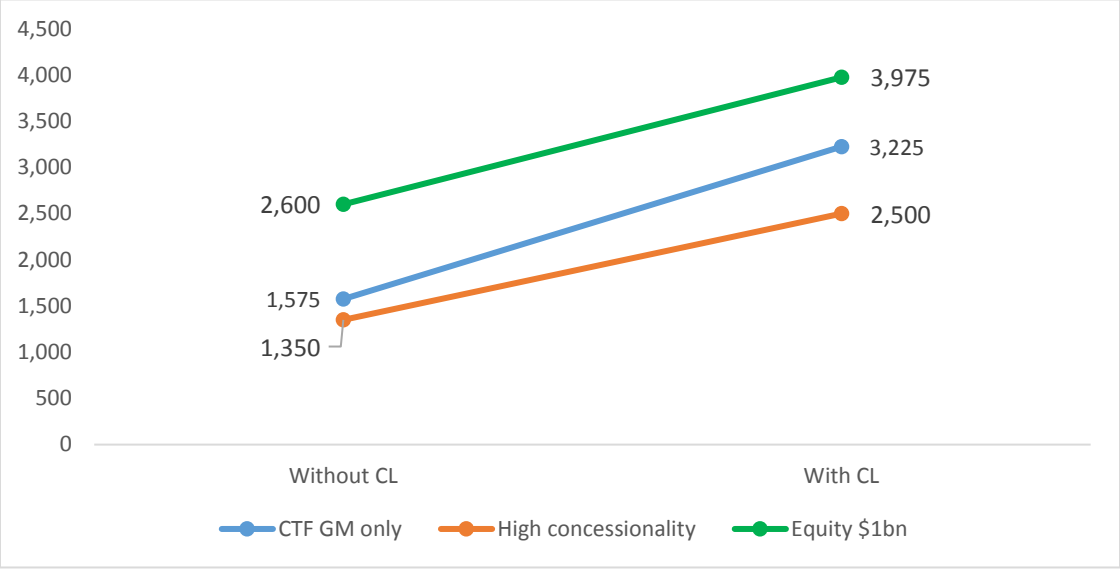
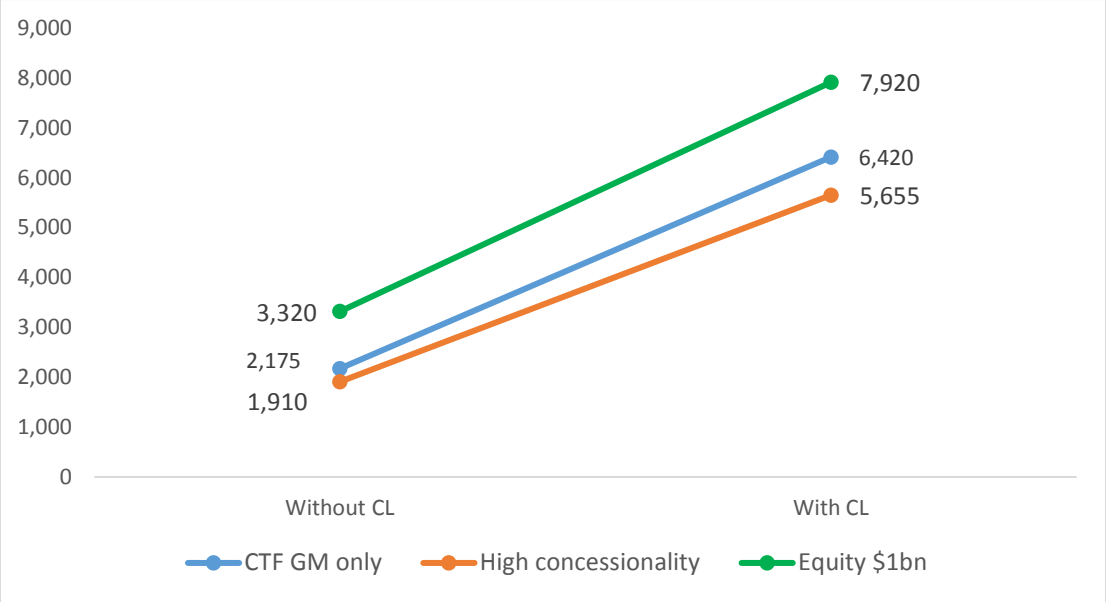


Figure 6: Potential leverage in capital markets from FY18-30 under different scenarios



Leverage and mobilization potential

93. Based on the current assessment, the "upstream" leverage (bond issuance to net assets) that CTF Green Markets could achieve is expected to be 1.5 - 2.2 times. The "downstream" mobilization (co-financing in CTF lending) for new CTF projects, based on the CTF's original leverage ratio, is expected to be 1:9.2 (with 3.8 coming from the private sector).

