

**PILOT AUCTION FACILITY FOR METHANE AND CLIMATE CHANGE  
MITIGATION (PAF)**

**GCCCF – Climate Finance and Carbon**

## Abbreviations and Acronyms

AMC	Advance Market Commitment
BETF	Bank-executed Trust Fund
CAR	Climate Action Reserve
CCAC	Climate and Clean Air Coalition
CDM	Clean Development Mechanism
CIF	Climate Investment Fund
CO <sub>2</sub>	Carbon dioxide
DOE	Designated Operational Entity
ERPA	Emission Reduction Purchase Agreement
ERs	Emission Reduction
FIF	Financial Intermediary Fund
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	Greenhouse gas
GPE	Global Partnership for Education
IBRD	International Bank for Reconstruction and Development
MRV	Monitoring, Reporting and Verification
PAF	Pilot Auction Facility for Methane and Climate Change Mitigation
PC	Participants' Committee
RBF	Results-Based Finance
SLCPs	Short-lived Climate Pollutants
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
VCS	Verified Carbon Standard
WBG	World Bank Group

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## I. EXECUTIVE SUMMARY

- 1. Fighting against climate change requires larger volumes of finance than the international community has mobilized so far.** While global public and private climate finance flows today are estimated at around \$359 billion, this is far below even the most conservative estimates of investment needs to address climate change.<sup>1</sup> In the effort to close the gap and provide additional funds, public money is expected to play a key role to reduce risks and unlock private funds. Towards this end, developed countries have made an important commitment to provide US\$100 billion a year by 2020 for climate change activities in developing countries, which will be raised from a mix of public and private resources. Innovation is needed to maximize the impact of public resources in a context of significant fiscal pressures.
- 2. The Pilot Auction Facility for Methane and Climate Change Mitigation (PAF) is an innovative climate finance mechanism that pioneers the use of auctions to allocate scarce public resources for climate change mitigation in an efficient manner.** The PAF initiated from a report of the Methane Finance Study Group, an international group of experts convened by the Bank at the request of the G8. It aims at stimulating private sector investment in projects that reduce greenhouse gas emissions. By using the rules and procedures of existing carbon market standards, it will disburse its resources against independently verified emission reductions, making it a results-based payment mechanism. The PAF would initially target methane mitigation projects, but aims to pilot the innovative approach for other sectors by conducting additional auction rounds. At \$100 million in target capitalization, the PAF is designed as a pilot, and has significant potential for scaling up and replication, including through the Green Climate Fund.
- 3. The PAF will pilot the use of “put options” to guarantee a floor price on emission reductions (ERs) which meet specific eligibility criteria.** A put option gives its owner the right, but not the obligation, to sell eligible ERs at a pre-agreed price. This assured floor price provides projects with the financial incentive to continue to operate. Auctioning would ensure that the least-cost climate mitigation activities are selected (within the given eligibility criteria) thereby maximizing value for money for the facility’s Donors. The put options would be tradable, enabling holders to transfer ownership to maximize the likelihood that the pilot achieves its full potential to reduce emissions.
- 4. The PAF would deliver its put options using IBRD’s existing bond-issuance platform.** Winners of each auction round would purchase zero-coupon IBRD bonds at a price agreed to during the auction. By definition, the zero-coupon bond would not pay any interest. Neither would the bond pay a traditional principal amount. Instead, bond holders will receive the pre-agreed put option price if they deliver qualifying ERs. Payment obligations to bond holders would be supported by donor funds received by the PAF. This mechanism would deliver the financial equivalent of a put option and allow the PAF to benefit from the experience and market presence of the Bank as a bond issuer.
- 5. In relation to its pay-for-performance nature, the Bank would be taking donor payment risk.** A key feature of the PAF is that it disburses its resources only after ERs have been independently verified and delivered. Consequently, donors would be able to pay their contribution upon request from the Bank, before put options are exercised by their owners, rather than immediately upon signature of the

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<sup>1</sup> “The Green Investment Report”, World Economic Forum, 2013. “Investing in the Clean Trillion: Closing the Clean Energy Investment Gap”, CERES, 2014.

contribution agreement. This would, however, expose the Bank to donor payment risk to the extent that donor funds are not paid to the Bank in time for the PAF to meet its obligations.

6. **The Bank would act as Secretariat, Trustee, Auction Manager and Issuer for the PAF.** As Secretariat, the Bank would develop the operational arrangements for the PAF, including governance documents, convene donors in a Participants' Committee to decide on the parameters of the facility's auction rounds. As Trustee, the Bank would receive donor contributions and manage the investment and transfer of funds for the periodic redemption of the put options and the payment of fees to IBRD. As Auction Manager and Issuer, it would administer and execute the auction, issuance and redemption of the put options.

7. **The climate finance mechanism to be piloted by the PAF is innovative and promising with a strong potential for learning and replication.** The PAF would offer an opportunity for the Bank to leverage its expertise in carbon and climate finance, its bond issuance platform, and its expertise in trusteeship and financial management to support the international community's efforts to develop new ways to tackle the climate finance challenge. Management considers that risks with respect to the Bank's engagement in the PAF have been adequately identified and the proposed risk management measures are adequate.

8. **In light of the above, the Board's approval is sought to proceed with the Bank's proposed engagement in the PAF,** specifically on (a) the establishment of the PAF as a FIF with the Bank acting as Secretariat, Trustee, Auction Manager and Issuer, and (b) the Bank taking sovereign credit exposure for donors choosing to pay in arrears, on the basis of the principles described in paragraph 41 of this document.

## II. CONTEXT

9. **Mobilizing finance for climate action is a priority, and calls for innovation to deliver the volume of resources needed.** Climate change will affect all developing countries, and the poorest and most vulnerable will be hit the hardest. Without ambitious action we could experience a +2°C (+3.6°F) world in our lifetime and significant climate and development impacts are already being felt, notably with extreme weather events resulting in widespread human suffering and increasing economic damage across all regions. Global climate finance flows have plateaued at US\$359 billion in 2013, which is far below even the most conservative estimates of investment needs.<sup>2</sup> In the energy sector alone, the additional investment required consistent with a 2°C scenario is estimated to be \$910 billion per year during 2010-2050.<sup>3</sup> Significant efforts, ingenuity, innovation and capacity are needed to achieve the transformation needed to cover the additional costs and risks of climate action, shift investments to greener alternatives, and mobilize additional resources, mostly private, to fill the financing gap.<sup>4</sup> Public resources are constrained, emphasizing the need to maximize their impact, including by leveraging private investments. At the same time, the collapse of carbon prices in international carbon markets has removed a powerful incentive which encouraged the private sector to invest in clean technology projects.

