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LULUCF-TR
GHG Monitoring and Reporting System

CSC in living biomass

- generic methods -

5th workshop style training, 2-4 October 2018, Ankara
"**Technical Assistance for Developed Analytical Basis for Land Use, Land Use Change and Forestry (LULUCF) Sector**"
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AESA CONSORTIUM

Key category analysis and required methodology (24/cp19)

- Reporting a **non-key category**:
  - Tier 2/3 (if there is country specific method available), or
  - Tier 1 (if estimation method available in IPCC Guidelines), or
  - Notation keys (e.g. NO, IE, NE)
- Reporting a **key-category**:
  - For non-significant pools:
    - Tier 2/3 (if there is country specific method available) for any pool, or
    - Tier 1 (if estimation method available in IPCC Guidelines), or
    - Notation keys (e.g. NO, IE, NE)
  - For significant pools:
    - **Tier 2 or Tier 3**
    - If not able to reach such a tier, to justify why not able to respond such a requirement, namely "Annex I Party shall explain in its annual GHG inventory submission the reason(s) as to why it was unable to implement a recommended method").

Check: a) Mandatory categories and pools under the Convention (for both Tier 1 and Tier 2); b) Wetlands pools to be reported under Tier 1; c) Wetlands pools to be reported under Tier 1

Review_estimation of CARBON STOCK CHANGES in LIVING BIOMASS: Tier 1 method

- Tier 1 methods include several simplifying assumptions:
  - no-change in aboveground biomass;
  - default values are provided (as “large scale and time averaged” values);
  - no change in below-ground living biomass (i.e. roots);
  - all post-disturbance emissions are estimated as part of the disturbance event, i.e., in the year of the disturbance (with exception of removal for harvested wood products)

Review_ estimation: Tier 2 or Tier 3 methods

1st method: ***process-based approach***, which estimates the net balance of *additions to* and *removals from* a carbon stock, the ***Gain-Loss Method***

Gains = *growth* (of living biomass) and *transfer* of C from another pool (e.g., transfer to the dead organic matter)

Losses = *transfers* of C from that pool to another (e.g. annual mortality of each compartment; slash on the ground from harvesting operation) and *direct emissions to atmosphere* due to decay, burning, harvest, etc.

ANNUAL CARBON STOCK CHANGE IN A GIVEN POOL

$\Delta C = \Delta C_G - \Delta C_L$, where:

ΔC = annual carbon stock change in the pool, tC yr-1

ΔC_G = annual gain of carbon, **a positive (+) sign,** tC yr-1

ΔC_L = annual loss of carbon, **a negative (-) sign,** tC yr-1

Tier takes into account transfers among C pools within the period.

Review_ estimation: Tier 2 or Tier 3 methods

2nd method: the ***stock-based approach*** which estimates the *difference in carbon stocks at two points in time,* the ***Stock-Difference Method***

$$\Delta C = \frac{(C_{t_2} - C_{t_1})}{(t_2 - t_1)}$$

where:
ΔC = annual carbon stock change in the pool, tC yr-1
C_{t1} = carbon stock in the pool at time t1, tC
C_{t2} = carbon stock in the pool at time t2, tC

Implicitly accounts for annual growth, transfers among pools and emissions to atmosphere.
Beware to area involved in t1 and t2!