6 Risk Mitigation Facility Proposal

94. Various studies, including by the World Economic Forum,[8] the Climate Policy Initiative,[9] and the SE4ALL Finance committee report,[10] have identified the need to de-risk projects and to deploy risk-mitigation tools to attract private capital at scale to support climate friendly projects. More specifically, these reports have highlighted the need to generate and share knowledge on how to optimize the use of concessional finance and better target specific investment barriers[11] to increase the efficiency of scarce public and concessional resources.

95. The objective of the proposed Risk Mitigation Facility (RMF) is to utilize expected CTF reflows to scale up mobilization of local and international private capital for clean technology projects in CIF countries through provision of risk mitigation guarantees. By de-risking projects and providing required investment risk mitigation to financiers, project entities and development institutions, the RMF would secure competitive financing terms to improve the bankability and affordability of projects, a benefit that can be directly shared with end-beneficiaries. The RMF would draw on experience and synergy of the MDBs and the CTF to deliver the scale and engagement required to transform energy and transport systems toward a climate-friendly path.

96. *Risks in Clean Technology projects:* Such projects face risks that are conventional (i.e, common to any infrastructure project) and incremental (in relation to clean technology project risks). Although conventional risks, such as institutional, political or legal risks, can be mitigated with traditional instruments (such as the guarantee or insurance products of MDBs, MIGA, political risk insurance from commercial insurers, etc), the incremental risks that are specific to clean technology require the development of targeted risk mitigation instruments, such as those the RMF would deploy. The capital costs of many clean energy technologies have declined in recent years to compete on par with traditional sources of energy in some advanced and middle income markets. However, key commercial, financial, counterparty, policy and regulatory risks remain to some degree in most CIF countries. Most high-impact projects in infrastructure depend upon government commitments for extended periods of time, sometimes for decades in the form of off-taker agreements, regulatory enforceability or government contributions under IPP/PPP type structures. These risks (and investors' assessment of such risks) significantly reduce

[8] WEF - Risk Mitigation Instruments in Infrastructure: Gap Assessment survey indicates financial risk mitigation tools are key to bridge the emerging markets' $1 trillion infrastructure gap

[9] Mapping the World Bank Group Risk Mitigation Instruments for Climate Change, Climate Policy Initiative, September 2013. report

[10] SE4ALL Report (http://www.se4all.org/wp-content/uploads/2014/12/SE4All-Advisory-Board-Finance-Committee-Report_04072015.pdf)

[11] "The role of the Climate Investment Funds in meeting investment needs." Climate Policy Initiative, June 2016. http://climatepolicyinitiative.org/wp-content/uploads/2016/06/The-role-of-the-Climate-Investment-Funds-in-meeting-investment-needs.pdf

the availability of long term financing and increase the cost of capital (both the margins on debt and returns required by investors on equity) for a project, thereby undermining gains on the capital cost side of clean technologies. If these risks can be mitigated with the use of targeted CTF risk mitigation instruments, then additional capital can be mobilized more effectively to clean technology projects.

97. *Additional Risks in Frontier Clean Technologies:* Besides the above-listed risks, new and frontier clean technologies face additional challenges such as inability to obtain long term technology warranties, limited performance track record and higher operational and maintenance costs, among others. For example, for technologies such as utility battery storage (for peaking needs and voltage regulation), solar hybrid systems, and thermal storage, especially in emerging markets, the lack of performance track record inhibits risk sharing by lenders and investors. In CIF countries, tailored risk mitigation can also play an important role in extending technology warranties, addressing poor performance and the associated increase in costs. Such targeted risk mitigation could alleviate concerns of investors and lenders and help improve deployment of emerging technologies, facilitate market penetration and build performance track record; and in turn enable greater production, lower costs and help bring frontier technologies up the experience curves and down the cost curves.

