

Annex 8

RECOMMENDATION ON QUANTIFICATION OF T-CERS OR L-CERS FOR PROJECT ACTIVITIES UNDER THE AFFORESTATION AND REFORESTATION CDM

I. Need for clarification:

1. Decision 19/CP.9 outlines the general rule on how to quantify the net anthropogenic GHG removals by sinks of a project activity as:

Net anthropogenic GHG removals = actual net GHG removals - baseline GHG removals - leakage.

2. However, due to the fact that:

- (a) Two different types of CERs are available for A/R projects; and
- (b) Both carbon *pools* and GHG *flows* are accounted for,

special attention has to be paid to the mathematical and procedural methodological description for the quantification of net anthropogenic GHG removals by sinks that takes into account these specificities. As will be illustrated further down, the tCERs and ICERs cannot simply be calculated based on an equation calculating net anthropogenic GHG removals by sinks on a per-year basis (t CO₂/year) or as cumulated data (t CO₂), (only for the first verification).

3. Currently, the available forms and guidelines on how to fill in the CDM-AR-NMB and CDM-AR-NMM do not provide adequate guidance for proponents of new methodologies on this issue. As a consequence, the equations to calculate the 'net anthropogenic GHG removals by sinks' currently proposed in new methodologies often are incomparable (e.g. different units) and generally do not allow one to quantify tCERs or ICERs based on the equations described for the net anthropogenic GHG removals by sinks (or only for the first verification).

4. As the final quantification of ICERs and tCERs is equal for all methodologies, the A/R WG recommends to the Board to:

(a) Include standard equations in the respective sections of the CDM-AR-NMB and CDM-AR-NMM for the quantification of 'net anthropogenic GHG removals by sinks' as a proposal to proponents of new methodologies. They can be adapted by the proponents to the specific notation and topics covered by their methodologies;

(b) Provide guidance in the forms CDM-AR-NMB and CDM-AR-NMM (or in the joint form CDM-AR-NM) and the respective guidance documents that carbon pools shall be calculated/monitored as existing t CO₂ in a specific year (in t CO₂); emissions by sources and leakage shall be calculated/monitored as emissions in a specific year (in t CO₂).

5. The equations below reflect the way tCERs and ICERs are quantified, based on the most common approaches for estimating and monitoring effects on carbon pools, emissions by sources and leakage. A notation based on annual changes of carbon pools in the baseline and the project scenario would also be possible. However, calculating annual changes as difference of existing carbon stocks for both the baseline scenario and the project activity in subsequent years adds unnecessary additional mathematical steps. In addition to that, terms for carbon pools and emissions still would differ in the equations below

II. Recommended equations to calculate tCERs and ICERs:

6. In the following, the generic ways of calculating tCERs and ICERs are:

(a) tCERs reflect the difference of carbon stock in the carbon pools in the project and baseline *at the time of verification* less cumulative project GHG emissions within the project boundary less cumulative GHG emissions outside the project boundary due to afforestation or reforestation less difference in carbon stocks in the carbon pools outside the project boundary (t CO₂), affected by afforestation or reforestation activity, in the baseline and project at the time of verification, i.e,

$$t - CER(t_v) = C_P(t_v) - C_B(t_v) - \sum_0^{t_v} E(t) - \sum_0^{t_v} L_E(t) - (L_{P_B}(t_v) - L_{P_P}(t_v))$$

(b) lCERs reflect the difference of *increment of the carbon stock in the carbon pools*, between two verification period, in the project and the baseline less project GHG emissions between two verification period less GHG emissions outside the project boundary less difference of increment in carbon stock in the carbon pools outside the project boundary (t CO₂), affected by afforestation or reforestation project activity, in the baseline and project, i.e

$$l - CER(t_v) = [C_P(t_v) - C_P(t_v - \kappa)] - [C_B(t_v) - C_B(t_v - \kappa)] - \sum_{t_v - \kappa}^{t_v} E(t) - \sum_{t_v - \kappa}^{t_v} L_E(t) - [(L_{P_B}(t_v) - L_{P_B}(t_v - \kappa)) - (L_{P_P}(t_v) - L_{P_P}(t_v - \kappa))]$$

where:

$t - CER(t_v)$	t-CERs emitted at time of verification t_v (t CO ₂)
$l - CER(t_v)$	l-CERs emitted at time of verification t_v (t CO ₂)
$C_P(t_v)$	Existing carbon stocks at the time of verification t_v (t CO ₂)
$C_B(t_v)$	Estimated carbon stocks of the baseline scenario at time of verification t_v (t CO ₂)
$E(t)$	Project emissions in year t (t CO ₂)
$L_E(t)$	Leakage: estimated emissions by sources outside the project boundary in year t (t CO ₂)
$L_{P_B}(t_v)$	Leakage: estimated carbon pools outside the project boundaries in the baseline scenario on areas that will be affected due to the implementation of a project activity at time of verification t_v (t CO ₂)
$L_{P_P}(t)$	Leakage: existing carbon pools outside the project boundaries that have be affected by the implementation of a project activity at time of verification t_v (t CO ₂)
t_v	Year of verification
κ	Time span between two verifications

Note that accounting for the volume of extracted wood products from forests outside the project boundary would be accounted for as leakage related to emissions by sources (see report from A/R WG meeting 6).