

## Managing Permanence in the BioCarbon Fund

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*This note summarizes the way the BioCarbon Fund proposes to handle the risk of non-permanence, i.e. the risk that a carbon sink having delivered emission reductions may deteriorate or be deliberately depleted over the long term. The note describes the cost effective measures that would be taken at the portfolio and project levels. These measures integrate the CoP9 provisions on temporary crediting.*

### Introduction

Recognizing that carbon sequestration, or “sink”, assets are subject to the unique risk that the sink may deteriorate or be deliberately depleted over the long term through unsustainable harvest or poor management practices – termed here “non-permanence risk” – the World Bank, acting as Trustee of the BioCarbon Fund (BioCF), intends to manage the pool of the BioCF’s First Window assets to achieve “mitigation equivalence”.<sup>1</sup> To be more precise the Bank will use portfolio and project-level risk management tools to try and achieve a level of certainty in delivery and long-term availability of emission reductions achieved through carbon sequestration (land use, land-use change and forestry, LULUCF) across the BioCF portfolio. For compliance purposes these assets would thus be the equivalent of reductions achieved through mitigation activities, such as renewable energy and fuel-switching.

In the absence of a current healthy insurance market offering permanence risk insurance and an acceptable price, the burden of permanence risk management will fall to the Fund Manager to reduce to commercially acceptable levels, if not eliminate, permanence risk.

### Temporary Credit Regimes

At the ninth session of the Parties to the UNFCCC (CoP9) in December 2003, the negotiators agreed on a crediting system capable of dealing with the risk of non-permanence risk. The Parties ruled that carbon sequestration from CDM afforestation and reforestation projects could create credits for up to 60 years. Two specialized forms of credits (Certified Emission Reductions or CERs) from CDM sinks projects are allowed. In one form (temporary CERs or tCERs), the credit expires after 5 years but can be renewed if the seller retains the carbon sequestration. The other form of credits (long-term CERs or lCERs) are in practice very similar, but the agreement between the buyer

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<sup>1</sup> It is assumed in this note, but this assumption would have to be confirmed by the Participants in the Second Window, that the carbon assets generated by the Second Window, although equally subject to the risk of non-permanence, would not have to be covered by the same mitigation strategy given that these assets are not compatible with the rules of the Kyoto Protocol in the first place.

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and seller extends for a crediting period of either 30 years, or 20 years, twice renewable to a maximum of 60 years. Both tCERs and ICERs must be verified every 5 years. The BioCarbon Fund is equipped to deal with either of these options in CDM projects, but we will carry out a full financial and analysis to determine which is the best path to take. A combination of tCERs and ICERs depending on the nature of the project is also possible.

A strict reading of the CoP9 text is that both tCERs and ICERs must be replaced after a maximum of 60 years with permanent CERs. Unless the rule is modified in the future, which is not at all impossible once practical experience is gained, the replacement would impose an obligation on BioCarbon Fund Participants to replace a significant share of their certificates acquired through the BioCF at some point in the future, albeit very distant. Of course, the government of the country of the tCER and ICER buyers could equally decide to waive the obligation and take over the liability, judging that if a sink remains in place for 60 years it is as good as permanent. Still, to minimize the potential liability to Participants, which is termed the “replacement risk” hereafter, the Bank would take a number of measures at the level of the portfolio, as described below, to manage the risk that the BioCF Participants will have to replace the tCERs and ICERs acquired through the BioCarbon Fund.

### Portfolio-Level “Replacement Risk” Management

A number of risk mitigation measures adopted at the level of the First Window’s portfolio would ensure that all the certificates delivered by the BioCarbon Fund eventually become permanent and fully equivalent to mitigation ERs, thereby also fulfilling the requirements of the CoP9 draft decision on temporary crediting for afforestation and reforestation projects in the CDM and reducing or eliminating the replacement risk.

