Issues on the use of IPCC 2006GL for sub-national scale land use inventories and mitigation activities

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Content

- Reasoning on need of sub-national (regional, provincial) GHG inventories or MAs
- Overview of reporting requirements on land
- 2006GL issues on regional land data, default factors and methods for GHG inventories or MAs (incl. examples)

Why regional GHG inventories?

- Administrative regions may drive reducing emissions within country, they should be encouraged and methodologically supported to implement GHG inventories /mitigation actions

- For land use – regional approach is meaningful because of well defined (administrative) boundaries and likely uniform land management practices while giving weight to other locally important issues: SLM, land degradation and biodiversity

- If any, regional land resources assessment , e.g. forest inventory, a GHG inventory would add value to that

Overview of land reporting and accounting requirements

Cancun Agreement: Parties have committed for enhanced implementation of UNFCCC, including by NAMAs

- LULUCF is part of it, based on:
  - annual anthropogenic E and R inventory and trend for “land categories” within national territory (GHG inventory)
  - “land activity” based accounting of emissions and removals vs. target (KP commitments)

- in principle, both reporting are methodologically covered by 2006GL, but additional strong elements are required for accounting under KP (e.g. quantitative thresholds based land definitions, and only Approach 2+ supplementary information, and Approach 3 are suitable for KP lands)

2006GL on the "relationship to entity- or project level estimates"

- In the Overview chapter: .... intended to help prepare national inventories. Nonetheless, the Guidelines can also be ***relevant for estimating actual emissions or removals at the entity or project*** level

- .....by providing guidance, decision trees, methods and default values for various factors/ parameters

Options for regional approach

- always project under KP flexible mechanisms or voluntary market (restricted to Marakesh land activities, lot of bureacracy)

- ....still, there are two other options to explore***: GHG inventory*** or implementation of specific ***mitigation activities*** (no restrictions on activities, conditioned by methodological support)

Land data for a regional GHG INVENTORY

- If ***complete and consistent land datasets*** are available, just follow 2006GL to estimate annual or periodic estimates and the trend, but *nota bene*:
  - whole territory coverage key
  - breakdown of statistical sampling from national grids may be less adequate, without additional local effort to supplement data (assessment of uncertainty)

Land data for regional MITIGATION PURPOSE

- Selection of ***meaningful set of land activities (no GL),*** first looking to land data for high C stocks lands (forestlands, grasslands, wetlands, hot spots: e.g. organic soils) and land conversions (e.g. to arable)
- ***Statistical data often available*** (e.g. crops areas)
- ***2006GL might not be sufficient*** for land activity based actions (because of land identification, tracking and dhi requirements)
- ***Expansion in unmanaged lands and land abandonment, conversions*** are difficult to follow, and this is often the case for high C stock lands (forests, wetlands, grasslands)

Estimation of regional GHG inventory for forestland

- IPCC estimation methods: **gain-loss** or **stock change**
- Method selection according regional circumstances following decision tree in 2006GL
- Often errors: misinterpretation/use of parameters or wrong application of formulas from 2006GL
- *They can be corrected if identified by a thorough check/review*

Example on estimation of forests sink – issues of method

- Cautious use of 2006GL methods used for regional inventories of forests sink - **stock change** likely results in more reliable and accurate estimates vs. **gain-loss**, because of:
  - general availability and accurate estimates for wood volume standing stock (although as periodic data) compared to annual current growth
  - less sensitive to large fluctuation in annual harvest
  - independent by third parties data and its quality (on harvest, wood collection, disturbance statistics)
  - implicit consideration of activity data in the standing volume estimates (less uncertain, less prone to errors)
  - most of the quality standards are implemented and checks are performed by forestry agencies

Risks of biased regional GHG inventory by *use of default factors*

- 2006GL provides global scale stratification and a selection of default factors as IPCC climate/soil zoning. GIS capacity is needed to downscale at regional level
- Difficult correspondence of default factors with management practice and its changes
- Even in Annex I countries, expert guess
- *These issues are difficult to identify and correct*

Example: issues for estimation of SOM change in agricultural soils by selection of default factors

- Estimation of SOM change in agricultural soils by stock-difference requires 4 variables:
  - reference C stock in soils (i.e. native vegetation that is not degraded or improved), and,
  - 3 stock-change factors (FLU, FMG and FI)
- Effect on absolute estimates of C stocks :
  - ***strong, multiplicative for incorrect factors*** (especially if they all increase or decrease)
- Effect on net removal /emissions estimates:
  - ***small for actual changes*/emissions in time**, no matter default or country specific data

Land mitigation activities at regional level

- ***Addressing leakage*** – 2006GL provides methodological support to ensure completness, to exclude 'pools'

- ***Address permanence and reversibility*** – land use balance and trends in land use, control of disturbances

- ***Effect of regional policies on low emissions*** – trend and pattern against BAU since the policy implementation. Significant potential for new activities that can be tracked individually under regular institutional activities (e.g. afforestation)

- ***Cost effectiveness*** – 2006GL provides default methods and factors as most economic solution for ER estimation especially for sub-national activities

Conclusions

- 2006GL are guided by UNFCCCC reporting principles, among which completeness and accuracy are key
- 2006GL is suitable for assessment of annual national/regional inventory and trends
- ....but does not offer enough guidance for mitigation activities, leaving on implementer how to proceed in practice
- regional land data challenging, additional guidelines are necessary
- because of methodological complexity, institutional challenges at regional level may be significant

Thank You!