

## Forest Carbon Partnership Facility (FCPF)

### Carbon Fund

#### Update on pricing issues for the Carbon Fund

March 8, 2013

*The Participants Committee, in Resolution PC/12/2012/3, adopted the Recommendations of the Working Group on the Methodological Framework and Pricing Approach for the Carbon Fund of the FCPF contained in FMT Note 2012-8, as guiding principles on the key methodological framework and policy guidance on a pricing approach for the Carbon Fund. This Note provides an update on pricing issues that are relevant to the Carbon Fund. It also proposes a way forward for addressing pricing issues in order to help the parties to an Emission Reductions Payment Agreement (ERPA) agree on a price for Emission Reductions (ERs) in accordance with the adopted policy guidance on pricing.*

*The information provided on pricing trends is based on (i) the Carbon Finance Unit's experience in managing carbon funds in the compliance and voluntary carbon markets, (ii) a survey conducted by the FMT in May 2012 covering six forest carbon funds on their pricing approaches, and (iii) the State of the Forest Carbon Markets 2012 report.*

*The Note proposes that the price of ERs under the Carbon Fund be based on (i) the price level that would make the ER Program financially viable, taking into account its costs and other sources of funding, (ii) the price trends observed for comparable transactions, as drawn from independent market surveys, and (iii) additional benefits generated by the ER Program, in accordance with the adopted guidance on pricing. In addition, other factors, such as specific contractual terms, may impact the price. Furthermore, there may be a rationale for setting minimum and maximum prices.*

*The Carbon Fund Participants (CF Participants) are invited to provide comments and guidance on the proposed way forward at the sixth Carbon Fund meeting.*

#### **Introduction**

1. The Working Group on the Methodological Framework and Pricing Approach for the Carbon Fund of the FCPF made the following recommendations on pricing methodologies for ERPAs, which were adopted by the PC in its Resolution PC/12/2012/3:
  - i. Pricing Element 1: Fairness, flexibility and simplicity: Pricing should be fair and flexible, be kept as simple as possible, and protect both parties from extreme price fluctuations.
  - ii. Pricing Element 2: Price Structure: The ERPA price should be a combination of fixed and floating portions, where feasible.
  - iii. Pricing Element 3: Informed negotiation: The ERPA price should be determined by negotiations between the CF Participants, as buyer, and the ER Program entity, as seller, based on their respective willingness to pay or to receive payment. This negotiation process should be informed by relevant information such as market surveys or transaction benchmarks.

- iv. Pricing Element 4: Non-carbon benefits: The ERPA price negotiation process offers an opportunity for non-carbon benefits to be taken into consideration, although there would be no systematic quantification of non-carbon benefits for pricing under the Carbon Fund.
2. In the process of preparing its recommendations, the Working Group on the Methodological Framework and Pricing Approach for the Carbon Fund of the FCPF prepared 8 background notes. Amongst these background notes, the following three notes specifically addressed pricing issues and laid out options for price setting mechanisms:
- i. Background Note #3: Quality and Non-Carbon Values as Price Determinants under the Carbon Fund of the FCPF;
  - ii. Background Note #4: Examples of Non-Carbon Values as Price Determinants in the World Bank's Carbon Finance Business; and
  - iii. Background Note #6: Options for Valuing Emission Reductions.
3. Pricing Element 3 states that the ERPA price should be determined by negotiation between the CF Participants, as buyer, and the ER Program entity, as seller, based on their respective willingness to pay or to receive payment. Element 3 also states that the negotiation process should be informed by relevant information such as market surveys or transaction benchmarks.
4. Therefore, at the time of negotiating an ERPA, both parties will need to have comprehensive and balanced information relevant to setting the price of ERs for the ERPA being negotiated.
5. This Note analyses the available information on pricing trends for Emission Reductions in existing carbon markets and their relevance for ERs to be generated under the Carbon Fund. Based on this analysis, the Note proposes a way forward to help parties arrive at an ERPA price in accordance with the agreed Pricing Elements 1 to 4. A set of topics for consideration by the CF Participants are raised in this context.

### Information on pricing trends in the compliance carbon markets

***Compliance markets provide the most transparent and publicly available information to draw from for the purpose of pricing ERs. However, REDD+ is not (yet) part of a compliance market. Pricing trends observed in compliance markets are therefore of limited relevance for the pricing of REDD+ ERs under the Carbon Fund.***

6. In compliance markets, regulated entities obtain and surrender emission permits or offsets in order to meet predetermined regulatory emission reductions targets. In the case of ERs generated as part of cap-and-trade programs (national, international, or bilateral), regulators establish a long-term cap on carbon emissions and allow the trading of emission reductions for regulated entities to achieve their compliance goals. In these cases, all ERs may be equivalent and represent an interchangeable commodity. The price of ERs is then mainly driven by supply and demand. ERs are traded like a commodity in an exchange, which provides publicly available information on carbon prices (the market price). This information is then relevant for setting a price in a particular transaction.
7. Project or program developers could:
- i. Sell their ERs in spot transactions at the market price at the time of delivery, either in a stock exchange or over the counter (OTC); or
  - ii. Sell their ERs in advance through forward contracts (ERPAs) at an agreed price (generally not public). This price could be fixed – generally equal to the market price at the time of signing, but could also contain a variable component to enable the buyer and seller to share future

market downsides or upsides (see Background Note # 6). ERPAs offer an opportunity for sellers to secure a minimum revenue stream in the future and to negotiate an advance payment that would partially finance their implementation costs.