10. **In 2012, at the request of the G8, the Bank convened an international group of experts to identify innovative pay-for-performance mechanisms that would incentivize investment in methane-mitigation projects.** The report of this Methane Finance Study Group<sup>5</sup> highlighted a proposal to achieve a “quick-win” through a methane abatement facility that would auction put options that guarantee a floor price on independently-verified emission reductions (ERs) that meet pre-specified eligibility criteria. The proposed Pilot Auction Facility for Methane and Climate Change Mitigation (PAF) derives from this recommendation.

11. **The PAF concept has since been presented and discussed in a number of international climate finance fora.** In particular, at the High Level meeting of the Climate and Clean Air Coalition (CCAC)<sup>6</sup> in Oslo on September 3, 2013, Ministers strongly supported the initiative and asked the Bank to “immediately launch a broad-based consultation to carry forward the (...) piloting of a global pay-for-performance fund to stimulate implementation of shovel-ready methane reducing projects.” Since then, the Bank has been actively working with a group of interested donors, private-sector and other stakeholders to refine the concept of the PAF and raise resources.

12. **Methane is a highly potent greenhouse gas, with a global warming potential 25 times that of carbon dioxide (CO<sub>2</sub>).**<sup>7</sup> Reducing methane also provides a range of local and global co-benefits, including improvement in local air quality (which will have a positive human health impact) and food security, by avoiding crop losses. Additionally, captured methane can be burned for cooking or electricity generation, contributing to increased access to clean energy. Commercial technologies that reduce methane emissions<sup>8</sup> are relatively inexpensive and came into widespread use as the carbon market developed and began to offer prices sufficient to catalyze investment in methane-reduction technologies.

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<sup>2</sup> <http://climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2013/>

<sup>3</sup> “Energy Technology Perspectives 2014”, International Energy Agency, 2014

<sup>4</sup> World Bank Group, October 2013. Financing for Development

<sup>5</sup> “Methane Finance Study Group Report, Using Pay-for-Performance Mechanism to Finance Methane Abatement”, Methane Finance Study Group. 2013. See <http://documents.worldbank.org/curated/en/2013/04/18114933/methane-finance-study-group-report-using-pay-for-performance-mechanisms-finance-methane-abatement>

<sup>6</sup> The Climate and Clean Air Coalition was formed in February 2012 by six countries and the United Nations Environment Programme to address short-lived climate pollutants. As of September 2013 the Coalition has 72 partners. The World Bank is an active member.

<sup>7</sup> Methane is a by-product of a range of industrial and agricultural processes, notably agricultural and human waste management, and fossil-fuel extraction (natural gas is approximately 90% methane).

<sup>8</sup> Through collection and flaring or commercial use, or by disposing of wastes in a manner that does not create methane.

But with the dramatic plunge in carbon prices in recent years, carbon revenues are now insufficient to make these projects viable. As a result, some 1,200 methane-reduction projects, which would be capable of reducing some 850 million tons CO<sub>2</sub>e until 2020,<sup>9</sup> have been identified in developing countries in 2012 as dormant or incomplete.<sup>10</sup> These “stranded” projects would be the initial target of the PAF and would allow it to disburse its resources and achieve results quickly.

**13. Designed as a pilot, the PAF’s target capitalization is \$100 million, with a strong potential for replication and quick scaling up.** The Bank is in advanced discussion with a first group of donors who are in the process of finalizing their decision-making processes. Other donors are also expressing interest and may join at a later stage. Donor contribution agreements are expected to be signed before the end of 2014, which would allow the PAF to conduct a first auction early in 2015. If successful, the PAF could be quickly scaled up to achieve larger impact, and its mechanism can be easily replicated in other sectors, where payments could be triggered by results measured in a variety of metrics, and not just exclusively Emission Reductions. The PAF would share its experience and lessons learned on auctioning and contracting widely to the climate finance community, including the GCF.

**14. The PAF builds on existing institutional architecture to create a cost-effective and efficient mechanism for funding climate mitigation.** It would apply the methodologies, procedures and processes developed under various carbon standards, most prominently the Kyoto Protocol’s flexibility mechanisms (specifically the Clean Development Mechanism (CDM)), including methodologies for calculating ERs, standards for project eligibility, and processes for monitoring, reporting and verification (MRV) of ERs (see Box 1: How Carbon Finance Works). It would rely on third-party environmental auditing companies with expertise and experience in verifying ERs from CDM projects. In addition, the PAF would deliver the put options using IBRD’s existing bond-issuance platform, issuing zero-coupon puttable bonds to the auction winners, backed by donor funding (or legally-binding funding commitments from sovereign donors).

**15. A broad set of countries would be eligible to access the PAF, maximizing cost-effectiveness.** Most of the stranded methane reducing projects which would be the focus of the early auctions are located in Brazil, China, India, Indonesia, Malaysia, Mexico and Thailand. Since project located in lower-income economies are fewer and on average need a higher price guarantee, the PAF also plans a dedicated auction that would facilitate the participation of projects located in these countries. The sectors most represented in terms of number of projects are wastewater treatment, landfill gas flaring, animal waste treatment and composting. The first auction run by the PAF is therefore expected to target this group of sectors. The facility would only have resources to fund a small sub-set of the more than 1,200 stranded projects.