98. *Role of Risk Mitigation Instruments:* Guarantees are a type of proven risk mitigation instruments that effectively leverages public and development finance[12]. Guarantees can be flexibly designed to allow risks to be more targeted, and resources used more efficiently, only covering those risks perceived to be barriers to implementation. For example, a first loss guarantee can provide comfort to risk-averse banks and other financial entities to invest longer-term in new technology or investment areas. To avoid moral hazard and to follow principles of risk sharing, guarantees typically provide partial coverage against political, legal, institutional, creditworthiness, financing and other investment risks. By mitigating such risks, guarantees could incentivize investors and lenders to mobilize additional capital into projects that otherwise would not have happened. Besides the advantage of capital mobilization, the role of guarantees also extend to create a commercial market discipline, support long term sustainability of projects and build an investment track record such that future projects are able to attract commercial financing with minimum or no need for concessional financing. The key element to mobilizing private capital with risk mitigation guarantees is less so the magnitude of capital, but the risk bearing nature of the capital, i.e., de-risking projects with risk-mitigation tools is how to unlock investment flows for a sector or a country, not

[12] The World Bank's own portfolio of over $ 5billion in guarantees has leveraged more than 8 times that amount in total capital mobilized.

just a project. In other words, *guarantees have an additional role of creating a commercial and operational discipline for future projects,*.

99. *Additionality:* Currently there is a lack of dedicated risk mitigation facilities for clean technology projects at a scale sufficient to address the Paris Accord challenge. The RMF can help address the lack of similar dedicated facilities available for CIF countries with the ability to provide risk mitigation at concessional pricing to crowd-in additional capital. RMF products would help enhance credit quality, bankability and affordability of new projects to help deploy clean technologies at scale for renewable energy investments. While MDBs currently offer risk mitigation products, they are sometimes constrained by factors such as the availability of concessional resources (often programmed well in advance), limits on country level exposures, the requirement for government counter-indemnity (a contingent liability for governments, especially those countries operating in a heavily constrained fiscal environment[13]) and competing needs for important development priorities of the recipient countries. The RMF provides an opportunity to test out the development and deployment of risk mitigation instruments to unlock private capital flows specifically for clean technologies, analogous to recent developments to more broadly deploy dedicated and ring-fenced IDA and other MDBs equivalent resources, especially in low income and fragile and conflict affected states.[14]

100. *Complementarity with MDB/MIGA Products:* The CTF-RMF would complement MDB (including MIGA and multilateral guarantee agencies) risk mitigation products. The following table provides a broad comparison of MDB and the proposed CTF-RMF.

[13] A recent example of such initiatives is the proposal to utilize ring fenced IDA resources to promote the development and deployment of risk mitigation instruments to unlock private capital flows, especially in low income and fragile and conflict affected states. (https://ida.worldbank.org/sites/default/files/images/ifc-miga-private-sector-window-ida18.pdf)

14 https://ida.worldbank.org/sites/default/files/images/ifc-miga-private-sector-window-ida18.pdf

Table 2: High Level Comparison of MDB and CTF-RMF Guarantees

MDB Guarantees	CTF-RMF Guarantees
Broader support for economic and social programs in member countries	Targeted for clean technology projects in CIF countries
Included within country exposure limits and therefore spread between various sector programs under a country partnership framework	Not included within country exposure levels and therefore provide an additional capital source for climate friendly projects
Risks covered include, political, institutional, legal/contractual and creditworthiness of public sector undertakings and contractual obligations.	Risks covered include technology, economic performance, regulatory, resource intermittence, commercial, counterparty creditworthiness and financial risks.
MDB guarantees typically require counter guarantees from the member countries	No requirement for sovereign government indemnity (subject to MDB policies)
Follows MDBs approval processes based on Country Partnership Framework.	Follows TFC and MDB approval based on agreed CIF/CTF Programs

101. *RMF Demand:* Based on several consultations held a strong demand for the use of RMF products across CIF countries is expected at national and sub-national space (including Colombia, Mexico, India, Philippines, Egypt, South Africa, and Nigeria). Additional demand is likely to be identified and quantified in more detail once the facility is discussed in more detail with governments and project sponsors. It should be noted that the RMF has been designed to operate in a phased and flexible manner – providing targeted support to find market-based solutions, in combination with other MDB instruments to meet continued demand.

6.1 Structure

102. The RMF would broadly follow the existing CTF legal and governance structures, with the addition of a new function called *'Risk Exposure Management Function'* (as explained below). Similar to that of CTF 1.0, MDBs, as the implementing entities, would issue RMF guarantees to mitigate key risks in clean technology projects. Only partial coverage is proposed to be offered to maximize risk sharing, make effective use of scarce resources and incentivize lenders and investors to manage the risks without any moral hazard. International credit rating agencies would rate the portfolio of CTF 1.0 to give assurance to guarantee clients.

