

## **JRC analysis: reporting ‘not a source’ on Forest management and Afforestation/reforestation by the EU’s member states under the Kyoto Protocol**

*This document relies on EU MS submissions 2012 and takes into account requirements set in D16/CMP1 (Decision 16/CMP.1, art 21) as well as general and specific recommendations from IPCC GPG for LULUCF (IPCC Guidance, 2003). The discussion held during the 8<sup>th</sup> LR meeting (March 2012, Bonn) has been also considered.*

Reporting ‘not a source’ is often a controversial issue, where different perceptions exist among GHG inventory compilers and reviewers. The ‘not a source’ provision builds on the conservativeness principle, i.e. as long it can be demonstrated that a pool is not a source (i.e. that is a sink), it can be omitted from the accounting.

This issue has been already discussed during a JRC workshop. During that workshop, a decision tree has been produced as preliminary and informal guidance for MS ([http://afoludata.jrc.ec.europa.eu/index.php/public\\_area/LULUCF\\_workshop\\_2011](http://afoludata.jrc.ec.europa.eu/index.php/public_area/LULUCF_workshop_2011)), including a number of possible qualitative and quantitative arguments to be used. The interpretation that emerged from that workshop is that ‘not a source’ was introduced in KP reporting to facilitate the Parties, and thus the requirements for it should be less demanding than estimating and reporting/accounting a quantity. Specifically, ‘not a source’ does not necessarily require a “statistical” demonstration of sink, but rather, demonstration can be based on one or more elements which, although not enough to quantify accurately a sink estimate, strongly suggest that a pool is not a net source or emissions (i.e. they show the most likely sign of change).

After the JRC workshop, the same issue has been discussed at the 8<sup>th</sup> Lead Reviewer (LR) meeting (March 2012, Bonn). A draft decision tree (for reviewing purposes) has been produced by a group of LR, for the consideration of all LRs. This draft decision tree builds on the same approach of the decision tree developed at the JRC workshop, and was considered a good starting point by LRs (although some further elaboration may be needed). Nevertheless, on two issues the document produced in the context of LR meeting slightly differed from the JRC decision tree:

1) **merged pools.** As general rule the ‘not a source’ provision should be applied to each individual C pool. During the JRC workshop there has been some discussion on the possibility to provide evidence that combined pools (e.g. LT and SOM) are not a source when taken together. However, different views on this emerged from participants: a strict implementation of the relevant provisions would indicate the need to reporting and accounting on “individual pools”, but the principles of conservativeness and transparency which are behind the ‘not a source’ provision could suggest that a more flexible approach is possible (allowing the ‘not a source’ to be applied to more pools together).

During the LR meeting it was noted that, “if the Party provides strong evidence that no separate estimation is possible for the two pools, the ERT should evaluate the information (and compare with information by other relevant Parties), check that the reasoning for the merged pools is sound, and check that there is no evidence that one of the merged pools may be a source, or that the ‘not a source’ statement for both pools is conservative. The ERT should provide reasoning for accepting or not accepting the merged pools in the ARR”.

*Therefore, a preliminary conclusion that can be drawn is that, as long as the ERT accepts the rationale behind the merging of pools, the ‘not a source’ can then be applied also to merged pools.*

2) **relationship between tier-1 assumption for no C stock change and ‘not a source’.** In the JRC decision tree, it is written that “In some case (e.g., mineral soil in FM) tier 1 assumes no C stock change. However, as general rule, Tier 1 can be used ONLY for non-key categories” (footnote 1 slide 3).

The document produced during the LR meeting clarified further this issue, noting the following: “A “special case” is when the Party applies the IPCC tier-1 assumption of no carbon stock change (e.g. dead wood, litter and mineral soil under forest management), which is possible only if an activity is not a key category. This approach can be applied both in the Convention and in the Kyoto Protocol reporting. However, under the Kyoto Protocol, the additional provision on ‘not a source’ also applies. As suggested in the Section 4.2.3.4 of IPCC GPG, “Tier 1 can only be applied if the pool can be shown not to be a source using the methods

outlined in Section 4.2.3.1 of IPCC GPG". In this case, "NE" should be used in Tables 5(KP-I) and "R" should be used in table KP-NIR-1 (with clear explanation in the documentation box and in the NIR).

*Therefore, under the KP, the need to demonstrate "not a source" applies even in case of tier 1; as a consequence, even in the case of a non-key category, tier 1 assumption of no C stock change cannot be used as the only argument for proving not a source.*

In the following section, an overview of arguments and approaches used by MS in latest submission are shown.

### **Forest management**

Currently, **LT** (litter) pool is reported as a sink (either individual or combined with soil organic matter pool) by DK, FI, GB, IT, LT) or as a source (by PT, SE). DE made a Tier 2 demonstration that LT is neutral.

**DW** (dead wood) pool is reported as a sink (by DE, DK, FI, GB, IT, LT, PL, SI, SE) or as a source (by FR).

From 17 MS that elected FM, 4 MS estimate **SOM** as a sink (i.e. FI, PL, SE, GB) and only one as a source (i.e. PT).

MS not mentioned reported the pools as 'not a source' (also reporting NO or NE under UNFCCC inventory).

In the current submissions, the demonstration of 'not a source' includes heterogeneous approaches depending on the data availability.