**16. Country Ownership.** Developing country representatives in the Methane Study Group have shown strong interest for the facility, as have some developing country members of the CCAC, such as Mexico. In the Study Group, institutions with prior experience and interest in carbon finance, such as CAIXA in Brazil and the Landbank of Philippines, as well as representatives of project entities, such as Haztec in Brazil and Shanxi Jincheng Anthracite Mining Group Co. Ltd., have supported the group’s recommendation. Project entities and investors based in developing countries have expressed interest in the facility. The facility has been presented or discussed during all recent CCAC meetings and the CCAC would remain closely associated with the PAF, in particular through its Secretariat’s observing role in the PAF’s governance. The PAF does not foresee a direct role for developing country governments but the Bank plans to reach out to some key countries (those with the largest number of projects) in its efforts to

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<sup>9</sup> This is equivalent to the 2011 annual emissions of Canada (source: WRI Climate Analysis Indicator Tool 2.0)

<sup>10</sup> Methane Finance Study Group report



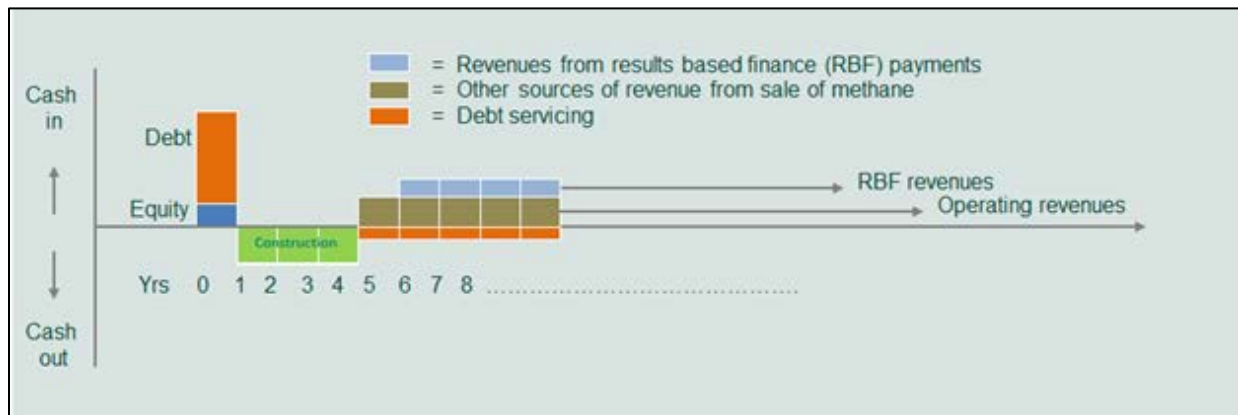
generate maximum participation in the auctions. Large developing countries could also become interested in replicating the PAF within their boundaries.

**Box 1: How Carbon Finance Works**

Carbon finance uses carbon offset standards to measure, verify and pay for quantities of GHG ERs. Existing offset standards have developed a number of methodologies for estimating the “baseline” emissions (emissions in the absence of the project), demonstrating that projects would not have happened without a carbon payment (so called “additionality test”), and estimating ERs from a variety of activities. Each methodology provides a means to monitor, report and verify ERs as a condition for issuance of carbon credits. The Clean Development Mechanism (CDM), established under the Kyoto Protocol of the UNFCCC, is the most widely used carbon offset standard and has over 50 methodologies focused on reducing methane emissions. The US-based offset programs, VCS (Verified Carbon Standard) and CAR (Climate Action Reserve), have developed several more methodologies.

The various carbon standards rely on third party independent auditors, also known as Designated Operational Entities (DOE) in the CDM. Auditors first confirm that a project is eligible to the standard (a phase known as “validation” and “registration”). Auditors also verify, typically on an annual basis, that the project has operated as planned at the registration step and has properly monitored its ERs.

The experience with carbon offset schemes shows that the incremental revenue from carbon credit sales is a powerful incentive to overcome both the financial and many of the non-financial barriers that these methane abatement projects are facing. The figure below shows how revenues from results-based financing schemes like carbon finance help secure debt and equity finance by providing an extra revenue stream (or in some cases, the only revenue stream) to project developers.



In the CDM alone, approximately 2,500 projects have already issued Certified Emission Reductions and approximately 400 these projects reduce methane. As of June 2014, the CDM has issued more than 135 Mt of tCO<sub>2</sub>e from these projects in methane related sectors.

### III. PILOT AUCTION FACILITY FOR METHANE AND CLIMATE CHANGE MITIGATION

#### A. Objectives and scope

17. **The key objective of the PAF is to demonstrate an innovative climate finance mechanism that uses auctions to allocate scarce public resources for climate change mitigation in the most efficient manner.** The PAF would incentivize private sector investment and action in climate change mitigation in developing countries by providing a medium-term guaranteed floor price on ERs. The guaranteed floor price would be obtained through the auctioning of tradable put options (delivered using IBRD bonds) backed by donor funding. The price signals provided by the put options would give investors the predictability they need on their GHG mitigation revenues to incentivize them to invest in and operate such projects. The PAF will use the rules and procedures of existing carbon standards to disburse its resources against independently verified ERs, making it a results-based payment mechanism. The combination of put options and auctions would catalyze private sector investment for climate change mitigation in a cost effective way.

- **Put options** provide a guaranteed floor price for ERs. The owner of the put option would have the right, but not the obligation, to sell to the facility the ERs achieved by the underlying projects at the pre-agreed strike price. Should carbon prices in international markets rise above the strike price, the put option owner would have the opportunity to benefit from this upside, an attractive feature for the private sector. In this case where market prices rise, the facility would have achieved its objective (stimulating private sector investment in mitigation) at little to no cost (the difference between the administrative and other overhead costs and the amount raised in the sale of the put options).
- **Auctioning** allows the facility to let private sector competition discover and select the least cost mitigation opportunities. Auctioning also provides information about project sponsors' costs and reduces or eliminates rents. In other words, by auctioning put options for ERs the facility is not only ensuring that its resources are only spent when ERs are achieved, but that it is achieving these results at the lowest possible cost.
- **Tradability** of the put option is an important feature for the facility to achieve its objectives. The winning bidders would purchase the put options and then exercise them over a period of time, as the underlying projects they invest in deliver their ERs. The possibility to sell the put options they have in hand, or purchase additional ones from other put option owners, gives them the flexibility to adjust to the projects' actual performance and maximize their profit. For the donors, this increases the total volume of ERs that the facility would incentivize and maximizes its likely climate change mitigation impact.

## Box 2: Step by Step description of the PAF



### B. Key Design Features and Roles of the Bank

18. Under the PAF, the Bank would: (a) receive and administer donor funds in a financial intermediary fund; (b) administer auctions of put options for eligible ERs; (c) issue a series of zero-coupon bonds which are supported by donor funds in the financial intermediary fund – the bonds act as a vehicle for delivering the put options; and (d) redeem these bonds from holders when holders deliver the qualifying ER credits.

