

Proposed methodology for small scale projects: reducing non-renewable wood energy that causes net carbon emissions from the land-use sector

Preliminary Working Draft, 08 June 2005 for discussion.

Comments, including from the A/R Working Group of the UNFCCC secretariat would be very welcome as inputs into a working meeting on the same topic, which will be held at FAO headquarters on 30 June 2005.

AIM AND SCOPE OF THIS DOCUMENT

This document is in response to a request of the CDM team of the UNFCCC Secretariat asking the authors of the submission for amendments of the CDM small scale methodologies of 11 March 2004, Bernhard Schlamadinger of Joanneum Research and Ingmar Juergens of the Food and Agriculture Organization of the United Nations (FAO) to recommend methods which can be used to handle the treatment of leakages and the definition of non renewable biomass in the baseline.

This document has been prepared jointly by Neil Bird, Alwin Bubendorfer, Bernhard Schlamdinger of Joanneum Research and Ingmar Juergens, Heiner von Luepke and Miguel Trossero of FAO, with inputs from Benoit Bosquet of the World Bank.

It is intended as a document for discussion, and drawing on previous publications, it is trying to suggest how leakage and the definition of non renewable biomass could be addressed in a methodology. This methodology, while rather complicated for SSC projects, is a first step to address the key issues. In the further process, simplifications, bundling and – with regard to post-2012, considering such projects as eligible non-small scale projects, might be options to overcome this problem.

Comments could be addressed to:

Bernhard.Schlamadinger@joanneum.at and Ingmar.juergens@fao.org

METHODOLOGY

Scope for the methodology's application

- This methodology can be used for the following types of energy-related activities:
 - Improvement of the existing traditional bioenergy systems for example efficiency of cooking stoves using fuelwood or charcoal
 - Improvement of charcoal production and utilisation systems
 - Substitution of unsustainable woodfuel and charcoal utilisation with renewable energy sources (such as plantation-derived woodfuels) or other sustainably derived biomass, biogas, solar energy, wind, etc)
- the project area should be characterised by a significant¹ depletion of woody carbon stocks due to activities such as deforestation, degradation and devegetation (see different IPCC reports and the Marrakech Accords for definitions of these terms)

¹ It can be demonstrated that within the errors of estimation that there are unsustainable removals of wood from the forest within the project area

- These activities are primarily driven by the use of wood for energy, and not primarily by other activities such as need for grazing land or non-energy wood products.

Steps to be undertaken as part of the baseline methodology

1. Select and define the project area such that:
 - a. it is enclosed by natural boundaries in order to minimize woodfuel and charcoal trade across the boundary, or
 - b. trade flows across the boundaries can be monitored effectively. The project area can also be an entire region².

If the project area is too large for a small scale project, bundling of several small-scale projects can be considered, provided that this approach is consistent with the restrictions on bundling described in the Marrakech Accords.

2. Quantify the conditions of biofuels production, trade and utilisation in the area before the project initiation³⁻⁴⁻⁵ and demonstrate that in the project area the use of fuelwood and charcoal (including recycled woodfuels and other woody residues) significantly reduces terrestrial carbon stocks⁶:
 - a. Calculate the total consumption of fuelwood and charcoal (including recycled woodfuels and other woody residues) within the project area. In the case of charcoal count the woody biomass going into the charcoal making (thus accounting for losses in the process from charcoal making as well as charcoal fines).
 - b. Add the total share of non-energy wood products;
 - c. Calculate net imports or exports of energy and non-energy wood products, add net imports to b (or subtract net exports from b). **The result is the *total consumed woody biomass* (fuelwood and charcoal, recycled woodfuels and other woody residues, non-energy wood products) within the project area**
 - d. Calculate the *total available sustainable woody biomass* within the project area, based on forest management plans⁷
 - e. Subtract the *total consumed woody biomass* in the region (result from step c) from the *total available sustainable woody biomass* in the region (result of step d). If this value is smaller than zero, then there is the likelihood of depletion of carbon stocks in the project area.
 - f. Divide the *total available sustainable woody biomass* (step d) by the *total consumed woody biomass* (step c). If the result is less than 0.25, go to step i. Otherwise continue with step g.
 - g. Calculate the woody biomass that is available as a result of land degradation and deforestation within the project boundary. This could be calculated, for example, by multiplying deforestation rates by average woody biomass per hectare provide for this

2 See Diagram of Typical Area-Based Woodfuel Flow in the Annex

3 FAO, UBET - Unified Bioenergy Terminology

4 FAO - A guide for woodfuel surveys 2000-2002 (E)

5 FAO; Woodfuels integrated supply/demand overview mapping 2003

6 For all calculations concerning the baseline, variations over time (of the woodfuel consumption, etc.) have to be considered.

7 Where forest management plans are not available, NAI default values or other methodologies can be used for the calculations.

region in the GPG LULUCF, or national defaults used in inventory preparation. **This is the woody biomass from unsustainable land use.**

- h. Compare the resulting net emissions from step g with the results from step e. If the numbers differ by less than 30%, proceed with step i. Otherwise refine the calculations in steps a through h until the difference is reduced to below 30% Why 30%?.
- i. If the result of step f is between 0 and 0.25 (for example), then assume that every ton of carbon in woodfuels (fuelwood, charcoal, recycled woodfuels and other woody residues) burned causes a net emission of 75% of the actual CO₂ release from combustion (using IPCC emission factors for woody biomass and charcoal, etc., according to the following table). In doing so, the estimated emissions are conservative, because the upper bound of the range is translated into the multiplier for the emission factor.

Sust. fuel supply / fuel actually used	0 to 0.25	0.25 to 0.5	0.5 to 0.75	> 0.75
Fraction of IPCC emission factor	75%	50%	25%	0%

Steps to be undertaken as part of the monitoring methodology

Describe the conditions of fuelwood and charcoal production, trade and utilisation in the area before the project initiation

1. Monitor the fuelwood and charcoal consumption within the project area. To address possible rebound and leakage effects, it shall be demonstrated that:
 - a. The fuelwood and charcoal use by those households or entities that are subject to the project is reduced.
 - b. This reduction in fuelwood and charcoal use does not lead to increased use by households or entities within the project area that are not subject to the energy efficiency improvements or application of renewable energy.
2. Monitor any LUC patterns in the project area. Of special interest are reductions in deforestation and of degrading activities, and re-growth from previous degradation. This information will be used as a check for the estimated emission reductions, but is not a direct input in the monitoring for CER issuance.
3. Given the scarcity of wood as demonstrated in step 2 of the baseline methodology, leakage must either be demonstrated not to occur, or estimated, or avoided. Project operators should do at least one of the following:
 - a. Demonstrate that the project area is indeed not subject to net exports or imports of fuelwood, charcoal and roundwood/wood products.
 - b. Monitor the net flows of fuelwood, charcoal and roundwood/wood products crossing the project boundary. Any increase in net imports, or a decrease in net exports, is subtracted from the reductions in fuelwood and charcoal use within the project area.

Annex

DIAGRAM OF A TYPICAL AREA-BASED WOODFUEL FLOW