103. Consistent with the existing CTF product features, RMF would provide loan guarantees (i.e., mitigating risks to commercial lenders as beneficiaries), payment guarantees and contingent finance products (i.e., mitigating risks to project implementing entities as beneficiaries) for public sector operations. For private sector operations, originating MDBs would design bespoke guarantees, following the CTF Private Sector Financing Products and Guidelines and those piloted under the CTF Dedicated Private Sector Program.

104. *RMF Products:* The RMF would offer both non-accelerable and accelerable[15] guarantee products – such as loan guarantee, payment guarantee and contingent finance, to help enhance credit quality, bankability and affordability of new projects and could be targeted to address a range of risks in order to deploy clean technologies. RMF would provide flexibility for MDBs to provide relevant local currency coverage coverage to their RMF guarantees. MDBs, as issuers of the RMF guarantee, would propose the equivalent USD amount (including a proposed buffer amount) in their proposal to the TFC. The Trustee would, depending on the fund transfer process explained below, transfer the requested amount in USD to the MDBs. In turn the MDBs can convert the funds into relevant local currency, based on the liquidity needs of the guarantee coverage. The beneficiaries of RMF loan guarantees would be commercial lenders, infrastructure debt funds, institutional investors and other long term debt providers that provide financing to clean technology projects. The beneficiaries of RMF payment guarantees would be project entities and SPVs that enters into contractual arrangement (PPPs, IPPs, etc.) with public sector entities for clean technology projects. Loan guarantees cover the loss on account of debt service default for debt providers. Payment guarantees cover the loss on account of Government payment default or a regulatory risk (Feed-in-Tariff). The provision of both products would provide maximum flexibility and confirm the participation and usage of RMF by all the MDBs. As reflows continue to accumulate, other risk mitigation products could be issued, expanding the versatility of the RMF instrument and its offered products to meet evolving market demand. The exact amount and use of each product would be based on market demand and guarantee policy requirements (if applicable) of the MDBs.

- Accelerable Guarantee Products: Accelerable products (payment guarantees, loan guarantees and contingent finance) would be fully funded with cash transfer to MDBs in 2-3 pre-agreed milestones prior to the execution of guarantee agreements by MDBs. Since guarantee commitments would be fully funded without any reflow risks passed to the MDBs or the guarantee beneficiaries, the RMF operations would broadly follow that of existing CTF operations. In other words, the amount needed at any period by MDBs to cover necessary guarantee payouts would always be

[15] These terms refers to the ability of a guaranteed lender to claim for full payment (accelerable) of the guaranteed amount, not merely the debt service payment that has been missed (non-accelerable). See the discussion below.

available. Any excess funds returned by MDBs would be used by the RMF to support new guarantees.

- Non-Accelerable Guarantee Products: The funding for non-accelerable RMF guarantee products would be notionally allocated after the TFC approval of the project. However, non-accelerable RMF guarantees would be fully funded through expected reflows for each period of risk exposure. Any payouts under non-accelerable products would be in accordance with the scheduled payout limit for the underlying guaranteed financing in each payment period (e.g., amortization profile of debt service in Loan Agreement) for that financing, in contrast to making an accelerated lump sum payout of the entire guaranteed debt balance at the time of a guarantee call, as would be the case in an accelerable guarantee. To accommodate for volatilities in legacy reflows, the RMF, through the CTF Trustee, would also hold a total risk reserve of [20-25%] of a proportion (to be determined based on the proportion of non-accelerable products) of the CTF Trust Fund in a separate sub-account for non-accelerable products. In addition, a number of measures designed for prudent risk management would align cash from expected reflows in the RMF Sub-Account with exposure under RMF guarantees. RMF guarantee agreements would also include legal provisions to pass reflow risks to ultimate guarantee beneficiaries, thereby limiting any excess financial liability to the CTF or MDBs.