8. **Example:** Price setting for Certified Emission Reductions (CERs) generated under the Clean Development Mechanism (CDM):

- The value of a CER depends on the demand of compliance buyers in Annex I countries. Since the European Union's Emission Trading Scheme (EU-ETS) provides the bulk of the demand for CERs, the value of a CER depends on its import limit within the EU ETS. Because of the risks involved in producing an eligible offset (i.e., project-related and regulatory risks), as well as the limits on the quantity of CERs that can be used by compliance buyers under the EU-ETS, the value of a CER is lower than that of an EUA, as long as the EU ETS remains the predominant source of demand<sup>1</sup>.
- CERs transacted between the original owner (or issuer) of the Emission Reduction are known as "Primary CERs" (pCERs).
- In transactions where the seller is not the original owner (or issuer) of the Emission Reduction, the transacted CERs are known as "Secondary CERs" (sCERs). Large volumes of sCERs are traded through commodity exchanges. Their value is therefore well known (it is the market price).
- The market reference used to set the price of a pCER in an ERPA is the price of sCERs, as observed in the relevant commodity exchanges. Because pCERs are not yet issued at the time of signing the ERPA, the price setting mechanism may allow for price variations in order to reflect future increases or decreases of sCER prices. The parties to an ERPA may also choose to have a fixed price (based on the sCER price at signing). This choice depends on each party's aversion to risk.
- When pCERs are purchased by carbon funds, the pricing approach typically applies to all ERPAs under the fund, in order to ensure homogeneity. A pricing formula is adopted that reflects this pricing approach, with a certain level of flexibility to leave room for negotiation.

***Examples of pricing formulas:***

Price of ERs = (%) x Market price at ERPA signing + (%) x Market price at ERs delivery

Price of ERs = Market price at ER delivery x (1- discount), with application of a floor and a cap

9. If compliance markets eventually accept REDD+, there will likely be specific characteristics required for these ERs (accounting methodology used, social and environmental safeguards, etc.). Under such compliance schemes, REDD+ ERs may be considered as a true interchangeable commodity. The market price for the commodity could serve as a reference price to which the price of ERs under the Carbon Fund would be indexed. However, there may ultimately be more than one compliance market that accepts REDD+ (which would impose rules of fungibility between markets). The reference price to be considered for pricing of ERs under the Carbon Fund would therefore depend on the relevance of each compliance market for the strategic objectives of the Carbon Fund.

<sup>1</sup> If and when new markets emerge, the price of international credits may change its driving fundamentals depending on the representativeness of each new market.

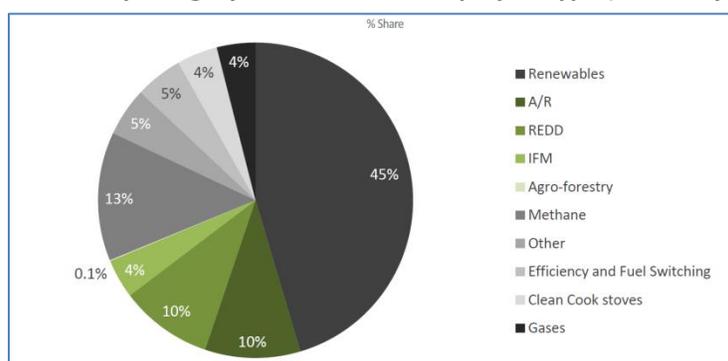
## Information on pricing trends in the forest carbon markets

***Most forest ERs and all REDD+ ERs are transacted in the voluntary carbon markets. In the absence of compliance markets for REDD+, pricing trends observed in the forest carbon markets provide useful information for the purpose of price setting of ERs under the Carbon Fund. However, the voluntary carbon markets are characterized by heterogeneity of demand, high price variability and lack of transparency. Also, ERs transacted in the forest carbon markets are generated by project-level activities (as opposed to programs at national or jurisdictional level). The relevance of forest carbon pricing trends for the purpose of pricing under the Carbon Fund is therefore fairly limited.***

10. Forest carbon represents a small fraction of the compliance carbon markets with only 8.6 MtCO<sub>2</sub>e transacted in 2011 out of a total of 10,189 MtCO<sub>2</sub>e. Most forest carbon credits are transacted in the voluntary markets, which represent in volume less than 1% of the global carbon markets.

11. In the voluntary carbon markets, forest carbon plays a major role, representing 24% of the overall transacted credits in 2011. Credits are generated by forest carbon projects, as opposed to programs at a national or jurisdictional level. These projects cover a wide range of activities, including afforestation/reforestation, improved forest management, agroforestry, and REDD. While the volume of transacted credits from REDD projects dropped 59% between 2010 and 2011, REDD still represents a significant part of the transactions with the market's third-highest volumes in 2011 (7.4 MtCO<sub>2</sub>e). The drop in transaction volume can be attributed to both political and technical challenges, as well as interest in lower-priced credits.

