<p style="text-align:center">Draft proposal</p>

Additional cost-effective approaches to demonstrating the eligibility of land for A/R CDM project activities

1. Background

1.1 The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) at its tenth session (CMP 10) requested the Executive Board of the clean development mechanism (the Board) to "explore additional cost-effective approaches to demonstrating the eligibility of land to qualify as a clean development mechanism (CDM) afforestation or reforestation (A/R) project activity", and report back on this matter to the CMP at its eleventh session (CMP 11).[1]

1.2 The Board, at its eighty-third meeting, considered a concept note prepared by the secretariat on the above matter and requested the Afforestation and Reforestation Working Group (A/R WG) to prepare a recommendation to be considered by the Board at its eighty-fifth meeting. The Board agreed to open a call for public inputs on this matter and requested the A/R WG to take the public inputs into consideration.

1.3 The present proposal note forms the basis of the work of the A/R WG on this matter. The A/R WG will consider this working document, along with the inputs received from stakeholders, at its fortieth meeting (ARWG 40).

2. Identified issues

2.1 The issue of high cost of project preparation and monitoring associated with delineation of individual parcels of land subject to an A/R CDM project activity in the case of a project activity being implemented in fragmented forest areas has been raised by stakeholders on various occasions.[2]

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[1] FCCC/KP/CMP/2014/9/Add.1, decision 4/CMP.10, paragraph 8

[2] See (a) UNFCCC Workshop on Identification of Constraints in Application of Approved A/R CDM Methodologies. URL: https://cdm.unfccc.int/methodologies/ARmethodologies/workshops/application_constraints/index.html

(b) Roundtable on Validation and Verification Issues in LULUCF Projects, The World Bank. URL: https://wbcarbonfinance.org/Router.cfm?Page=BioCF&FID=9708&ItemID=9708&ft=Plus&PlusPage=4

(c) Views by Parties as summarized in UNFCCC technical papers: URLs: http://unfccc.int/resource/docs/2014/tp/02.pdf and http://unfccc.int/resource/docs/2014/tp/01.pdf

2.2 The *CDM Project Standard* requires that Project participants "shall define the project boundary that geographically delineates the proposed A/R CDM project activity under the control of the project participants, including information allowing the unique identification(s) of the project activity". It further specifies that "if the proposed A/R CDM project activity contains more than one discrete area of land, each discrete area of land shall have a unique identification".[3]

2.3 Meeting the above requirement of assigning a unique identification to each discrete area (parcel) of land in situations where project area comprises of a mosaic of forest vegetation pockets interspersed with non-forest vegetation, or blank areas, can significantly, or even prohibitively, increase the cost of preparation of project design document and of subsequent monitoring.

2.4 Extensive deforested lands containing fragments of forest vegetation are a common ground reality, rather than exception, in many developing countries. Delineating boundaries of individual land parcels of the size equal to or greater than the threshold area selected by the host Party for definition of forest (e.g. 0.05 hectare) can be time consuming and costly even in a modest-size project

3. Proposed solution

3.1 A possible solution in this regard could be to waive the requirement for delineation of the boundaries of individual land parcels and to allow estimation of forest and non-forest area within the (outer) project boundary by applying statistical sampling methods for area estimation.

3.2 The IPCC provides sampling methods for area estimation which can be applied for the purpose of estimation of forest and non-forest area within the outer project boundary of a proposed A/R CDM project activity.[4]

3.3 An example illustrating the possible application of the statistical approach recommended by the IPCC is presented in the appendix of this draft proposal.

4. Consequential work

4.1 If inclusion of the sampling method for estimation of forest and non-forest areas is recommended by the Board and adopted by the CMP, this will have to be reflected in the A/R CDM regulatory documents by revising the *CDM Project Standard, the CDM Validation and Verification Standard,* and the *AR Methodological tool: Demonstration of eligibility of lands for A/R CDM project activities*.

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[3] CDM project standard, Version 07.0, paragraph 110.

[4] *Good Practice Guidance for Land Use, Land-Use Change and Forestry*. Intergovernmental Panel on Climate Change (IPCC), 2003. URL: http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/ gpglulucf_files/GPG_LULUCF_FULL.pdf. See Section 5.3.4 (page 5.24).