6.2 Key issues

105. *Risk Exposure Management Function*: As mentioned above, the RMF has been proposed as a potential pilot, which, if proven effective, would be offered as one of the instruments under CTF 2.0. Assuming its inclusion as one of the instruments being offered in a *post-pilot phase*, it would require a dynamic, multi-disciplinary advisory function, integrated into the CIF enterprise risk management framework, that would track portfolio reflow information, calculate capacity for expected commitments and advise the TFC in its decision making role. The RMF will require efficient and prudential management of risk exposures to avoid any adverse impact on the CTF and the MDBs. This includes a conservative level of internal credit enhancement or risk reserve at [20-25] %, prudent issuance of guarantees at 1:1[16] capital requirement, a competent risk exposure management team and careful design and risk management by MDBs of RMF guarantee operations. The selection of the appropriate body (as Risk Exposure Manager) to provide this function would be based on guidance from TFC and other stakeholders, and its structure would be further elaborated based on consultations with stakeholders. The risk exposure management function would be further elaborated based on consultations with stakeholders.

[16] Consistent with the existing CTF guarantee products.

106. *Concessional Pricing*: The pricing for RMF products would depend on the type of risks covered, nature of the project (technology, sector) and structure of guarantee (mix of non-accelerable and accelerable guarantees). Due to the nature of the commercial risk mitigated by the RMF, pricing is expected to be in the range of [50] to [75] bps[17]. Final pricing details will be confirmed for CTF Trust Fund Committee approval after detailed analysis and discussions with the MDBs.

107. *Trustee Commitments to MDBs:* As the Trustee would not be able to provide an 'unqualified commitment' to MDBs for all types of guarantees envisioned, a procedure and systems for making qualified and unqualified commitments to MDBs would need to be established that is satisfactory to the Trustee and MDBs. The role of the Risk Exposure Manager will be critical to this process, as well as to risk and financial reporting.

6.3 Implementation Arrangements

Governance

108. The current responsibilities of the CTF Trust Fund Committee; MDB Committee and the CIF Administrative Unit would remain in place with the following additions:

- The Trust Fund Committee would approve the Enterprise Risk Management framework, through which the Risk Exposure Management Function[18] (i.e., appoint a Risk Exposure Manager) described above is established.
- The MDB Committee would provide the necessary inputs for pipeline management based on the availability of reflows in a given period. The MDB Committee would agree on a set of criteria (e.g., project impact, financial innovation, project readiness, cooperation with regional development banks) to prioritize the RMF project pipeline in such a way that all MDBSs will have equitable access to RMF capacity through the MDB-managed pipeline. In the event that demand for RMF operations exceeds available resources, the MDB Committee would come to a consensus on those projects to have priority access to available funds. Joint processing of RMF operations by two or more MDBs would be prioritized to ensure sharing of knowledge.

109. The Trustee would establish a new sub-account (CTF 2.0-RMF) within the existing CTF trust fund to set aside the expected CTF reflows for RMF. The CIF Administrative Unit and

[17] To be finalized based on expected demand and mix of accelerable and non-accelerable products. It is expected that the non-accelerable products would be on the lower end of pricing range to accommodate the expected reflow risk that would be passed to the beneficiaries.

18 The exact nature of the composition, functions and implementation of Risk Exposure Management Function would be further determined by the TFC in consultation with the MDBs and the CIF AU.

each MDB would continue to provide regular progress information to the Trustee. As is current practice in the CTF, the CIF Administrative Unit would coordinate with the MDB Committee and provide operational reporting, including on enterprise risk, while the Trustee would provide financial reporting.

Contribution Agreements, Financial Procedures Agreements and Governance documents

110. While the overall existing CTF legal and governance structure would be followed, certain modifications would be required to implement the RMF as proposed:

- *Financial Procedures Agreements (FPAs):* FPAs between the MDBs and the Trustee would need to be amended to reflect the addition of the RMF sub-account. The amended FPAs would set out processes for fund transfer for RMF operations (allocate upon project approval for Non-Accelerable guarantees and actual for Accelerable guarantees based on certain agreed milestones to ensure sufficient cash-in-hand or cash-on-call in the event of a RMF guarantee call[19]). Similarly, the FPAs would also need to be amended to reflect periodic return of funds from MDBs to the Trustee on excess funds, from those periods when guarantees were not called and MDBs hold excess funds.
- *Operations and Risk Management Guidelines:* Modifications would be required to reflect the basis for RMF operations, processes, and criteria for risk management controls**.** These elements would be integrated into the ERM framework.