**Figure 1: Market share by category and forest carbon project type (voluntary OTC only, 2011)**



Source: State of the Forest Carbon Markets 2012

12. In voluntary carbon markets, the sale and purchase of ERs is driven by entities willing to voluntarily offset their greenhouse gas emissions, without being mandated by compliance schemes. Buyers' motivations could be to invest in pre-compliance credits or materialize effort to address climate change for supply chain risk management, corporate and social responsibility, or communication reasons. Sellers may choose to sell their ERs in advance through ERPAs at a negotiated price or to sell their ERs once they are issued through a bidding process.

13. The demand in voluntary carbon markets is more heterogeneous than that in compliance markets. Buyers typically have a preference for certain ERs compared to others. Such preference may be sectoral (some buyers would favor energy projects while others would have a preference for forestry projects) or geographical (buyers could focus on Least Developed Countries for developmental objectives while others would focus on developed countries for risk mitigation reasons). Within a sector, there could be a strong preference for ERs that bring socio-economic or environmental benefits beyond carbon.

14. Due to the heterogeneity of demand, ERs traded in voluntary carbon markets cannot be considered as a true commodity for which there would be a market price. The price of transacted ERs is influenced mainly by the buyer's willingness to pay and the seller's willingness to accept payment, and by the available information on market trends that is relevant to the type of ERs being traded:

- i. **Willingness of the buyer to pay:** A buyer who decides to purchase ERs voluntarily will establish its acceptable price range based on different parameters:
  - a. **Project risks:** Riskier projects are offered lower prices. Although ER payments are made upon delivery, buyers commit capital to a specific transaction, which has associated opportunity costs. From a buyer's perspective, risk analysis should cover implementation and operational risks, regulatory risks, political risks, environmental and social risks, and certification risks.
  - b. **Portfolio investment return:** This is specifically the case for financial investors seeking to acquire ERs for resale, anticipating an increase in ER prices. These buyers have a targeted return on investment. Their price range would be established based on this target and their anticipation of price evolutions (higher prices offered in anticipation of higher market prices and vice versa). They will generally invest in a portfolio of projects (not in a single project). Their analysis will therefore cover the overall portfolio's return on investment.
  - c. **Level of advance payment made:** Directly linked to project risks and investment returns, lower prices are typically offered to projects for which advance payments have been made.
  - d. **Quality of the ER:** Buyers will favor, and possibly be willing to pay a higher price for, ERs that have been (or will be) certified by a recognized standard ensuring environmental integrity. They can also favor ERs that bring socio-economic or environmental benefits beyond carbon.
- ii. **Willingness of the seller to accept:** The acceptable selling price range for sellers is mainly based on project costs. Sellers will conduct a financial analysis of their activity, laying out their costs and their sources of financing. At a minimum they will seek to cover their costs, and more generally to achieve a targeted return on investment. In the case of REDD+, many countries are hoping that revenues will be sufficient to finance investments in green development, so the expected price may not be directly related to the costs of a specific project, but rather a suite of investments and policy measures to be financed by a variety of different sources.
- iii. **Available information on market trends relevant to the type of traded ERs:** In addition to the above-mentioned parameters, both buyers and sellers will attempt to draw from comparable transactions to establish their acceptable price ranges. This information is not easily accessible due to the small size of the market and the fact that most transactions are concluded through confidential ERPAs. However, market surveys are available, such as the "State of Voluntary Carbon Markets" or the "State of Forest Carbon Markets". They provide global trends and sectoral and geographical analysis that can constitute a reference.

15. A consequence of using these price determinants is that the price of ERs in the voluntary carbon markets varies greatly and is linked to the specific attributes of each project and the specific strategy of each buyer. In some instances, there may be no correlation between risk and price (i.e., high risks do not necessarily lead to lower prices). This price variability is confirmed for the specific case of forest

carbon, where prices vary greatly according to project type, location, standard, environmental and social co-benefits, type of contract and stage the project had achieved at the time of the transaction. In 2011, prices ranged from less than \$1/tCO<sub>2</sub>e to over \$100/tCO<sub>2</sub>e, with an average of \$9.2/tCO<sub>2</sub>e.

**Table 1: Price variability by project, contract type and stage (2011)**

	Afforestation/ Reforestation (A/R)	REDD	Improved Forest Management (IFM)
Volume (MtCO <sub>2</sub> e)	14 <i>(of which 7.3Mt in the Voluntary Carbon Markets)</i>	7.4	4.2
Overall average price (\$/t)	\$ 9.2		
Average price (\$/t)	\$ 6.3	\$ 8.5	\$ 12.7
Average price by contract type			
Spot	\$ 12.3	\$ 8.2	\$ 14
Pay-on-delivery	\$ 7.9	\$ 8.9	\$ 8.6
Pre-Pay	\$ 6.1	\$ 5.2	\$ 14
Pre-Pay, fixed delivery	\$ 7.3	/	\$ 14
Pre-Pay, unit contingent delivery	\$ 4.8	/	/
Average price by project stage at the time of the transaction			
Issued	\$ 6.6	\$ 8.3	\$ 14
Validated	\$ 4.1	/	/
Verified	\$ 4.9	/	\$ 14
Earlier stages	\$ 14	\$ 8.5	\$ 9.1

Source: State of the Forest Carbon Markets 2012

16. Even prices analyzed by project type, standard, contract type and stage the project had achieved at the time of the transaction reveal very little on trends. This is due to the opacity of contractual arrangements, the small size of the marketplace and the fact that prices respond to specific and unique project attributes and buyers' motivations. The general tendency is to reflect the lesser risk associated with buying credits (spot prices higher than prices paid upon delivery, pre-payment leading to lower prices, etc.). In some instances, however, market observations go against this rule. For example, in 2011, the same average price was observed for spot ERs from improved forest management (IFM) and for IFM ERs with prepayment, and A/R ERs contracted at earlier stages showed higher prices. These irrational observations reflect again the tendency to link the price to specific project attributes.