For **dead wood** and **litter** current approaches can be grouped as follows:

- 1) *Direct implementation of Tier 1 of GPG Guidance* assuming equal carbon input and loss in the pool without any specific additional information (this could be not enough, see above above);
- 2) *"Qualitative" information from scientific literature or other sources, including various statistics* i) decreasing harvesting rate in time, ii) very low rate of forest cover change and iii) increasing forest cover and forest management area, v) similar pattern of disturbances in time;
- 3) *Combination of qualitative and quantitative information* (including some data on C stock changes, although non-representative for the entire country);
- 4) *Demonstration of 'not a source' by a simulation exercise* with a model (peer reviewed in scientific papers), assuming country specific data and circumstances;

For **soil organic matter** pool demonstrations go along following lines:

- 1) *Direct implementation of Tier 1 of GPG Guidance* assuming equal carbon input and loss in the pool without any specific additional information or reasoning (this could be not enough, see above);
- 2) *Assumption that C inputs and losses in mineral soil are equal* based on *national and international literature and national forestry circumstances*;
- 3) *Assumption that C inputs and losses in mineral soil are equal* or the C stock is increasing based on results of soil monitoring programs or empiric ecosystem correlations (often preliminary or considered insufficient for quantitative estimation at country level);
- 4) *Demonstration of 'not a source' by a simulation exercise* with a model (peer reviewed in scientific papers), assuming country specific data and circumstances;

A transparent demonstration of not-a source in FM lands could require different set of arguments for:

- Changes of management regimes (clear-cut, shelter wood, etc);
- Areas subject to natural disturbance (e.g. fire, storms): reporting 'NO' for entire time series can be correct under constant management practices and disturbances regime, but is likely to be not adequate in the year when (or after) a large disturbance occur.

### **Afforestation/reforestation**

**LT pool** is reported as a sink (i.e. BG, FR, DE, IT, GB, PT, RO, SK, SE), with exception of IRL's subdivisions on windblown and burnt areas which are sources and DK that report it as a source. LT is also

sometimes included with soil organic matter (i.e. CZ, FI, LU, and PL). All other MS report ‘no source’ for this pool.

**DW pool** change is estimated and reported as a sink (i.e. FR, PL, SE, IT), as a source (i.e. DK) or either as sink or source depending on converted land or subdivisions considered (i.e. IRL). Under the type of data available PT includes DW within living biomass pool, while GB included it under litter pool. All other MS report ‘no source’ for this pool.

With regard to **soil organic matter pool**, several MS estimate and report it as a sink irrespective of the previous land use (i.e. BE, CZ, DK, FR, GB, IT, PL, PT, RO, SK, ES), other MS report as a source or sink depending of the type of lands involved in conversion (i.e. BG, FI, LU, NL) and lastly, two MS report it as an overall source (i.e. DE, SE with both reporting aggregated estimates at country level which makes difficult understanding if all or part of the conversions are reported as sources). Specifically, conversions from annual/perennial CL to FL are reported as sources by BG and FI; conversions from GL to FL are reported as sources by BG, FI , LU, NL.

Current demonstration that **DW or LT pools** are not sources depends on the data availability, generally along following justifications:

- 1) *Direct implementation of Tier 1 of GPG Guidance assuming equal carbon input and loss in the pool without any specific additional information or reasoning (this could be not enough, see above)*
- 2) *Assumption that the previous land use had no significant litter or deadwood pool (i.e. under naturally or management practices), combined with post-afforestation accumulation of C due to forest cover;*
- 3) *Conservative assumption that there is no dead wood present on the land following a land use change to forest land (or that defined dead wood dimensions cannot be reached until 2012 even by the oldest plantations established since 1990), or that the litter pool is increasing with time;*
- 4) *Expert judgment based on a combination of qualitative and quantitative arguments, like country specific studies and international references;*
- 5) *Quantitative information from NFI plots.*

Seven MS report **SOM pool in mineral soils** as ‘not a source’ (i.e. AT, GR, HU, IE, LV, LT, and SI), with demonstration going along following lines:

- 1) *Assumption that C inputs and losses in mineral soil are equal (this could be not enough, see above);*
- 2) *Assumption that soil organic matter increase following afforestation on agricultural areas as demonstrated by national research, national and international literature;*
- 3) *Quantitative information from repeated sampling from a reduced number of plots (which is considered insufficient to provide quantitative estimates at country level).*

A transparent demonstration of not-a source in AR lands could require different set of arguments for:

- each different land use conversion: CL/GL/WL/SL/OL to FL. A special attention should be paid to GL and WL converted to FL, which are often shown to be sources for the first decades after conversion;
- different soil types: a careful consideration has be given to afforestation of peat/peaty soil;
- different age and stand/tree dimensions: A/R occurred in the early 1990s are more likely to generate a source from the pool in case of natural (e.g. fire, insect attacks, storms) and man-made (thinning) disturbances;
- “planted” and “naturally assisted” afforested lands. When soil ploughing is involved, it is more likely that a source exists in the first years or even decades.

Other general considerations which may apply to all activities include:

- Any scientific literature or ‘grey’ sources used for demonstrating the ‘not a source’ should be relevant for the country;

- In order to assess the validity of any assumption made, a check with assumptions/ approaches/ estimates made by neighbor countries may be useful.
- The demonstration of not a source has to be done for the CP years (2008-2012) and not in general (i.e. a fire that happens in 2000 may not have any impact on the pools changes over CP).