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CDM Executive Board
c/o UNFCCC Secretariat
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Subject: Call for public inputs on the revision of the A/R methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities".

Honorable Members of the CDM Executive Board,

The World Bank, as the Trustee of the BioCarbon Fund (BioCF) has gained significant on-the-ground experience in implementing afforestation and reforestation project activities under the clean development mechanism (A/R CDM). We therefore welcome this opportunity to provide inputs on the revision of the A/R methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities".

QUESTIONNAIRE

Part I: Overall assessment of the draft document

Q: Please indicate if you have had any experience with the use of this methodological tool in any A/R CDM project activity

Response: Yes.

Q: Please provide general suggestions for improvement and editorial comments on the draft document. For example, is the document:

a) **Well written;**
b) **Simple and accessible;**
c) **User-friendly;**
d) **Well-organized, with flow of logic that is clear;**
e) **Exemplified;**
f) **Complete?**

Response: It is not clear what the implications are for the projects if projects shift from stock change method to increment method in the estimation of carbon stock change and vice versa during successive monitoring periods. It is assumed that such changes are covered under the *Guidelines on accounting of specified types of changes in A/R CDM project activities from the description in registered project design documents (EB 63, Annex 27)* and *Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities (EB 68, Annex 31).* However, these aspects have not been clearly exemplified

in the tool and require clarification. There is also significant repetition in the way stock change method and increment method are presented.

Part II: Input on specific and technical issues

Two methods for estimation of change in tree biomass using sample plots are provided in the draft (see pages 2–9 and 10–15). Please provide your answers, including relevant explanation/analysis/simulation to substantiate your answers, to the following specific questions related to these methods:

a) **Q:The stock change method and the increment method are two options for project participants to account and monitor carbon removals in living biomass. Are these two methods sufficient? If not, can you recommend an alternative method?**

Response: The CDM Executive Board is requested to consider the alternative methods that could reduce monitoring costs. This may include the use of remote sensing methods in combination with sample plots that could allow the determination of carbon stocks to meet the precision and confidence levels required under A/R CDM methodologies using fewer sample plots, thereby lowering the monitoring, measurement and verification costs.

b) **Q: In the stock change method, tagging, marking or mapping of individual trees is not required. If you are using the stock change method:**
   i. **Would you tag or mark the trees anyway?**
   ii. **If yes, then why? Or if no, then why not?**

Response: The tagging, marking or mapping of trees in sample plots of projects is done with the intention of finding the sample plots efficiently. Such identification may include tagging or marking of trees close to plot center in circular plots or trees on the sides or boundaries of square/rectangular plots.

c) **In the increment method, is tagging, marking or mapping of individual trees and tracking these trees across successive measurements necessary?**
   i. **If so, why; and if not, why not?**
   ii. **Would the requirement to tag, mark or map individual trees be a barrier to your using the increment method?**

Response: In the increment method, marking or mapping of individual trees and tracking these trees across successive measurements needs to be implemented. This is not possible using the field sheets from the previous measurements without the information on identification/ tagging/marking of trees. Therefore, in the increment method, trees need to be marked or tagged. Alternatively trees need to be mapped in the plot. For example, in circular plots this may involve recording of the distance of trees to the plot center and their azimuth. As forest grows, ingrowth of trees from natural regeneration to the lowest diameter class need to be identified marked and tagged at successive measurements.

It is likely that the trees marked and measured at the earlier verification cannot be traced at the later verifications as the tags may have been fallen down or lost in natural events such as fire, floods etc. In such situations, the tool suggests that biomass of the respective trees in the later verification is recorded as zero. This likely to increase the time for identification and verification of trees from the previous measurements and also underrepresent the biomass growth of the sample plots.

In most countries, projects generally follow the procedures of national inventory. In situations where national forest inventory methods prescribe procedures that are not consistent with the procedures suggested in the tool, the projects may find it difficult to implement the increment method procedures if they are not implemented in the national forest inventories.

d) **Q: What are the cost implications, if any, of attaching unique identifiers to individual trees and tracking these trees across successive measurements, while keeping both the plot location and the tree markers hidden from the persons managing the plantation?**
   i. **Will the monitoring and verification cost increase or decrease because of this requirement?**
   ii. **How significant will be the increase or decrease in the monitoring and verification cost?**

Response: i) The time and effort required for marking/tagging of trees at the initial measurement, tracing and identification of the marks/tags during measurements in the subsequent monitoring periods will be significant and translates into a large increase in transaction costs for conducting sample plot measurements in projects.

ii) The monitoring and verification costs of implementing tagging and tracking trees at successive measurements are expected to be twice the costs of conducting measurements of trees without tagging.

What are the other advantages or disadvantages of attaching unique identifiers to individual trees and tracking these trees across successive measurements, for example, relevant to accuracy, transparency, etc?

The advantage of identifying and tagging of trees helps to assess the growth and increment at the level of individual trees and provides insights into the ecological aspects of forest such as species association, competition and growth characteristics of tree species in a project as the forest gets established.

The disadvantage of identification of individual trees as part of monitoring and measurements include significant time requirements, costs of implementation, and difficulties in assessing carbon stock change in situations of loss of identifier tags over time and in natural hazards such as fire or floods. Therefore, it is not cost effective to implement identification/tagging/marking of trees in the context of A/R CDM projects.

As a consequence, adoption of increment method for estimation of carbon stock change is likely to be costly and cumbersome for the aspects noted above with reference to identification/tagging of trees required in implementing the increment method.

We will be glad to provide clarifications as necessary and are available for further consultations.

With kind regards,

Klaus Oppermann
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