17. In addition to showing high price variability and lacking transparency, forest carbon markets are not completely relevant for the Carbon Fund. They entail activities at the project level (as opposed to national or jurisdictional level) and not covering all the range of REDD+ activities. Pricing trends that may be observed therefore represent an interesting source of information (in the absence of compliance markets that accept REDD+), but should be used with caution given the above-mentioned limitations.

18. Outside forest carbon markets, there are very few benchmarks for performance-based payments schemes at scale to draw from. REDD+ initiatives such as Norway's International Climate and Forest Initiative (\$5/tCO<sub>2</sub>e used for the Brazil Amazon Fund and the Guyana REDD+ Investment Fund) provide useful references for prices being paid under large-scale operations, but their number is very limited.

## Price setting mechanism for the Carbon Fund of the FCPF

*The main parameters relevant to the negotiation process are (i) ER Program costs, (ii) to a certain extent, the price trends observed for comparable transactions, as drawn from independent surveys, and (iii) the additional benefits generated by the ER Program, in accordance with Pricing Element 4 of the guidance on Pricing. Other topics, including ERPA terms, should be considered during negotiation and shall have an impact on the negotiated price.*

19. Under the current conditions, parties to an ERPA under the Carbon Fund will have to negotiate a price for ERs where:
- i. There is no relevant transparent and publicly available information on carbon price that would form a credible reference;
  - ii. Surveys on forest carbon markets could be used, but they are subject to high variability on ER prices, even within a range of REDD+ projects; and
  - iii. Even where pricing trends can be established based on existing market surveys and transaction benchmarks, such trends are not completely relevant to the Carbon Fund.
20. A survey conducted by the FMT covering six forest carbon funds confirmed the following trends, in line with what is expected in voluntary carbon markets (see paragraph 14 above):
- i. Buyers purchase ERs from projects that present the very specific attributes they are looking for, in accordance with their investment strategy (pre-compliance, corporate social responsibility, pure investment return). **Forest carbon ERs are not considered a homogenous and interchangeable commodity;**
  - ii. Buyers analyze market trends, the principal source of information being the State of Forest Carbon Markets report. They draw from this information the most relevant information to the project under consideration. **This analysis provides buyers with the global price trend for the type of project under consideration;**
  - iii. Buyers analyze the project's financial projections. Assumptions for sources and cost of financing and implementation and transaction costs are provided by sellers, and reviewed by buyers for conservativeness. **This analysis provides buyers with the information on the minimum price level they consider the project can afford.** Sources of financing may include pre-payments made by the buyer, in which case the minimum required price would be lower;
  - iv. Buyers analyze project risks and put this analysis in perspective with the overall portfolio risk and targeted return. **This analysis provides buyers with the maximum price they can afford to ensure their targeted minimum level of return.** In case of pre-payments, the risk is considered to be higher and the buyers' funds have been mobilized in advance, which leads to a lower maximum price. Risk mitigation mechanisms such as corporate guarantees, collateral on project assets and insurances decrease project risks allowing for higher prices; and
  - v. Considerations (iii) and (iv) above provide the price range buyers consider for negotiation. Buyers will target a price that is within their price range and corresponds to price trends relevant to the specific project (see (ii) above). **Parameters such as the additional benefits (subject to certification under a recognized standard) and the scarcity of projects with the requested specific attributes** are taken into consideration in the negotiation process.

21. The main parameters that project developers would look at for the purpose of determining their minimum acceptable price are **their costs and their targeted level of return**. Sellers also look at market trends that are relevant to them and are aware that their minimum price cannot be far beyond the observed limits.

