February 26, 2012

Forest Carbon Partnership Facility (FCPF)

Working Group on the Methodological and Pricing Approach for the Carbon Fund of the FCPF (WG)

3rd conference call (March 1, 2012)

Background Note #6

Options for Valuing Emission Reductions

The objective of this note is to provide background information to the WG members, in order to help structure the discussion on the proposed topic for the third call of the WG.

1. Objective of the call and proposed topics for discussion

The WG, in its second call, discussed if and how quality and non-carbon values should be reflected in the price of ERs under the Carbon Fund of the FCPF. The conclusions of the discussions on this topic were presented in the summary of the call.

Whatever the decision regarding quality and non-carbon values as a price determinant, there need to be a "starting point" (a base price) that may be adjusted to reflect quality and non-carbon values, as applicable.

For call #3 of the WG, it is proposed to discuss options for setting the base price, bearing in mind that the objective of the pricing policy is to arrive at values that:

1. Entice parties to transact ERs from REDD+ and safeguard their respective interests and rights in a reasonable manner;
2. Represent a transparent mechanism that reflects the risk allocation between parties to the transaction;
3. May use both fixed and variable valuation/pricing options that would allow risk sharing to deal with large price fluctuations and provide the comfort of a fixed price component;
4. Reflect the quality of ERs generated by each ER Program, including non-carbon values as appropriate; and
5. Leave room for adjustments later to align with emerging guidelines under the UNFCCC and other regimes, as applicable, and as demand and supply for ERs from REDD+ activities evolve.

This note covers the following topics in order to guide the discussion:

1. Description of the valuation options retained in existing carbon finance transactions under the carbon funds managed by the World Bank; and
2. Discussion of options to be considered for the Carbon Fund of the FCPF taking into consideration the specificities of the Carbon Fund.

1. Valuation methods in use in the Carbon Funds managed by the World Bank

1.1 Sources of valuation

The following methods are being used for establishing a price for ERs:

1. Willingness to pay or sell: The experience of the pioneer carbon funds (e.g., the Prototype Carbon Fund, which become operational five years before the Kyoto Protocol's entry into force, or the BioCarbon Fund, which pioneered was the first one to use temporary Certified Emission Reductions) shows that, in the absence of a mature regulatory framework and when very few transactions were taking place, price formation was purely based on willingness to pay. At that time, the project developers did not have any specific price expectations. The willingness to pay was determined either directly by the funds participants or through price quotations requested from independent third parties based on one or more real or hypothetical similar and relevant transactions.
2. Transaction benchmarks: When comparable transactions started to be observed, the possibility appeared to adjust the base price to track similar or relevant transactions. The comparable transactions did not necessarily make the information on the price available to the public. This information was therefore found through surveys.
3. Indexation: In situations where the ER is similar or comparable to other ERs that are transacted in a public place (such as an exchange), the value observed in such public place would serve as the reference for the base price (e.g., secondary CER prices published on the market serve as an index for setting the base price for primary CERs in ERPAs purchasing CERs).

The choice of the valuation source was guided principally by the availability and usefulness of price information for transactions of similar nature.

1.2 Pricing formula

Variable versus fixed pricing

Once the source(s) of valuation is (are) determined, the base price could be fixed or vary over time. It could be (i) a fixed value such as the value agreed at the time of signing the ERPA; (ii) a floating value depending on future, uncertain, conditions; or (iii) a combination of fixed and floating value.

In the early years of the carbon funds managed by the World Bank, the prices were fixed at the time of signing the ERPA and for the full term of the ERPA. This pricing approach addressed the need for simplicity in a context of regulatory uncertainties. However, as the regulatory framework developed (in particular with the combined entry into force of the Kyoto Protocol and the EU-ETS in 2005) and the rising demand for ERs leading to higher prices, project developers expressed their frustrations for not sharing the upside.

There was therefore a movement towards variable prices. The extreme case would be a fully floating price linked to a market index, but this option was never retained as both carbon fund participants and project developers needed a certain level of predictability. In particular, funds with a finite capital cannot afford prices that are fully variable from a portfolio management perspective. The carbon funds therefore opted for pricing formulae that combine a fixed and a variable portion, allowing for upside and downside sharing.

The variable pricing formulae vary depending on the specificities of each fund. Nevertheless, they generally follow the same 'philosophy' consisting of:

- A fixed portion set at the time of signing the ERPA, which would remain constant for the total duration of the ERPA;
- A variable portion depending on observed conditions at the time of ER delivery; and
- A weighting factor between the fixed and the variable portion corresponding to proportion of downside /upside sharing between the parties.