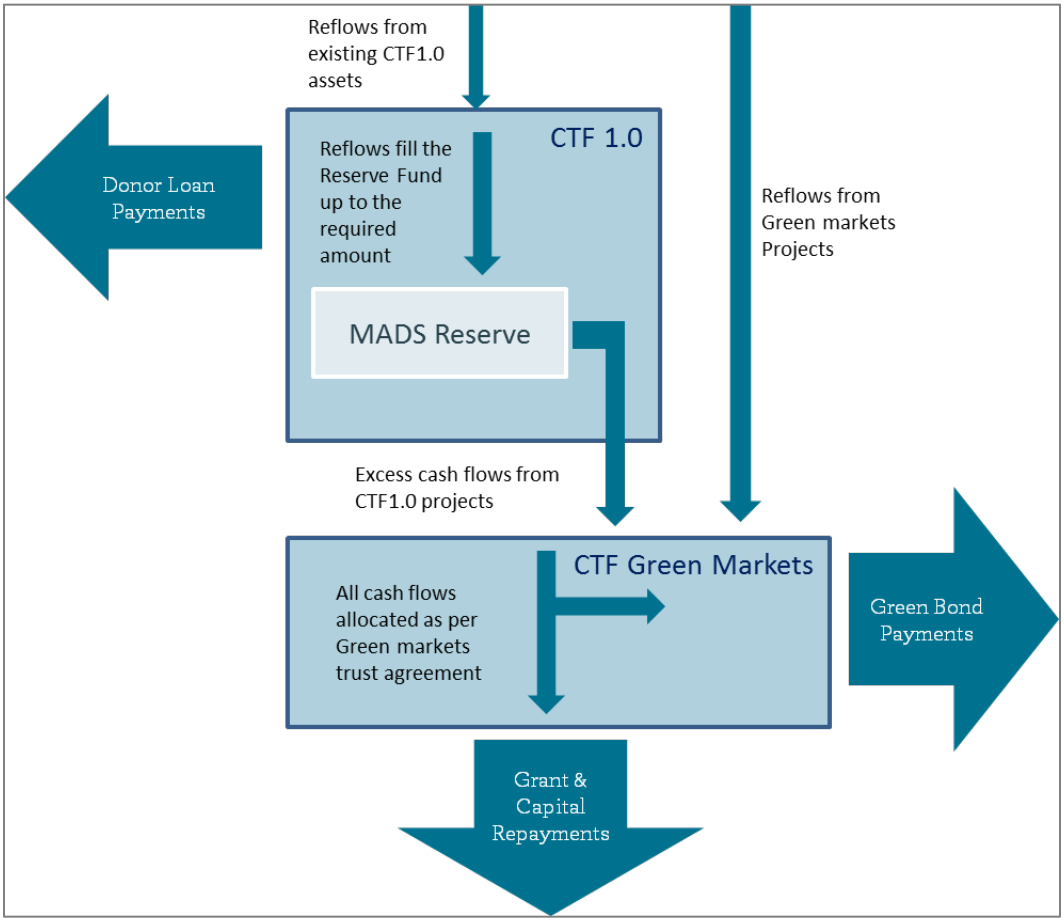
Leverage and mobilization potential

111. Based on a preliminary assessment, the "upstream" leverage that Risk Mitigation Facility could achieve is expected to be 1.3 times (assuming re-cycle of funds resulting from uncalled guarantees), while the "downstream" mobilization (co-financing in CTF lending) for new CTF projects is expected to be 1:7.4.

19 Amended FPAs would also provide for expected transfers from the RMF of maximum exposure under outstanding Non-Accelerable RMF guarantees in a given period. If a call on Non-Accelerable guarantee occurred during that period, the Trustee would then transfer the necessary funds from the RMF Sub-Account to that MDB.

Annex 1: CTF Green Markets

1. a. Illustrative structure



1. b. Stress testing scenarios

112. Two stress test scenarios were conducted for the Green Markets proposal, one linked to a systemic shock to a specific country and the other being a shorter maturity bond issuance. As for the shock case, it was assumed that country X with about USD 500million of the legacy CTF loan would suffer a shock leading to a full default on its repayment obligations in FY20 and the CTF net assets would decrease to USD 3.84 billion from USD 4.3billion (11% decrease). The bond issuance amount would be lowered accordingly by same proportion in the Scenario 2 with contingent liquidity.