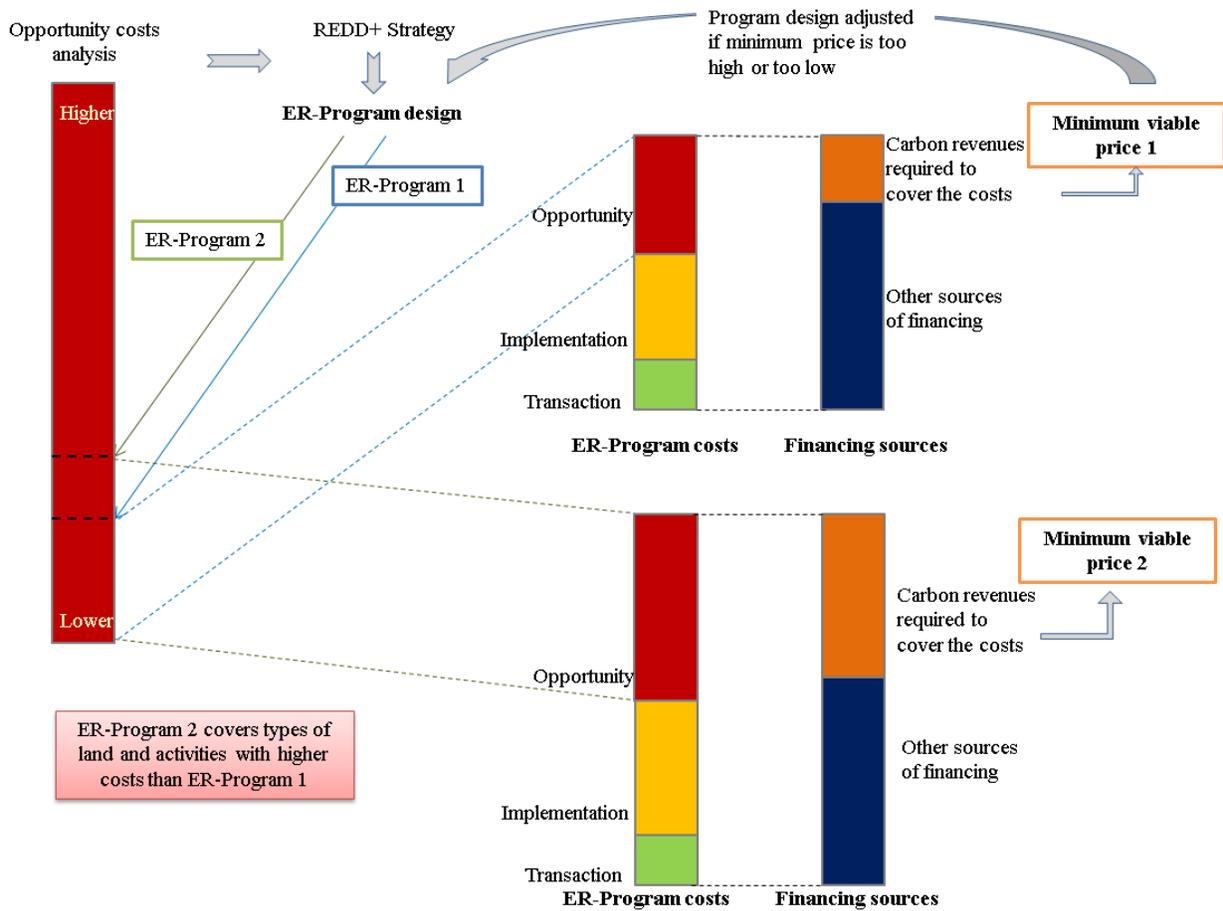
22. Given the specific objectives of the Carbon Fund and its piloting nature, CF Participants and ER Program developers are not seeking to maximize their returns. The main parameters to be taken into consideration for ER price setting should therefore be:

- i. The price level that would make the ER Program financially viable, taking into account its costs and other sources of funding (the minimum viable price). This may not be straightforward in all cases, e.g., in the context of large publicly funded programs, where ER sale revenues would make up one additional funding source but the incentive paid to the beneficiaries is not directly a function of the ER sale price;
- ii. To a certain extent, the price trends observed for comparable transactions, as drawn from independent market surveys; and
- iii. Additional benefits brought by the ER Program, in accordance with Pricing Element 4 of the guidance on Pricing.

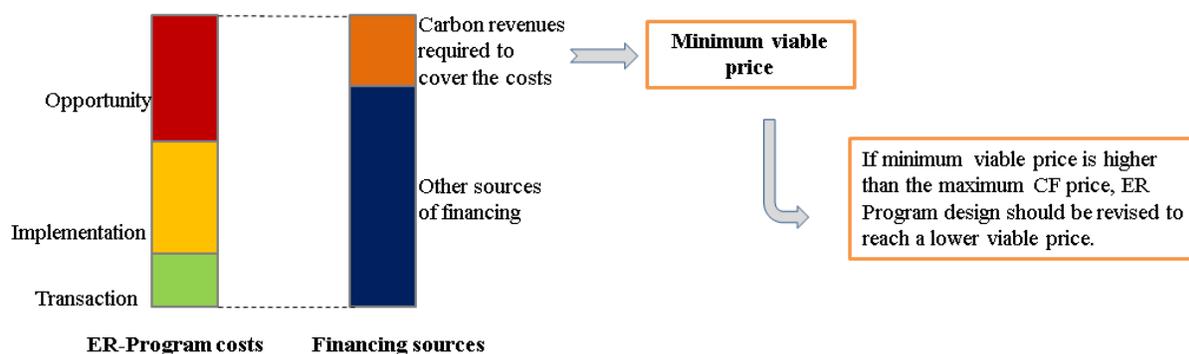
23. **A sound financial analysis of the ER Program is essential and should be performed by the ER Program developers, and reviewed by the CF Participants.** For the purpose of such a financial analysis, ER Program developers need to estimate the costs associated with the preparation and operation of the ER Program as well as the sources of funding to cover necessary investments. These costs include implementation costs (generally associated with actions that will reduce emissions, such as changes in forest management, improved extension services, or energy efficiency of cook stoves) and transaction costs (generally associated with delivery of ERs to a buyer, which includes setting a reference level and the technical work performed to measure and report on emissions). The analysis of opportunity costs is most relevant at an earlier stage (e.g., land use planning) and REDD+ strategy development stage. The choice of a country's REDD+ strategy options and resulting REDD+ activity proposals should be informed by the costs, including opportunity cost, of these activities. The country may give preference to activities with lower, rather than higher, costs..