One variation consists of having a fixed price for a certain period of time (e.g., five years) and then moving to a variable pricing formula after that. Such an option is particularly suitable to address situations where there are uncertainties or where specific situations exist that lead to a preference for simplicity in the short term, while leaving room for adjustments in the future.

Floors and ceilings

Under variable pricing, it is possible to limit the price upsides and downsides to levels that are comfortable for both parties by setting a floor below which the price is not allowed to drop or a ceiling above which the price is not allowed to rise. In this case, the maximum fluctuation of the ER price would be within a band bound by the floor price and the price ceiling.

Discounts

It is also possible to consider the application of discounts instead of ceilings: the variable portion of the base price would reflect the conditions at ER delivery minus a discount for specific buyers. This allows the seller to benefit from upsides but also recognizes that, in a multiplicity of potential buyers, some are early movers and risk takers and should be rewarded for that.

2. Considerations for sources of valuation in the context of the Carbon Fund

The CF is a pioneering initiative. Its strategic objective is to pilot performance-based payment systems for ERs generated from REDD+ activities, with a view to ensuring equitable benefit sharing and promoting future large scale positive incentives for REDD+. It will need to establish its pricing policy in a context of evolving and uncertain regulatory frameworks, with very few comparable transactions to draw from and in the absence of a relevant index that is publicly available.

The WG is invited to consider the Carbon Fund's specificities described below when examining the sources for valuation:

1. <u>Willingness to pay/receive</u>: As in the first carbon funds managed by the World Bank, the Carbon Fund Participants and REDD Country Participants interested in a transaction with the fund are pioneers and could decide to agree on prices they will use. However, the seller countries' expectations regarding carbon and climate finance are much higher than they were in 2000, and it may be difficult to find an agreement.

2. Market surveys / quotations could be used to bring the perspectives of external actors that may be better informed and more independent than the Carbon Fund Participants and REDD Country Participants who have a vested interest. The information would take the form of prices offered based on potential transactions in the Carbon Fund, i.e., hypothetical, not existing, transactions. Market surveys would be broad-based and imply that many market actors are potential providers of information. Quotations would be obtained from a smaller number of select market actors.

3. Transaction benchmarks could be considered, with certain limitations given that there are few relevant precedents to draw from. Available references might be very different with respect to type, size and design, and thus not relevant to REDD+ or the ER Program at hand. Most current REDD+ transactions are undertaken at the project level for the voluntary market. The voluntary market price for REDD+ projects is therefore a useful indicator but with the limitation that those projects often have very different characteristics than large-scale national or sub-national ER Programs. Other REDD+ initiatives such as Norway's International Climate and Forest Initiative (USD 5 per tonne for the Brazil Amazon Fund and the Guyana REDD+ Investment Fund) also provide useful references for prices being paid under large-scale operations.

4. Indexation: In the current conditions, indexation as a source for valuation may not be applicable. The existing indexes reflect prices for ERs that are very different from the ERs expected to be generated by the Carbon Fund. If the index is different than the ERs transacted under the Carbon Fund, the relationship between the index and the ER price has to be built and justified, which is potentially quite complex and controversial. In addition, the recent declines in the CER and EUA prices beg the question as to their usefulness in informing the base price for REDD+. However, more relevant indexes may appear in the future which could then be used as references.

5. Auctions: In lieu of a survey or independent price quotations, an auction mechanism, whereby a certain quantity of ERs is offered for sale and buyers compete for these ERs, may be an efficient way to discover the buyers' true willingness to pay, especially at a time when there are few relevant data points available. Auctions may provide an interesting option for price discovery when large quantities are put for sale and there is enough competition from interested buyers. The exact conditions under which an auction could prove efficient for REDD+ ERs still need to be assessed. Also, the modalities of an auction, if any, have to be precisely determined. It was then proposed that the FMT further explore the feasibility of an auction mechanism in the context of REDD+ ERs and to elaborate on the modalities under which an auction might be considered as a valuation option under the Carbon Fund.

The pros and cons of each of the options presented above are summarized in Table 1.