### Blending in Assets with no Permanence Risk

**Purchasing from biofuel assets:** Supporting a judicious mix of assets that are not-at-all subject to permanence risk from a compliance perspective is the most obvious first step. LULUCF activities that result in a carbon sink that can be managed as a source of energy such as wood fuels, oil and alcohol fuels – can generate mitigation Emission Reductions (ERs) that are eligible to the CDM through displacing fossil fuels, while at the same time creating a carbon sink (the stock of above- and below-ground biomass that is created as part of the biofuel production process). These mitigation ERs can be used to offset or eliminate permanence risk for the project’s sequestration ERs and provide a risk hedge to the portfolio. The BioCF portfolio could comprise up to 20% ERs from biofuel activities, reducing the overall proportion of portfolio assets subject to permanence risk. From these

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projects the BioCarbon Fund may be able to purchase only the mitigation ERs but have the comfort that the sequestration ERs are real.<sup>2</sup>

**Purchasing from small-scale biomass use for energy:** Small-scale projects that replace a “non-renewable source of biomass” are eligible to simplified rules under the CDM if they fall under either “thermal energy for user” or “renewable electricity generation for a grid”. An example would be the production of charcoal that is more ecologically sustainable than traditional charcoal production. Although the ERs generated by such projects emanate from the avoided loss of a biological carbon stock, they do not pertain to avoided deforestation and can instead benefit from simplified procedures (including a much simplified baseline) as small-scale energy projects.<sup>3</sup> The BioCF could allocate around 5% of its capital to such projects.

**Purchasing from JI projects backed by Host Country:** Opportunities will be developed to support a number of Kyoto-eligible sequestration projects in Central and Eastern Europe falling under Joint Implementation (JI). ERs generated by these projects from start-up to 2012 as well as those generated after 2013 would be matched one-for-one with Assigned Amount Units (AAUs) from the first commitment period (2008-2012). These methods are called “early crediting” and “late crediting”, respectively. The ERs generated during the period 2008-2012 would materialize in the delivery of Emission Reduction Units (ERUs) or Removal Units (RMUs). Both AAUs and ERUs/RMUs are attractive to the extent that they carry no permanence risk. Once they are delivered to the BioCF Participants, the risk that the sinks created in these projects may be lost or depleted at a date beyond 2012 would be borne by the Host Country Government, which would manage this risk within its quantified obligations cap (Assigned Amount). The Fund Manager would seek project opportunities in JI countries for up to 10% of the portfolio, depending on the opportunities that emerge.<sup>4</sup> Priority learning activities in LULUCF in JI countries could include reforestation of degraded lands and improved forest management.<sup>5</sup>

## Coverage or Replacement with Permanent Assets outside the BioCF

After biofuels, small sustainable biomass use and JI projects, the remainder of the BioCF’s First Window portfolio would be made up of CDM projects giving rise to

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<sup>2</sup> CoP9 ruled that a single afforestation/reforestation project cannot, at the same time, generate mitigation ERs at the same time as sequestration ERs.

<sup>3</sup> Please refer to <http://cdm.unfccc.int/pac/howto/SmallScalePA/ssclistmeth.pdf> for details.

<sup>4</sup> A possible hurdle is the coexistence of JI with obligations under the European Union’s GHG allowance trading scheme for those countries that join the EU in 2004 (e.g. Poland) or 2007 (e.g. Bulgaria and Romania).

<sup>5</sup> Opportunities are being explored in Bulgaria, Romania and Poland, where the World Bank already has Host Country Agreements in place, which facilitate the transfer of AAUs and ERUs.

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tCERs/ICERs, which will be subject to replacement risk. The Bank proposes to mitigate this risk using the following instruments.

The Bank will request the Participants' guidance on the choice of instrument(s) and level of replacement risk coverage to be provided. To simplify delivery of this risk coverage, the Bank will request that the Participants provide their guidance as a group within one year or so of the start of operations.