24. REDD+ Countries and/or ER Program developers may iteratively define the scope of the ER Program to determine a price that ensures the program's financial viability (the minimum viable price). For example, if the minimum viable price of an ER Program is found to be low compared to what the Carbon Fund would be ready to pay, the ER Program could be enhanced to include activities with higher unit costs. It is important to note that depending on a country's policy framework, opportunity costs may be difficult to estimate, or may even be irrelevant (e.g., when cleared land is abundant for agricultural activities to be conducted, with no need to encroach on new forest land, or in the context of ER Programs that consist mostly of policy measures). The same applies if the minimum viable price of an ER Program is found to be too high compared to what the Carbon Fund would be ready to pay. The ER Program would need to be adjusted so that costs are reduced. Figure 2 below illustrates such an iterative approach:

Figure 2: Price setting based on costs



25. The CF Participants may consider setting a minimum and a maximum price that would apply for all ER Programs. A minimum price provides a clear basis for REDD+ countries to design ER Programs and secure the financing for necessary investments. It would allow countries to scope ER programs more effectively with respect to both their geographic extent (land area) as well as the actions to be promoted to reduce emissions. The CF Participants may consider the value of \$5/tCO<sub>2</sub>e as a minimum, which corresponds to the payments provided by Norway’s International Climate and Forest Initiative. Similarly, defining a maximum price provides REDD+ countries/ ER Program developers a clear signal to design cost-effective ER programs and avoid investments whose viability may hinge on overly optimistic assumptions about future carbon prices (illustrated in Figure 3 below).

**Figure 3: Maximum price for the Carbon Fund**

26. With sound program design, carbon revenue streams, including advance payments, do not represent the only or principal source of program financing. Carbon payments should be leveraged against other revenue streams, including project cash flows from mainstream activities, loans and grants.

27. As an illustration, the following findings could be noted. Surveys show that if developers were to finance their project activities with carbon revenues only, the requested price level would be higher than the actual prices (and the portion of payments made in advance would likely be higher). Across all project types, project developers reported a desired median price of \$12/tCO<sub>2</sub>e in order to support their project's existing and future activities. This price is approximately \$2.8/tCO<sub>2</sub>e more than the reported actual market-wide average in 2011 (\$9.2/tCO<sub>2</sub>e), which includes both primary and secondary transactions. This varies by project type. A/R projects reported requiring the highest price with a desired price of \$13/tCO<sub>2</sub>e where the actual price was \$6.3/tCO<sub>2</sub>e. REDD+ projects reported a desired price of \$11.5/tCO<sub>2</sub>e where the actual price was \$8.5/tCO<sub>2</sub>e. Lower estimates for REDD+ projects may be due to a current gap in information about the total costs that projects are likely to incur in coming years, as opposed to A/R projects which are operated by experienced foresters, based on relatively mature methodologies and are some of the longest-running projects in the marketplace.

28. The World Bank is developing a REDD+ Cost Assessment Tool to plan and monitor all types of costs associated with REDD+ activities. This tool can be used by REDD+ countries/ER Program developers to itemize and analyze opportunity, implementation and transaction costs associated with an ER Program.<sup>22</sup> Based on the cost analysis, and on other assumptions relating to sources and costs of financing, REDD+ countries/ER Program developers could prepare the financial projections of their ER Programs. Such financial projections should account for costs, financing (including carbon), timing of disbursements, and constitute the basis for establishing the minimum level of required carbon revenue stream, and therefore the minimum price level required to ensure financial viability.

29. Going forward, the FMT suggests the following capacity building efforts towards REDD Country Participants that have already presented initial ER Programs ideas to the Carbon Fund, in order to help ensure an informed negotiation between parties at the time of ERPA negotiation:

<sup>22</sup> This work builds on previous work supported by the FCPF on the economics of REDD+, including the REDD+ opportunity costs training manual, which is available at <https://www.forestcarbonpartnership.org/node/298>.

- i. Training on forest carbon market trends, in order to ensure general understanding of the concepts and mechanisms related to the pricing of forest carbon;
  - ii. Training on the REDD+ Cost Assessment Tool;
  - iii. Application of the REDD+ Cost Assessment Tool for all ER Programs included in the Carbon Fund pipeline; and
  - iv. Support the development of sound financial projections to be included in the ER Program Document.
30. Once the minimum viable price for an ER Program is known (with possible adjustments of the ER Program design), the following topics will need to be addressed during the negotiation process, in order to arrive at the final price<sup>3</sup>:
- i. Will the price be fixed or variable?
  - ii. How are non-carbon benefits taken into consideration?
  - iii. What are the other ERPA terms that may impact the price?