#### Bank as Trustee of the PAF

19. **The Bank as Trustee would establish a new Financial Intermediary Fund (FIF) trust fund to support the PAF.** The use of the FIF structure is justified by the innovative financial mechanism that the PAF plans to pilot. Other trust-fund structures (i.e., Bank- or Recipient-executed Trust Funds) would not easily accommodate this (see Annex 2 for details on design options considered but rejected for the PAF). The Bank would receive, invest, commit, transfer and record donor funding for PAF-supported activities, provide financial controls over the resources while they are held in the trust fund, and arrange for financial reporting to donors. The PAF would accept contributions from governments and foundations. The program would be structured to allow for a series of tranches, which could be opened for contributions after the first tranche has achieved success in its auctions. The PAF's first tranche would have a minimum contribution of \$5 million, and a target total capitalization of \$100 million.

#### Bank as Auction Manager

20. **The Bank as Auction Manager would organize a series of 2 to 4 auctions.** The key parameters of each auction (e.g. the volume of financial resources allocated to that auction, the eligibility criteria for ERs, the option parameters, and the terms and conditions for the auction, issuance and redemption of the put options) would be announced in advance of each auction. Interested bidders would be required to identify themselves and would be subject to a due-diligence check by the Bank. The auction would be simple for bidders and conducted over an internet platform to enable worldwide participation.

21. **In each auction round, bidders would bid either on the put option strike price or on its premium.** The strike price is the price at which the option may be exercised and the premium is the

purchase price of the option (see Annex 1). If the put option's strike price is specified in the bidding documents, bidders would bid on the premium and the auction would be an ascending auction (winners are the highest bidders); in the other case the auction would be a reverse auction (winners are the lowest bidders). The difference between the strike price and the premium is the pollution-abatement cost of the projects bidders expect to finance. The bidding would reveal the lowest guaranteed floor price that the bidders need to secure eligible ERs.

### **Bank as Secretariat**

22. **The Bank as Secretariat of the PAF would develop the operational arrangements for the PAF.** Most importantly, the Secretariat would prepare for approval by donors the parameters of the facility's successive auction rounds, including the eligibility criteria for ERs. It would also report periodically to the donors and provide public information on PAF activities, benefits achieved, and lessons learned.

23. **The eligibility criteria would define, for each auction round, which types of ERs could be tendered with the put option.** They would be established in a transparent way that lends itself to an easy and objective assessment, to ensure that the auction attracts maximum participation. They would include parameters for the eligible ER accounting methodologies for the underlying projects, the ERs issuance or generation date, the eligible countries where the underlying projects can be located, and the environmental and social performance criteria of the underlying projects. The criteria would also specify the ER issuance or generation date to ensure that put option owners only redeem ERs for reductions that occurred after the auction date, in order to prevent bidders from making a quick profit by benefiting from today's very low prices for carbon credits. This would also be structured in order to provide an incentive for continuous operation of the underlying projects between the auction date and the exercise date of the put options.

24. **Delivery, transfer and retirement of ERs.** ERs delivered to the PAF would be transferred *pro rata* to the donors in the relevant tranche, or canceled on behalf of those donors that indicate that they do not want to receive the ERs. It is expected that most donors would retire the ERs. Donors receiving ERs may only use them for voluntary national goals on the prerequisite that double counting does not occur in accounting and reporting under multilateral climate agreements. In other words, donors have agreed not to use ERs as offsets for compliance with internationally agreed goals.

### **Bank as Issuer**

25. **The Bank would issue zero-coupon IBRD bonds as a vehicle to deliver the financial equivalent of put options.** Winners of each auction round would purchase these bonds at a price agreed to during the auction equal to the premium payable for the put option. By definition, the zero-coupon bond would not pay any interest. Nor would the bond pay a traditional principal amount. Instead, bond holders will receive the pre-agreed put option price if they deliver qualifying ERs. Payment obligations to bond holders are supported by donor funds received by the PAF. Using a bond as a vehicle for the put option also ensures the tradability of these instruments, which owners can easily and at very low cost sell and purchase through their custodian banks.

### C. Pay-for-Performance

26. **A key feature of the PAF is that it disburses its resources only after ERs have been independently verified.** Pay-for-performance mechanisms are attractive to donors who face scrutiny on achievements and seek clarity on the link between funding and results. Pay-for-performance mechanisms are drawing special interest in climate finance, and the Green Climate Fund (GCF) specifically mentions in its governing instrument the inclusion of “results-based financing approaches, including, in particular for incentivizing mitigation actions, payment for verified results, where appropriate.”<sup>11</sup> In accordance with this feature of the PAF, and subject to their own internal approval processes, arrangements and preference, donors are able to pay their contribution in arrears (upon request from the Trustee) rather than immediately upon signature of the contribution agreement. This would, however, expose the Bank to donor payment risk to the extent that donor funds are not paid to the Bank in time for the PAF to meet its obligations.

### D. PAF Governance

27. **Similar to other financial arrangements with multiple donors, it is proposed that a Participants’ Committee (PC) would oversee and advise on the PAF’s operations.** Convened and chaired by the Secretariat (which would not have voting rights), the PC would *approve* operational guidelines, ER eligibility criteria, annual work programs and indicative budgets, allocations to each round of auctions, auction rules, and reserve prices. It would *advise* on knowledge dissemination. It would be *informed* of other elements of operational design, as well as financial information (such as funding commitments, investment income and transfers). The PC would comprise representatives from Donors as decision making members, and the Trustee and a representative of the Climate and Clean Air Coalition Secretariat<sup>12</sup> would be invited as observers.

### E. Cost recovery

28. **The PAF would operate on the basis of full cost recovery for all the Bank’s roles.** The process for estimating and recovering all costs would be consistent with that followed by other FIFs (e.g., CIF, GEF, GPE, etc.). Specifically, Participants would be asked to approve an annual work plan and indicative budget. Upon approval of the work plan, the Trustee would commit the indicative budget. Subsequently, IBRD may request transfers by the Trustee. After actual costs are calculated at the end of each fiscal year, if there is an underrun, excess funds would be refunded to the Trust Fund; if there is a shortfall, IBRD would request a transfer of additional funds, notifying the Participants. To ensure that each IBRD unit would have its costs recovered over the life of the PAF, the estimate of all costs remaining would be set aside from the contributions from donors before the last auction. Financial and operational reporting to donors, including costs, would be on an annual basis. In FY2015, costs involved would include the costs of establishing the FIF, receiving and investing funds, accounting and reporting, and the legal, communications, systems and overhead costs associated with these activities, as well as the

<sup>11</sup> GCF Governing Instrument, paragraphs 40 and 55.