**Forward purchase of mitigation ERs:** Various climate change mitigation projects have been proposed to the World Bank's Carbon Finance Business that could supply mitigation ERs beyond 2012. However, the carbon funds administered by the World Bank have generally not been willing to commit to purchasing these post-2012 ERs.<sup>6</sup> The BioCarbon Fund has the right to buy options to purchase mitigation ERs from projects supported by other carbon funds it manages so long as this is agreed with the Participants in those funds.<sup>7</sup> There is a sharp discount on ERs delivered beyond 2013 given the uncertainty about the second commitment period targets. This uncertainty is likely to prevail into 2006, so that the purchase of ERs beyond 2012 in high-quality mitigation projects may prove to be a cost-effective means of offsetting permanence risk (and more broadly, project/delivery risk) for BioCF assets. The BioCarbon Fund could therefore place a portion of its proceeds, representing from 0 to 100% of the tCERs/ICERs purchased in the portfolio, to cover for their replacement at the end of the 60<sup>th</sup> year and also all the tCERs and ICERs that would be lost due to disturbances after delivery to Participants. The BioCF would pay a small price (e.g. less than US\$ 1 per tonne of CO<sub>2</sub>e) in advance for the delivery of such mitigation ERs. The Fund Manager will explore practical options and their financial implications for the portfolio.<sup>8</sup>

**Purchase of call options on mitigation ERs:** As an alternative or complement to the forward purchase of post-2012 mitigation ERs, the Fund Manager could explore the value of buying call options from mitigation projects. In this formula, a premium would be paid in the present (e.g. US\$ 0.25 per tonne of CO<sub>2</sub>e) for the right to exercise an option to acquire that tonne at a fixed price in the future (e.g. US\$ 5 per tonne of CO<sub>2</sub>e).

**Replacement with mitigation ERs after 60 years:** If and when all the measures above have been exhausted, a limited non-permanence risk may remain. If so, 60 years after sequestration ERs were issued, i.e. long after the end of the Fund's life, the Participants in the BioCarbon Fund would assume a limited liability to replace that part of the sequestration ERs that would not yet have been replaced through other means. This risk would be no more than 10% of the total volume of ERs delivered through the BioCF. In present value terms, the financial impact of such replacement is negligible.

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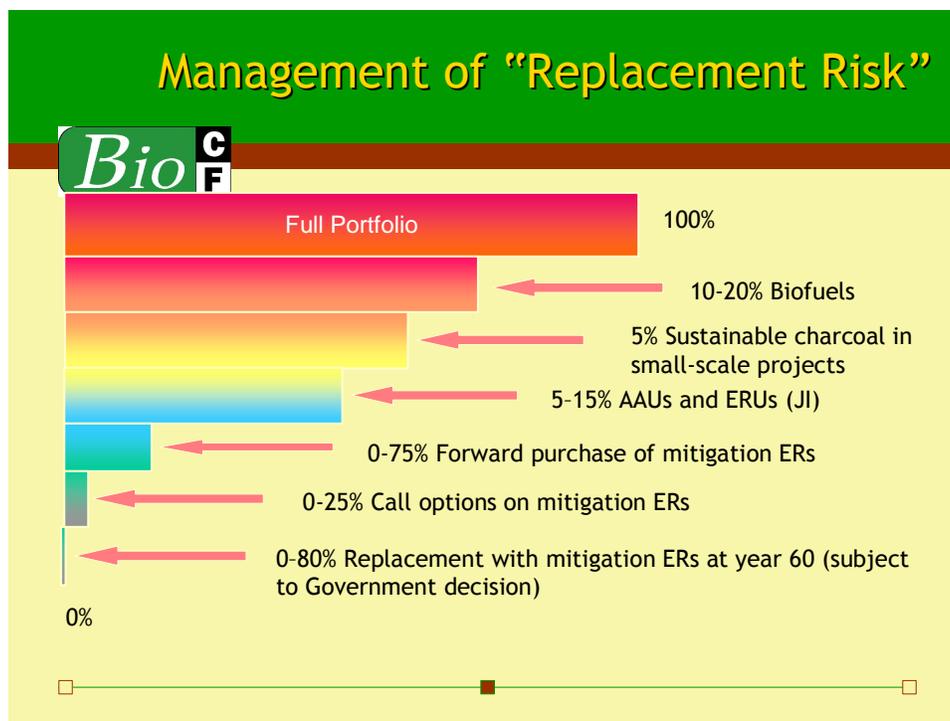
<sup>6</sup> These projects may include: (1) various projects that need some carbon finance upfront in order to reach financial closure; and (2) projects reducing emissions of nitrous oxide in India.