***Fixed price versus variable price***

31. Pricing Element 2 of the guiding principles states: **“Price Structure: The ERPA price should be a combination of fixed and floating portions, where feasible.”**
32. Variable pricing would entail the following:
- i. A fixed portion set at the time of signing the ERPA, which would remain constant for the total duration of the ERPA;
  - ii. A floating portion depending on observed conditions at the time of ER delivery. The simplest way to establish the floating portion in variable pricing is to index it to publicly available and transparent information on price (typically the average of prices observed in the relevant carbon commodity exchange over a period surrounding the ER issuance); and
  - iii. A weighting factor between the fixed and the variable portion corresponding to proportion of downside /upside sharing between the parties. The weighting factor is set through negotiation. It typically depends on the aversion to risk of the parties to the ERPA and their respective expectations in terms of future ER price fluctuations.
33. One variation consists of having a fixed price for a certain period of time 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.
34. Background note #6 lays out the pros and cons of several pricing formula options (fully fixed, fully floating, combination of fixed and floating and fixed for a certain time moving to a variable pricing formula after that).

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<sup>3</sup> This list is not exhaustive but represents the initial questions for which the CF Participants need to establish a strategy at this stage.

35. In the current context where there is no price reference to which a floating portion could be indexed, variable pricing would be a difficult option in practice. The only options that could be considered are:

- i. Fully fixed price set at the time of the ERPA signing through negotiation, taking into consideration the parameters mentioned in paragraph 22 above; or
- ii. Fixed price set at the time of ERPA signing and effective for an initial period, then if market conditions allow it, move to variable pricing.

36. Applying option (ii) above may be challenging for the following reasons:

- i. The conditions/triggers for the move to a combination of fixed and floating may be challenging. The most objective trigger would be the existence of a market reference price to which the floating portion would be indexed. This would be the case for example if REDD+ becomes part of a compliance market and there were sufficient volumes traded through public exchanges. However, since the conditions of such a future compliance market are not known, a future index may not be relevant to the specific case of REDD+ ERs under the Carbon Fund (e.g., if there are limitations on fungibility or if the market entails only activities at project level).
- ii. If the price moves to a combination of fixed and floating, the Carbon Fund will need to deal with the risk of over-commitment of funds. This can be done through establishing a maximum ERPA value (maximum amount committed) instead of maximum ERPA volumes (maximum ERs committed for purchase), through the application of caps on the price, or through a combination of both.
- iii. From the sellers' perspective, moving to a combination of fixed and floating implies dealing with variable revenue streams. The fixed portion would guarantee a minimum level of carbon revenues. The floating portion will only guarantee a minimum level of carbon revenues through the application of a floor price. However, such minimum level of revenues could be lower than what would have been generated with a purely fixed pricing (the rationale behind variable pricings being downside /upside sharing between parties). In any case, variable pricings should provide for a floor price corresponding to the minimum viable price for the ER Program to safeguard the sellers' interests and the viability of the ER Program.

37. **Fully fixed pricing therefore seems to be the most appropriate option in the current conditions** and is in line with Pricing Element 1 (Fairness, flexibility and **simplicity**). Also, it should be kept in mind that ERPAs under the Carbon Fund will be signed for an average term of five years. The likelihood of a clear market reference point within this timeframe is low.

#### ***Additional benefits***

38. Pricing Element 4 of the guiding principles states: **“Non-carbon benefits: The ERPA price negotiation process offers an opportunity for non-carbon benefits to be taken into consideration, although there would be no systematic quantification of non-carbon benefits for pricing under the Carbon Fund.”** The REDD Country Participants will need to present their ER Program's non-carbon benefits which the CF Participants will have to analyze.

39. In 2011, 30 % of forest carbon projects were tagged with certification of co-benefits. Standards such as the Climate, Community and Biodiversity Standards (CCB -for all forest project types), the Forest Stewardship Council (FSC - for improved forest management/afforestation) or the Rainforest Alliance's certification of sustainable agriculture were used in addition to pursuing certification under a carbon standard. The CCB Standard was the most popular among buyers (55%). The largest volume of these credits was attributed to projects developed under the VCS, where projects that are certified for additional benefits are formally 'tagged' in a VCS registry. For VCS ERs to be tagged, the project must have gone through validation and been verified with the CCB Standard, demonstrating that the claimed social and environmental benefits were actually delivered.

40. Although buyers in the forest carbon markets express a strong preference for ERs generated by projects with certified additional benefits, surveys do not reveal a statistically significant impact on prices based on a specific project variable, including additional benefits. It can only be observed that VCS projects that were also certified to the CCB saw an additional average \$0.50/tCO<sub>2</sub>e over an average price of \$8.5/tCO<sub>2</sub>e. Those combining VCS, CCB, and FSC certification contracted credits for an average \$12/tCO<sub>2</sub>e.

41. Under the Carbon Fund of the FCPF, if the parties agree that the non-carbon benefits of a specific ER Program should be reflected in the price, one possible way to do so would be through **the application of a premium over the minimum viable price** of the ER Program. The level of premium could be inspired by trends observed in the forest carbon markets.