<sup>12</sup> Participation of the CCAC Secretariat (UNEP) will provide important linkages between the PAF and the CCAC Work Streams and CCAC Partners. The PAF, while not officially linked to the CCAC, has received support and design feedback from its members in its development phase.

operational costs (auction platform contracting, outreach to potential bidders, training for use of the auction platform, execution of the first auction).

## F. Rationale for Bank's Involvement

29. **There is strong alignment between the strategic focus of the PAF and the Bank's environment and climate change strategies.** The World Bank Group Strategy dated September 18, 2013, explains that “climate change threatens both future poverty reduction and the sustainability of past gains, achieved through decades of efforts,” and that “the WBG's global reach can help shape the international community's response to crisis and volatility and to complex threats like climate change, which require concerted action at all levels. In a world where the private sector is driving growth and capital flows, the WBG can help the public and private sector work together, using official development assistance to leverage private investment.” Innovation to facilitate private sector leverage is a key objective of the PAF. In addition, a key objective of the WBG's Environment Strategy 2012-2020<sup>13</sup> is “to work with the private sector firms to address market barriers to business practices and decisions that lead to profitable commercial outcomes while creating environmental or social value.” By providing a reliable price for eligible ERs, the PAF pursues this central objective of the Environment Strategy.

30. **The Bank has recently increased its focus on reducing short-lived climate pollutants (SLCPs) including methane.** In June 2012, the G8 requested the Bank to prepare a report on SLCPs, at the same time as the request for the methane finance study group. The Bank published the report “Integration of Short-Lived Climate Pollutants in World Bank Activities” in September 2013,<sup>14</sup> highlighting ways the Bank's investments are already reducing SLCPs, and showing the potential for additional cost-effective reductions. The Bank has joined the Climate and Clean Air Coalition to Reduce SLCPs (CCAC) and is an active partner. The PAF fully complements the recommendations of the Bank's report and the CCAC's objectives.

31. **The Bank has a long-standing commitment to pioneering new and innovative financing approaches.** Some innovative mechanisms aim at providing additional funds for development, in particular for financing global public goods such as climate change. The WBG is widely credited with helping catalyze the carbon market through its 13 carbon funds, which have mobilized \$3.3 billion of participant support to provide project financing and technical assistance to a broad range of mitigation projects, including numerous methane-reduction projects, as well as through its role as Monetization Agent for the Adaptation Fund. The WBG also has state-of-the-art expertise in structuring and issuing innovative financial instruments to deliver results-based financing for a range of development objectives, and in mobilizing concessional finance to support them (e.g., Advance Market Commitment for Pneumococcal Vaccine, International Financing Facility for Immunization, AgResults, etc.).

32. **Supporting the PAF would leverage the Bank's key strengths and capacities.** The Bank would draw on its unparalleled expertise in carbon finance, innovative concessional finance and bond issuance to deliver the PAF. By using a zero-coupon bond to deliver the put option, it would take advantage of the Bank's existing bond issuance platform and its exemptions and immunities as a bond issuer – dramatically reducing risk and cost compared to setting up another legal entity as an issuer.

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<sup>13</sup>“Toward a Green, Clean, and Resilient World for All”. A World Bank Group Environment Strategy 2012-2022. <http://www.worldbank.org/en/topic/environment/publication/environment-strategy-toward-clean-green-resilient-world>

<sup>14</sup> “Integration of Short-Lived Climate Pollutants in World Bank Activities”. [http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/08/19/000333037\\_20130819113818/Rendered/PDF/804810WP0G80Re00Box0379805B00OU0090.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/08/19/000333037_20130819113818/Rendered/PDF/804810WP0G80Re00Box0379805B00OU0090.pdf)

## G. Selectivity

33. **The PAF satisfies the principles of selectivity applicable to new engagement by the WBG in partnerships and FIFs** as enumerated in the *Management Framework for World Bank Partnership Programs and Financial Intermediary Funds: Strategic Engagement, Oversight and Management*:

- ***Evidence of the need for collective action and/or close coordination involving the Bank:*** The G8 sought out the Bank to lead on this initiative, evidencing the need for collective action by donors and private-sector investors, linked and convened by a trusted financial intermediary;
- ***Consistency with the strategic priorities and comparative advantages of the WBG:*** The Bank's engagement in the PAF is consistent with our strategic priorities and comparative advantages, as detailed in the previous section. However, the most critical aspect of the Bank's involvement in the PAF is that the Bank provides the central skills required to execute this innovative financial mechanism without the need to replicate, at tremendous cost and time efforts, the systems, processes and documentation already available within the Bank's donor fund management and bond issuance platforms.
- ***Avoiding fragmentation of the aid architecture:*** The PAF is explicitly designed as a pilot. If successful, the PAF could be scaled up with support from the Green Climate Fund (GCF) and/or other sources, thereby complementing, rather than competing with, other mechanisms.
- ***Benefiting our client countries and addressing their needs:*** The PAF is expected to support projects in a range of developing countries, providing results-based financing for projects reducing ERs.
- ***Partners sharing a commitment to common objectives:*** The PAF developed in response to a G8 request and has subsequently attracted a number of other partners including Donors as well as private-sector project sponsors, all of whom are driven by the common goal of mitigating climate change as cost-effectively and quickly as possible.

## IV. RISKS AND RISK MANAGEMENT

Developing the PAF would entail a range of strategic, operational, stakeholder/partnership, and financial risks described below along with proposed approaches for managing and mitigating them.

### A. Strategic Risks

34. **Fragmentation of the aid architecture.** One of the pillars of the Bank's framework for engaging in trust-funded activities is to ensure that such engagements do not result in unnecessary proliferation of new funding mechanisms. In this context, and as noted above, the proposed PAF would not duplicate other instruments, but rather pilot a distinct new instrument. As opposed to existing WBG carbon funds which provide a mix of technical assistance, knowledge sharing, and direct project support by purchasing the projects' ERs, the PAF would use financial instruments in the form of put options that can be redeemed with eligible ERs. Moreover, the proposed mechanism promotes liquidity and reduces

risk and transaction costs in the carbon markets by enabling the free transfer of financial instruments that facilitate project development and operation.