<sup>7</sup> Please see [www.carbonfinance.org](http://www.carbonfinance.org) for a full description of the various funds.

<sup>8</sup> Such a forward purchase was negotiated with the India "FaL-G Bricks and Blocks (Micro Industrial Plants-MIT) in Small Scale Bundle" project. The principle is included in the Term Sheet for the project and the price is set at US\$ 0.60 per tonne of CO<sub>2</sub>e.

Figure 1 illustrates how the various non-permanence risk management measures listed above might be adopted at the scale of the BioCF portfolio. Starting with the full risk of non-permanence, which is equal to 100% of the volume of ERs delivered by the BioCarbon Fund to Participants, various measures would be adopted that reduce the risk to zero. The share of each measure in total risk reduction would depend on actual opportunities, their relative costs and other constraints and objectives of the BioCarbon Fund, such as asset diversification and learning. Together, these measures would also make it possible for the BioCarbon Fund to comply in a cost effective manner with the requirements of the CoP9 draft decision on the use of afforestation and reforestation in the CDM.

**Figure 1: Managing Non-Permanence in the BioCarbon Fund**



**Project-Level "Permanence Risk" Management**

The BioCarbon Fund would do more than meet the formal requirements of the CoP9 text and the conversion of all of the certificates delivered to BioCF Participants into mitigation-grade certificates. The BioCarbon Fund would ensure that the carbon sinks that are created are inherently permanent.

Although integrally linked to overall portfolio risk management, the technical design of individual projects, and the structure of Emission Reductions Purchase Agreements (ERPAs) also enhances certainty in ER delivery and permanence. The BioCarbon Fund would primarily support projects that are permanent by nature. This is also why the Fund would be able to pay a price per sequestration ERs that is close to that of mitigation ERs

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and not a “rental” price as would logically result from the strict application of the temporary crediting rules. Ensuring such permanence might also waive the need to replace sequestration ERs with mitigation ERs at the end of the 60 year period, should this waiver be allowed into the rules in the future. The following project level options would be explored, which all underlie the measures depicted in Figure 1.

**Multiple land uses and renegotiation components:** Especially in commercial production activities, such as timber or wood fuel production, the Fund Manager would require a mosaic of land uses across a landscape designed to protect or enhance ecosystem functions, such as water supply and biodiversity protection. Hence only a part of the claimed sequestration ERs would be subject to planned harvest cycles. Carbon sequestration in commercially harvested forests would be calculated to take into account the planned harvest regime and not to oversell. In practice, many BioCF projects will be multi-component, and provide opportunities to hedge permanence risk between asset classes within the project.

**Over-Collateralization:** The BioCarbon Fund could enter into ERPAs with project entities to purchase a quantity of ERs less than the ER potential of the project. Part or whole of the difference between the BioCF purchase amount and the ERs actually generated by the project could be placed into a reserve.<sup>9</sup> The reserve represents a type of self-insurance by the seller that could be drawn upon to cover loss of permanence in the ERs already delivered to the Participants.

**Seller Liability to Maintain Carbon Stocks:** The PCF has demonstrated that it is possible to contractually bind sellers to offset loss in sinks subject to harvest regimes with other more permanent carbon assets. For instance, mitigation ERs achieved through fossil fuel displacement are escrowed to the extent sequestration ERs are sold and can only be released for sale when replanting occurs after several coppice rotations.

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<sup>9</sup> This type of overcollateralization has already been used in the PCF’s Moldova Soil Conservation Project.