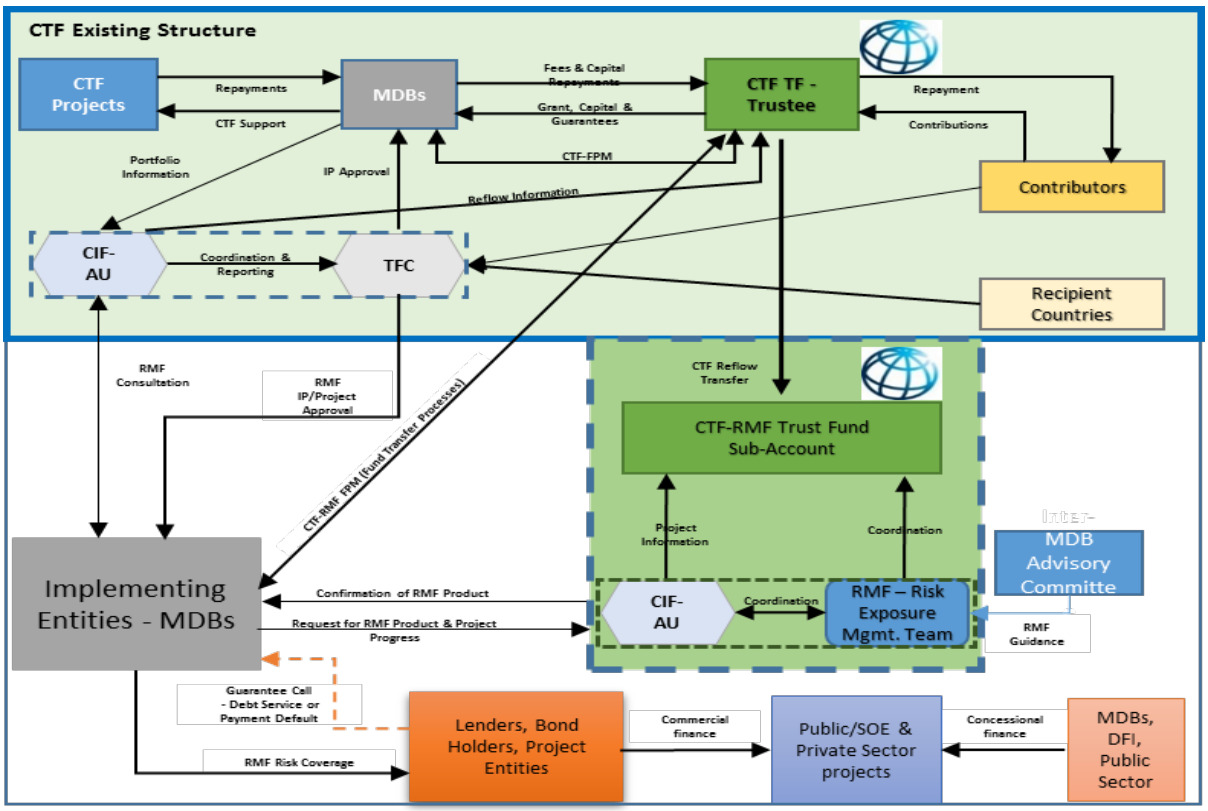
- Initial cycle of bond issuance (FY18-22) would decrease from USD 3.23B to USD 2.86B
    - Initially issue $645million/year until FY20, and then after the full default lowered the net asset base, the issuance amount would be adjusted to $460millin/year for FY21 and FY22
- Total bond issuance amount by FY30 would decrease from USD 6.42 B to USD 5.71B
- Total bond issuance amount by FY45 would decrease from USD 9.26 B to USD 8.27B

113. As for the shorter maturity bond stress case, it was assumed that CTF could only issue 5-year maturity bonds, instead of 7-year maturity bonds as in the baseline case (interest rate assumptions is the same in both cases; 3% p.a.). This 30% shorter maturity would lower the bond issuance amount until FY30 by a similar extent given that the cash flow requirements would be tighter. On the other hand, due to the slower equity depletion than in the baseline case given lower bond issuance amounts in the first three cycles and smaller interest cost burden associated with the shorter maturity of the bonds, CTF could issue at slightly higher levels by FY45 in this shorter maturity case.

- Initial cycle of bond issuance (FY18-22) would decrease from USD 3.23B to USD 2.30B
- Total bond issuance amount by FY30 would decrease from USD 6.42B to USD 4.49B
- Total bond issuance amount by FY45 would increase from USD 9.26B to USD 9.65B

Annex 2: Risk Mitigation Facility

2. a. Illustrative structure



2. b. RMF Products and Proposed Operational Steps

114. As described before, the RMF would follow broadly the products and Operational Steps as outlined below.