35. **Conflict of interest between the Bank as Secretariat and Auction Manager and the Bank as Issuer.** By design, the holders of the PAF financial instruments will only receive payment if they can deliver eligible ERs, with the eligibility criteria defined and communicated before the auction. To avoid any conflict of interest or risk of litigation, the Bank will not be involved in assessing the eligibility criteria of the ERs redeemed by the holders of the PAF financial instrument. The Secretariat will hire an independent third party “checker” to perform this assessment of whether the ERs delivered meet the eligibility criteria. This will require that the eligibility criteria for the ERs be written in a fully transparent and objective way.<sup>15</sup>

## B. Operational Risks

36. **The risk that the PAF’s PC develops its own set of policies and procedures that conflict with the internal policies and procedures of the Bank.** As the Bank would not have decision making power on the PC, it would need to find other ways to preserve its ability to apply its internal requirements to its various roles. To manage this risk, the legal framework for the PAF will provide that the Bank has the ability to consent to or reject any decision taken by the Participant's Committee that is relevant to, related to or which may have an impact on the Bank’s ability to carry out any of its roles under the PAF. This will ensure that in the unlikely event that the PC takes any decisions that are potentially inconsistent with Bank's Articles of Agreement or policies, or risk the Bank’s standing in the capital markets in any way, then these decisions would not be implemented.

37. **Environmental and social risks.** The financial innovation in the PAF is the use of “put options” to guarantee a floor price on ERs which meet specific eligibility criteria. The put option mechanism is not subject to the Bank's operational policies and procedures on investment project financing (IPF), because the activities do not constitute IPF under Operational Policy OP 10.00, which is comprised of Bank loans and guarantees. The mechanism does not provide financial and related operational support to specific projects. Accordingly, the Bank’s operational policies and procedures on IPF, including those related to environmental and social safeguards, would not apply to those underlying projects that generate ERs for which put options could be exercised. Nonetheless, given the potential environmental and socially sensitive nature of the underlying activity, even though the Bank is not involved in these underlying projects, they may present risks to the Bank's reputation. The PAF would, however, help identify these risks by establishing in each auction round, as necessary, a list of social and environmental criteria that the underlying projects must meet. Depending on the sector and technologies selected in each auction round, the social and environmental criteria will be derived from the World Bank Group’s Performance Standards, national laws or other relevant standards. They will be communicated to bidders ahead of the auction round to allow them to assess the eligibility of their projects. The holders of the put options would be required to demonstrate, through an audit conducted by an independent and appropriately accredited third-party auditor, that such social and environmental criteria are met before payments could be made at redemption. If the projects present low to zero environmental and social risks due to the sector and technologies involved, it may not be necessary to apply such social and environmental criteria. The identification of the project related risks and the determination of the approach to the environmental and social risks applicable to each auction round, including the approval of the social and environmental

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<sup>15</sup> Carbon Funds administered by the Bank will not be eligible to participate in the auctions or purchase the put options. This removes another potential source of conflict of interest.



criteria and its applicability, will be decided by the Chief Environmental and Social Standards Officer of the Bank.

38. **Risks associated with using auctions as a resource-allocation method.** These include:

- **Auction outcome does not reflect projects' funding needs.** It is possible that bidders receive rents in the scheme by exploiting an uncompetitive auction process (not enough participation). The facility could more generally face gaming in its auction. Expert auction consultants have been retained to provide best practice advice on the design and implementation of the auctions, which will be organized on an internet platform. The Bank would reserve the right to reject auction results should fraud be suspected.
- **Lack of demand.** The Bank could fail to adequately market the facility, or to set its scope too narrowly, which would limit the field of potential bidders, leading to a situation where the auction would fail to attract enough demand to establish competition. Likewise, potential bidders may not be sophisticated enough to participate. To mitigate this possibility the Bank would aggressively market the auction opportunity, conduct on-line training for bidders, and seek to define auction participation criteria that are broad enough to generate competition (i.e., sector and country criteria not too narrow);

### C. Partnership and Stakeholder Risk

39. **Relationship with the Green Climate Fund (GCF).** Stakeholders may be concerned that the PAF duplicates the efforts of the GCF. To address this concern and in response to the feedback received from prospective donors, the PAF is explicitly designed as a pilot, whose lessons learned would be broadly disseminated, and which could be scaled up under the GCF, once it is capitalized and in a position to start disbursing its resources.

40. **Focus on non-CO<sub>2</sub>.** There may be views that the Bank is diverting attention from CO<sub>2</sub> actions by focusing on methane (and potentially other SLCPs). Indeed, while SLCP reduction could reduce the rate of warming in current decades and deliver significant local development benefits, immediate and substantial reductions of CO<sub>2</sub> and other long-lived GHGs are needed to avoid a 2°C warmer world. To mitigate these concerns, the Bank can reference the report “Integration of Short-Lived Climate Pollutants in World Bank Activities” noted above, which clearly articulates the complementary nature of these actions in supporting climate action.

### D. Financial Risk

41. **Sovereign credit exposure.** Given the pay-for-performance nature of the PAF, and given certain internal requirements of PAF's donors, there may be instances where the PAF will receive payments from donors periodically upon request from the Trustee and only after financial commitments have been made under the PAF. In particular, once the PAF financial instrument is issued, the Bank will be obliged to make payments to holders who have met the eligibility criteria of ERs. This would expose the Bank to the risk of non-payment by donors to the extent that the Bank has undertaken an obligation to pay under the PAF financial instrument prior to having received full and irrevocable payments from donors to fund such obligation to pay. To manage this risk, Management has developed a set of parameters which will provide the Bank with sufficient protection, consistent with its other risk management tools available

against this form of credit exposure. The parameters developed include the following key aspects: (a) only exposure to highly-rated sovereign donors would be permitted taking into account methodologies the Bank currently uses in management of similar risk; (b) donors within this category would be required to sign legally-binding and enforceable contracts to make payments upon the Bank's request, each of which will be supported, where appropriate, by external counsel legal opinions to the effect that such obligation to pay by the donor is indeed legal, valid, binding and enforceable; (c) these donor commitments would be denominated in USD; (d) the Bank as Trustee would call for the donor's share of funds well in advance of when the sums are actually required to meet payment obligations under the PAF financial instrument ; and (e) donors within this category would be required to pay a commitment fee on outstanding payments owed to the Bank, such fee to be amended from time to time by Senior Management depending on how other risk management tools available against this form of credit exposure are amended.

42. **Foreign-exchange risk.** The facility would face foreign exchange risk if it accepted funding commitments from donors in a currency different from its contracting currency (assumed to be USD). To eliminate this risk, donors paying in arrears would be required to pay in USD, and other donors would be required to prepay their share of any auction round in advance of any auction.