Table 1: Comparative Analysis of options for sources of valuation for the base price

Valuation Source	Pros	Cons
1. Willingness to pay/receive of the Fund Participants / REDD Country Participants	Can be achieved under the current conditions and among the Fund Participants and REDD Country Participants, without intervention from outside actors	May lead to very divergent views, making it difficult to reach an agreement
2. Market surveys / Quotations	Efficient and independent way of acquiring information	• Do these actors exist? • Do they have the proper background and credibility to offer these prices? • Relevant quotes may be difficult to obtain, leading to unproductive or even counter-productive conclusions
3. Transaction benchmarks	• Provides an independent estimation of prices in similar and relevant transactions • Some existing transactions could serve as a source for establishing the benchmark (e.g., in the voluntary carbon markets, price paid by funds for large scale REDD+ initiatives or under PES schemes)	Difficult to achieve when there are few examples to draw from and no strictly comparable benchmark
4. Indexation	Transparent	No such index exists today for REDD+ at the national /sub-national level (and not even at the project level)
5. Auctions	Could be an interesting price discovery mechanism when large quantities are put for sale and when there is enough competition from interested buyers.	• The exact conditions under which an auction could prove efficient for REDD+ ERs still need to be assessed • The modalities of an auction, if any, have to be precisely determined

2. Considerations for pricing formulae for the Carbon Fund

Table 2 below proposes options for consideration by the Working Group regarding the pricing formula.

Table 2: Comparative Analysis of Options for Setting the Base Price

Pricing Option	Pros	Cons
Option 1: Purely fixed price: The base price is set at the time of ERPA signature and remains unchanged until the end of the ERPA	• Protects seller and buyer against uncertainty due to price fluctuations: guarantees seller against price drops and buyer against price increases • Simplicity, especially in the early years of REDD+ ER transactions, for which there is no clear price benchmark, and especially given the envisaged ERPA maturity (5 years)	• Fixed-price contracts may cause the base price not to be in line with developments (e.g., market trends) and thus lead to perceptions of unfairness from the disadvantaged party over time (seller being paid too low a price, or buyer paying too high a price) • ERPAs will not all be signed at the same time. There might be significant price differences amongst ERPAs.
Option 2: Purely floating price: The base price fully fluctuates and is not set in the ERPA	• The seller and buyer speculate (in opposite directions) about price fluctuations	• This speculation seems contrary to the spirit of partnership • The seller and buyer would be exposed to such fluctuations that they may end up in unacceptable price territory (either close to zero or much higher than expected)
Option 3: Combination of fixed and floating price: The base price is composed of a fixed portion and a floating portion. The fixed portion is set at the signature and for the term of the ERPA. The floating portion reflects the conditions at the time of ER delivery and is determined through indexation or by other means. To better safeguard	• Guarantees the seller a minimum carbon revenue (through the fixed portion) • Allows the sharing of upsides and downsides between seller and buyer • Is in line with the objectives agreed upon for the pricing approach	• Identifying the right index and/or benchmark for the floating portion can be challenging • There might be transaction costs associated with determining the floating portion value at the time of ER delivery in the absence of an specific index • Fund management is complex because of the floating portion unless the fluctuations are bound (e.g., by a floor price and ceiling price)

Pricing Option	Pros	Cons
respective interests and rights, application of floors combined with ceilings or market discounts could be considered.		
Option 4: Fixed pricing during the first years of the ERPA, and combination of fixed and variable thereafter A fixed price would be set at the time of ERPA signing an effective for the first few years. After this first period, there would be an evaluation of the conditions and if certain conditions are met, the ERPA would move to a combination of fixed and variable. In order to safeguard the interests of both parties, the share of fixed and variable portions should be fixed at the time of signing the ERPA (when no party knows what the conditions will be in the future).	• The simplicity of the fixed pricing would be kept in the beginning, while leaving room for adjustments in the future, if the conditions are right	• Setting the conditions/triggers for the move to a combination of fixed and floating may be challenging The conditions would need to be assessed through objective elements such as: ○ Number of similar transactions occurring allowing for establishing a benchmark value ○ Existence of an index

3. Expected outcomes of the call

Based on the background information provided in this note, the WG may want to consider the following topics:

- Valuation sources:
  - Any guidance on the valuation sources are to be retained for the pricing policy?
  - Any preference among the 5 options? Is any missing?
- Pricing formula:
  - Any guidance on the options presented for setting up the pricing formula?
  - Is there agreement that Option 2 should be discarded?

  - Do the cons of Option 1 more than offset its main pro (simplicity)?
  - Should Option 3 or 4 be retained, is there any guidance on the following:
    - Should the proportion between fixed and variable portion be the same amongst ERPAs, or would there be a differentiation amongst ERPAs?
    - Should floors and ceilings/market discounts be applied?
- Does the learning-by-doing objective of the FCPF suggest that more than one option could be used (e.g., Options 1, 3 and 4), so as to allow lessons to be drawn from the application of each option?
- Should TAPs be set up to shed light on some of these questions?