Appendix

Illustration of application of sampling method for estimation of forest and non-forest areas within the boundaries of an A/R CDM project activity

Let us assume that the outer boundary of the proposed project area, as shown in Figure A.1 below, contains 1000 ha of land. The vegetation within this boundaries ranges from complete blanks to tree vegetation meeting or exceeding the crown cover threshold selected by the host Party for defining forest.
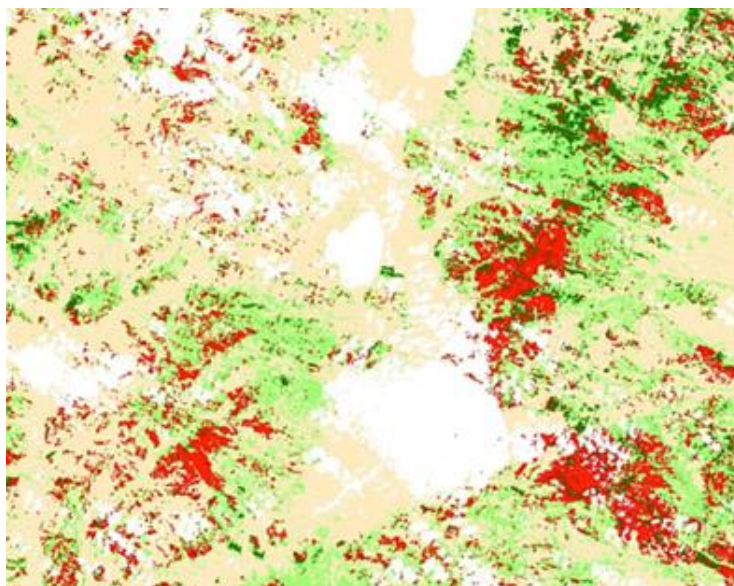

Figure A.1 Project area containing a range of fragmented vegetation

Assume further that the land was deforested before 31 December 1989 and is in a deforested state at the time of the start of the project activity.[5]

The number of land parcels containing forest vegetation in the area is likely to be very large, although the exact number will depend upon the values of the minimum crown cover and the minimum area selected by the host Party for defining forest.[6]

Although a major part of the area does not contain forest, the presence of forested parcels can prevent this land from being taken up for reforestation under an A/R CDM project activity because of the high cost of delineation of the boundaries of the individual forest (and thereby non-forest) parcels. This cost barrier will be encountered while demonstrating land eligibility and estimating baseline carbon stocks and removals during validation, and while inventorying the carbon stocks during project monitoring.

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[5] That is, the parcels observed as non-forested parcels at project start were also non-forested on 31 December 1989.

[6] For example, if the minimum area selected by the host Party is 1 ha, all the tree vegetation patches of size less than 1 ha will count as deforested parcels. On the other hand, if the minimum area selected by the host Party is 0.05 ha, the tree vegetation patches of size less than 1 ha will count as forested parcels, unless these are less than 0.05 ha.

By using the sampling method for "area estimation via proportions" described in IPCC-GPG-LULUCF 2003 (p. 5.24) the forest area within the project boundary can be cost-effectively estimated within the acceptable limits of uncertainty.

To apply this method, we cover the total area within the project boundary with a regularly-spaced grid of sample points. Treating all the points falling within the project boundary as the sampling frame, we draw a systematic sample with a random start. We visit each sample point location on ground (or we use high resolution satellite images) and determine whether a point falls in forest or in non-forest area.

We estimate the forest area and the associated standard error as follows:

$$A_F = p * A_T$$

$$p = \frac{n_F}{n}$$

$$SE(A_F) = A_T * \sqrt{\frac{p * (1 - p)}{n - 1}}$$

where

A_F	=	Estimated forest area within the project boundary; ha
p	=	Proportion of sample points falling in forest area; dimensionless
A_T	=	Total area within the project boundary; ha
n_F	=	Number of sample points falling in forest area; dimensionless
n	=	Total number of sample points (i.e. the sample size); dimensionless
$SE(A_F)$	=	Standard error of estimated forest area within the project boundary; ha

Following this approach, the total land area is treated under the A/R CDM project activity but the accounting of carbon stocks and removals is conducted as follows:

(a) Baseline carbon stocks and removals in non-forest area only are accounted;[7]
(b) Monitoring of carbon stocks is carried out over the entire project area but only $(1–p)*100$ percent of the total carbon stocks is taken into account under the project activity.

Thus, although the project activity will increase the carbon stocks both in forest areas and in non-forest areas within the project boundary, the increase of carbon stocks occurring in forest areas will be excluded from accounting since these land areas are not eligible for the A/R CDM project activity.

The sampling method could also be implemented under a different statistical design (e.g. under a *double sampling* design in which the first phase sample values are

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[7] Baseline carbon stocks can be estimated from the same sample points. Apart from the tree crown cover, other necessary observations/ measurements may also be made if a point is found to be in deforested land.

obtained from satellite imagery of the area and the second phase sample values are obtained from actual field visits (ground truthing).

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