## V. RECOMMENDATIONS

43. **The climate finance mechanism that will be utilized by the PAF is innovative and provides a strong platform for learning and replication in other areas of climate change mitigation.** The PAF would offer an opportunity for the Bank to leverage its expertise in carbon and climate finance, its bond issuance platform, and its expertise in financial management to support the international community's efforts to develop new ways to tackle critical climate finance challenges. Management considers that any risks posed by the Bank's engagement in the PAF will be managed effectively within the PAF design and framework.

44. **In light of the above, the Board's approval is sought to proceed with the Bank's proposed engagement in the PAF,** specifically approval is sought for (a) the establishment of the PAF as a FIF with the Bank acting as Secretariat, Trustee, Auction Manager and Issuer, and (b) the sovereign credit exposure under the PAF on the basis of the parameters proposed in paragraph 41 above.

## Annex 1. Options and Bond Primer

An **option** is a financial contract<sup>16</sup> which gives the holder the right, but not the obligation, to buy or sell an *underlying asset* or instrument at a specified price (called the *strike or exercise price*), on a specified date or dates (the *exercise date(s)*). The issuer of the option is obligated to fulfill the transaction if the holder chooses to exercise it. The holder pays the issuer an option *premium* at the time of purchase. The vast majority of options are issued on an exchange and are *tradable*; however, there is a wide variety of options ranging from standardized to highly negotiated, which may be fully tradable or may be tradable only under certain conditions, or not at all.

The most common types of options are *put* and *call* options:

- **Put options** enable the holder to sell the underlying asset at the strike price. The holder would exercise the put if the strike price exceeds the market price on the exercise date(s). Put options provide the holder a guaranteed floor price for the underlying asset
- **Call options** enable the holder to purchase the underlying asset at the strike price, enabling the holder to lock in the price of inputs they will require, Airlines, for example, purchase call options on jet fuel to help cap their operating costs.

Options are used for two main purposes, *speculation* and *hedging*:

- Investors may use options to **speculate** on the future value of an asset without having to hold the asset itself. For example, a speculator expecting the value of an asset to increase might buy a call option, and plan to exercise it as the market price rises above the strike price.
- Investors may use options to **hedge**, or lock in, the price of an asset to mitigate the risk of price changes on assets that they expect to have or need in the future.
  - Hedging through *put* options on a company's outputs can be useful in securing financing, as the guaranteed floor price provides comfort to lenders that the borrower will be able to sell its outputs at a price sufficient to ensure that it can repay debt. Farmers, for example, buy puts on grain at the beginning of growing season, to be exercised at harvest time, to provide a guaranteed floor price.
  - Hedging through *call* options enables the holder to lock in the price of inputs they will require in the future. Airlines, for example, use call options on jet fuel to set a ceiling on fuel costs.

Options have four key parameters:

- **Strike (or exercise) price:** The contract price, set at issuance, at which the option may be exercised. For a put option, the seller is obligated to pay the buyer (option holder) the strike price if they tender the option on a contractual exercise date. For a call option, the option seller is obligated to sell the underlying for the strike price when tendered. The strike price is usually set so that it is "out of the money;" for a put option, this means the strike price is lower than the market price of the underlying asset.<sup>17</sup>
- **Exercise date(s):** The exercise date or dates specified in the contract, on which the option holder may tender the option. Options may be exercisable on a *particular* date (so-called "European")

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<sup>16</sup>Options are *financial derivatives*, i.e. they derive their value from the performance of an underlying asset, instrument or index.

<sup>17</sup> The PAF will sell "mispriced Puts" where the strike price is significantly higher than the market price for the asset at the time of issuance. This is by design and will enable donors to provide incentive to the private sector in the absence of an incentive from the "market". However, should market prices for ER assets recover, the PAF, or its successor, could auction put options that are not mispriced – providing a form of insurance to private developers to help them overcome price volatility risk.

options) or at *any date* up to and including the exercise date (“American” options), or for a hybrid of these (“Bermuda” and other styles of option).

- **Tradability:** The option contract may specify that the holder may sell the option and if so, under what conditions. Options are traded through clearing houses on regulated option exchanges, as well as over-the-counter under bilateral, customized contracts between a single buyer and seller, where one or both of which may be a dealer or market-maker. The standard contract on the Chicago Board Options Exchange, for example, provides for trading through a guaranteed clearing house. At the opposite extreme, option contracts negotiated between two parties (for example, for real estate transactions) may provide for limited or no trading. Typically, the option *seller* may not transfer its obligation to fulfill the contract.
- **Premium:** The price of the option, paid at settlement (either issuance or trade). The premium is usually not set forth in the contract, but is a function of the contractual provisions (strike prices, exercise date(s) and tradability) and market conditions. In the case of the PAF however, the premium will be determined by the auction of the put options.

A **bond** is a debt investment in which an investor loans money to an entity (corporate or governmental) that borrows the funds for a defined period of time at a fixed interest rate. The indebted entity (issuer) issues a bond that states the interest rate (coupon) that will be paid and when the loaned funds (bond principal) are to be returned (maturity date). The coupons are usually paid every six months.

A **zero-coupon bond** is a specific type of bond which doesn't pay interest (or coupons).

## Annex 2. Alternatives Considered and Reasons for Rejection

**The following options were considered but rejected for the establishment of the PAF:**

**New Carbon Fund.** The World Bank Group’s 10 Kyoto carbon funds provide direct support to ER projects and purchase ERs from them under long-term Emission Reduction Purchase Agreements (ERPAs) (see Box 2). They were established at an early stage of the carbon market when many of its rules were still under development and stakeholders lacked experience with the mechanism. But given the development and maturing of the carbon market over the past decade, project sponsors in the sectors targeted by the PAF now have access to the market infrastructure required to develop and register CDM projects without the Bank’s help. More fundamentally, the main objective of the PAF is not to directly support projects, but to incentivize them by providing a long-term price signal to project sponsors. This would in turn enable private sector investors to finance methane mitigation activities. The PAF is also designed to test a contracting instrument different from the one used in carbon funds (a put option as opposed to an ERPA), and the associated benefits of auctioning, optionality and tradability, which can’t be obtained in a traditional carbon fund. This is a substantially different approach than existing carbon funds, making it impractical to rely on an existing trust fund.