42. In any case, the CF Participants need to agree on a strategy for the treatment of non-carbon benefits during negotiation (in line with Pricing Element 4), in order to ensure fairness across ER Programs while leaving enough flexibility (in line with pricing Element 1). The main questions to be addressed are:

- i. What are the types of non-carbon benefits that justify an impact on price? Should intrinsic non-carbon benefits be taken into consideration or will the CF Participants consider only those that are in addition to the intrinsic non-carbon benefits (e.g. community development plans)?
- ii. Will the approach be to apply a premium over the minimum viable price (as suggested in paragraph 41 above)?
- iii. If a premium-based approach is adopted, would the CF Participants:
  - a. Adopt a binary option? The value of the premium is fixed (e.g., \$0.5/tCO<sub>2</sub>e as inspired by forest carbon trends) and applied with no differentiation between ER Programs as long as an ER Program is considered to bring non-carbon benefits that justify the application of a premium;
  - b. Set a maximum premium value (e.g., \$1/tCO<sub>2</sub>e) and decide on the value of the premium (if any) within this range depending on each ER Program's characteristics? This is the strategy adopted by the BioCarbon Fund, as explained in Background note #4; or
  - c. Allow for full flexibility with no maximum premium value defined, and proceed on a case by case basis (e.g., two ER Programs have minimum viable prices of \$5/tCO<sub>2</sub>e and \$6.5/tCO<sub>2</sub>e respectively. The CF Participants would be ready to allocate a premium of \$3/tCO<sub>2</sub>e for the first one and \$0.5/tCO<sub>2</sub>e for the second one ending up with prices of \$8/tCO<sub>2</sub>e \$7/tCO<sub>2</sub>e respectively).?

Based on the survey conducted, each carbon fund has its own strategy regarding application of premium and all options have been adopted by different funds<sup>4</sup>.

- iv. If a premium-based approach is adopted, would the CF Participants link the payment of the premium to achievement of certain results as demonstrated through monitoring where results can be easily monitored? Pricing Element 4 states that “ [...] **there would be no systematic quantification of non-carbon benefits for pricing under the Carbon Fund**”. However, the CF Participants could decide that in certain cases, the payment of the premium should be subject to quantification of non-carbon benefits. This could be the case if the premium is justified by the implementation of certain community development plans where results can be easily monitored. Where quantification is challenging the guiding principle of no systematic quantification would remain the norm, for example where there are intrinsic non-carbon benefits of the ER Program (e.g., if the ER Program’s area is a biodiversity hotspot).

### ***Impact of ERPA terms***

43. Beyond the general terms, specific contractual terms have an influence on price. For example, contracts that call for a firm credit delivery may include terms for compensating for under delivery, particularly when up-front or advance payments are involved. The most common mechanisms for making up delivery shortfalls are guarantees with credits from the marketplace, corporate guarantees, guarantees with another asset or commodity, conversion of payment into debt or equity and the use of insurance mechanisms. Contracts with these types of mechanisms would offer higher prices than contracts with the same delivery terms but with no guarantee mechanism put in place. The FMT is currently analyzing possible insurance mechanisms that would reduce the risks for the CF Participants, and therefore allow for higher prices. Discussions with MIGA were initiated and initial outcomes will be presented at the next Carbon Fund meeting.

44. The level of advance payment made should also have an impact on price. To reflect risks, lower prices should be offered to projects for which advance payments have been made. This should also result from the financial analysis of each ER Program. At this stage, the CF Participants need to establish their strategy with regard to advance payments. The initial questions to be addressed are:

- i. Will the Carbon Fund allow the making of advance payments? Advance payments are generally required to contribute to the upfront financing of an ER Program (in parallel with other sources of financing);
- ii. If advance payments are considered, how should the level of advance be determined? In any case, other sources of financing will be needed to finance the ER Programs. The level of the advance payment will only represent a portion of the upfront financing, and very likely a minimal portion; and
- iii. If advance payments are considered, what would be the maximum allowed? Would the CF Participants prefer a maximum by ER Program or a maximum over the portfolio?
- iv. Should the CF Participants require a form of security or insurance for advances, and what remedies should be in place if credits fail to materialize?

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<sup>4</sup> Some funds even decide not to take into consideration non-carbon benefits. This is typically the case of pre-compliance funds in the California market.

**Expected outcomes of the discussion at the Carbon Fund meeting**

45. Based on the background information provided in this note, the CF Participants may want to provide guidance on the following topics:

- Should the proposed approach for price setting based on costs analysis and financial projections be adopted?
- Is there a preference for a fully fixed price given the current circumstances?
- Any guidance on the options presented for taking into consideration the additional benefits?
- Any guidance on the strategy for advance payments?
- Any guidance on the possibility of setting a minimum price at \$5/tCO<sub>2</sub>e and a maximum price for the Carbon Fund?
- Any guidance on the next steps for the FMT. Proposed next steps for which the FMT will report at the next Carbon Fund meeting are:
  - Applying the REDD+ Cost Assessment Tool for ER Programs in the CF pipeline;
  - Developing financial projections tools and applying them to ER Programs in the CF pipeline;
  - Training on forest carbon market trends and on the REDD+ Cost Assessment Tool to REDD Country Participants that already presented initial ER Programs ideas to the Carbon Fund; and
  - Exploring risk mitigation mechanisms that would apply to the CF and their possible impact on pricing (e.g., MIGA insurance).