**Box 2: World Bank Group Carbon Funds and Facilities.** The Bank created the first carbon fund and today is trustee of 15 carbon initiatives. The first 10 were focused on the first Commitment Period of the Kyoto Protocol. These so-called “Kyoto” funds, capitalized at \$2.3 billion, have supported more than 140 projects in 50+ countries, which have reduced 187 million tons CO<sub>2</sub>e of greenhouse-gas emissions (the equivalent of the annual emissions of the Netherlands). These funds helped project sponsors develop and test CDM methodologies for a wide range of technologies and applications. The funds also provided project support, including helping project sponsors apply to the UNFCCC for CDM project registration, and providing technical assistance and other up-front project financing. These funds have been instrumental in catalyzing the carbon market.

Thanks in no small part to these efforts, with substantial Donor support and involvement, the global carbon market now has a highly developed regulatory and institutional infrastructure for CDM under the UNFCCC, supported by a wide a range of companies involved in monitoring, reporting and verification of ERs in accordance with UNFCCC-approved methodologies.

**Incorporation into an existing climate finance mechanism.** Similarly, the PAF’s unique operational procedure and internal set-up makes it impractical to be established within existing climate finance mechanisms, notably the Climate Investment Funds or the Global Environment Facility (GEF), which have their own specific objectives, funding modalities and governance arrangements.

**Selling Put Options Directly to Auction Winners.** An alternative to using the IBRD’s bond issuance platform as a vehicle for the put options would be to establish a trust fund that would write and sell put options directly to the auction winners on behalf of donors. This would require bespoke development of option contracts, for which we would need to engage outside securities counsel, adding to the cost, time and risk associated with the development of a novel mechanism. In addition, a platform for transacting sales, trading and redemption of the put options would need to be developed or contracted (e.g. through existing market-makers). Building such a platform would also involve additional cost and time; even so, relying on an untested exchange platform could undermine the tradability—and hence the value—of the put options. These arrangements could potentially encounter other legal capacity and authority issues about whether a trust fund could issue these types of securities. In contrast, using the IBRD’s existing bond-issuance platform as the vehicle for delivering the put options eliminates this entire set of concerns because, under its general borrowing authorization, IBRD has the necessary legal authority to issue

securities, and has access to the financial network of agents, clearing systems and custodian banks that enable them to be transacted at low cost.

**New Bank-executed Trust Fund.** The task team considered to structure the PAF as a Bank-executed Trust Fund BETF. Donors would have contributed into a BETF under standardized Administration Agreements. Funds in the BETF would have been committed in advance of bond issuances, and transferred from the BETF to the dedicated IBRD account to pay for bond redemptions. It was unclear whether the proposed IBRD bond issuance could have been classified as a Bank executed activity under OP/BP 14.40. In addition, the form of standardized Administration Agreements under BETFs would need to be revised to reflect the strong legally binding and enforceable commitments needed from PAF donors who opt to make contribution payments on redemption of the bonds. Finally, a BETF may not provide sufficient “ring-fencing” of trust fund assets off the IBRD balance sheet.

**Creation of a FIF without a trust fund.** The creation of a FIF, similar to the Advance Market Commitment (AMC), where all the assets and liabilities would be placed directly on IBRD’s balance sheet, was also considered. It was determined that this arrangement does not adequately ring-fence the donor assets, and moreover that a FIF trust fund provides additional automated business processes as well as internal control frameworks that facilitate auditing and financial control.

### Annex 3: Detailed financial structure

Fig 1.a – Provisional structure (issuance)

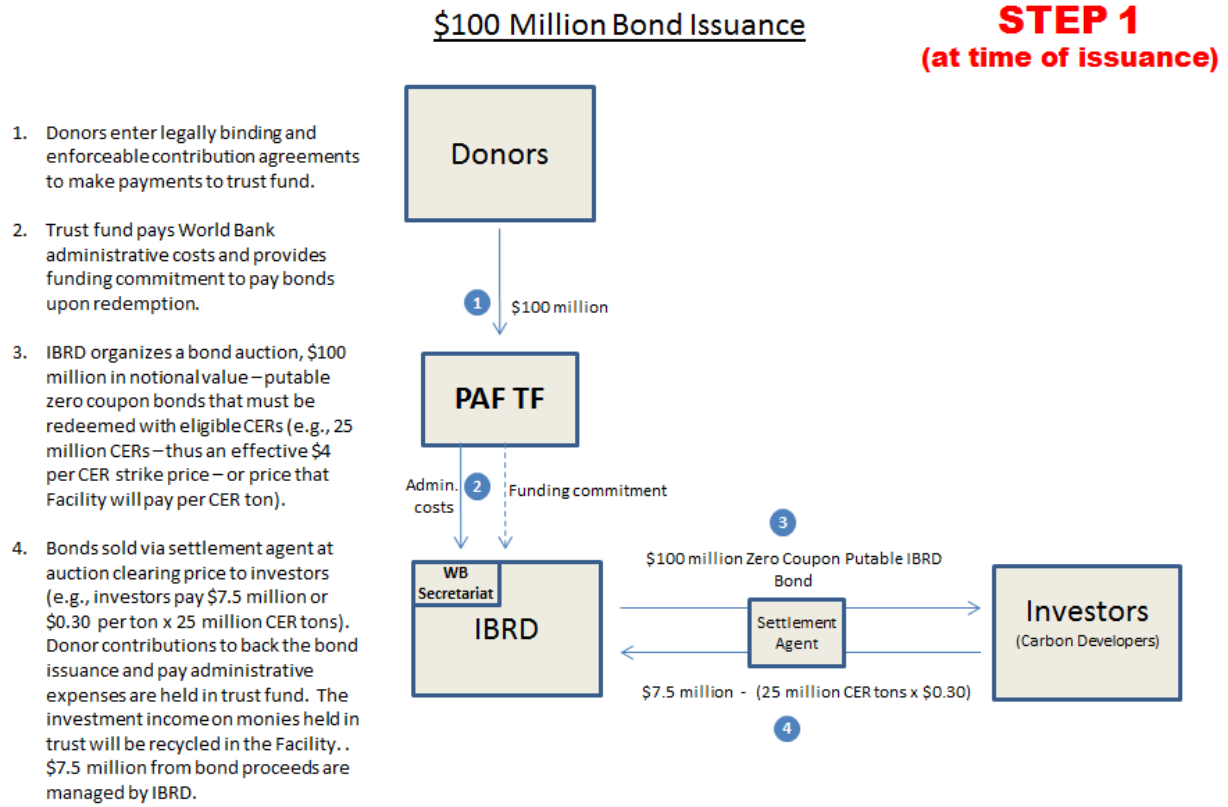


Fig 1.b Provisional structure (Redemption)

