



Pools to be reported under KP-LULUCF: harmonized guidance and decision tree on the application of “not a source” principle

By G. Grassi, V. Blujdea with support of EU LULUCF experts that contributed to internal EU LULUCF review (alphabetical order): K. Black, E Cienciala, Z. Somogyi, M. Vitullo, P. Weiss and participants at the JRC technical workshop on LULUCF issues under the Kyoto Protocol, organized by the Joint Research Centre of the European Commission in Brussels on 21 November 2011



Background for the implementation of “not a source”

Application of “not a source” principle was often highlighted in both the individual MS’ ARR (or SP) and in the EU’s ARR (i.e. as *lack of transparency or weak justification and documentation*). Within EU, MS apply it in different ways, for FM and AR activities for C stock changes in SOM and DOM (i.e. litter).

Relevant documents:

Decision 15/CMP.1, para 6(e) of the annex: **“Information on which, if any, of the following pools – above-ground biomass, belowground biomass, litter, dead wood and/or soil organic carbon – were not accounted for, together with verifiable information that demonstrates that these unaccounted pools were not a net source of anthropogenic greenhouse gas emissions”.**

Decision 16/CMP.1 art 21: **“Each Party included in Annex I shall account for all changes in the following C pools: above- and below-ground biomass, litter, dead wood, and soil organic carbon. A Party may choose not to account for a given pool in a commitment period if transparent and verifiable information is provided that the pool is not a source”;**

Good practice guidance from the IPCC GPG LULUCF (2003), chapter 4.2.3.1.

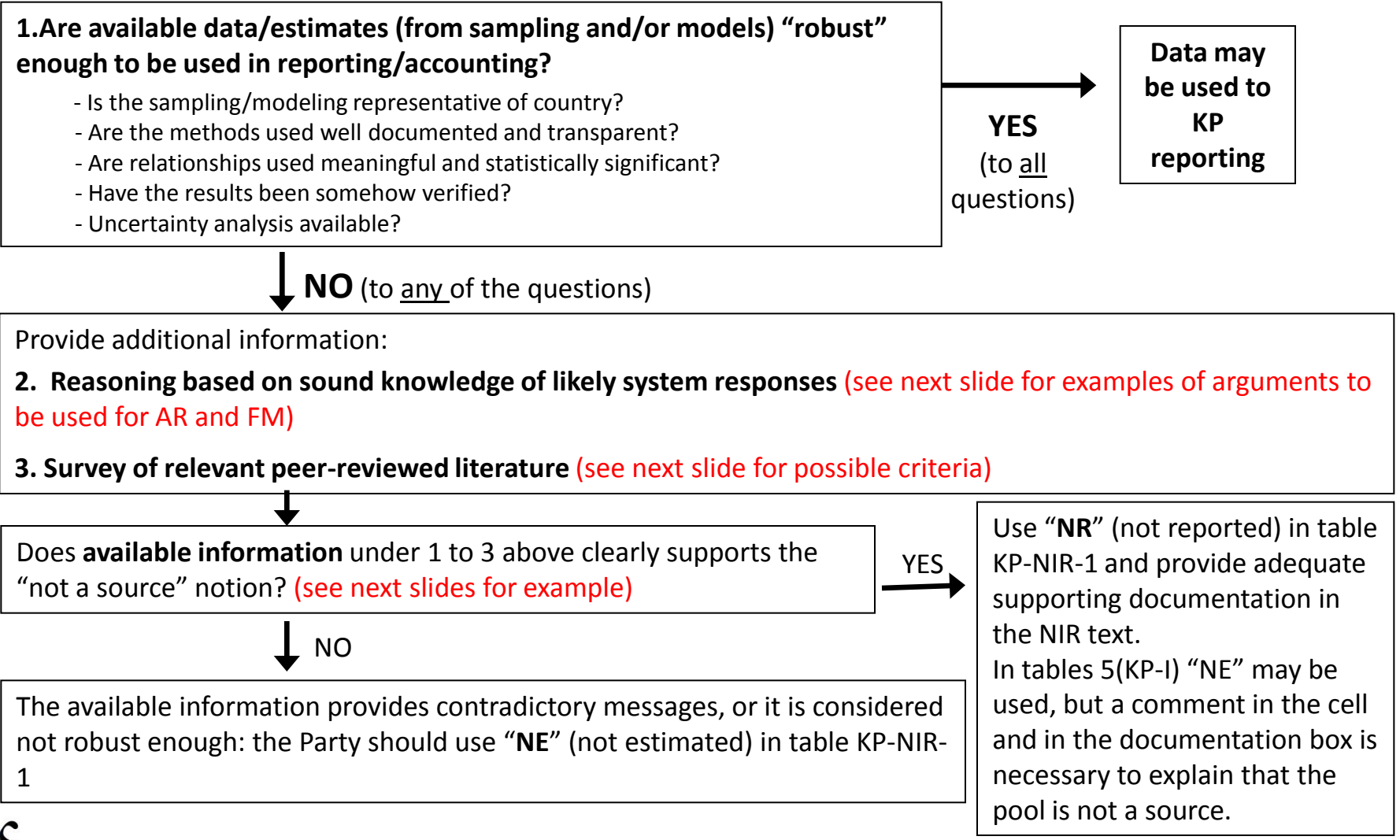
An important underlying question is: *are the requirements for “not a source” different from the requirements for KP reporting/accounting an estimate?*

The interpretation that emerged from the meeting is that the “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 number. Specifically, “not a source” does not necessarily requires a “statistical” demonstration of sink, but rather, demonstration can be based on *an element* or a *number of elements* which, although not enough to quantify accurately a sink estimate, strongly suggest that a pool is not a source (i.e. they show the most likely sign).

Pools to be reported under KP-LULUCF¹: decision tree

(note: this is a general guidance for MS, which of course should be compared to the ERT's assessment of the "yes" and "no" in the tree)
As general rule this decision tree should be applied to each individual C pool. During the meeting 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). **We will ask to discuss this issue at Lead Reviewers meeting, as well as the possibility to provide more methodological guideline in future IPCC guidance.**

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¹ 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.



Additional information² and thinking on:

Reasoning based on sound knowledge of likely system responses for FM, e.g.:

Under evidence that the biomass is sink in FM with no major change occurred in harvest rate and technology, it is very unlikely that the other pools (LT and SOC) are sources. This may not be true under some circumstances (i.e. heavy harvesting technology leading to high emissions or years with climate disturbances).

Use of correlations, e.g. for regressions between C stocks and changes in various pools. Following the decision tree, in case robust evidence can be provided that these correlations are causal, statistically significant and based on representative sampling, regressions are suitable for reporting. If not, the available information might only be used as additional evidence for not-a source.

Use of proxies, e.g.:

- 1) C concentration in soil (e.g. if increased at re-sampling, likely not a source, assuming time constant apparent density of soil)
- 2) Forest managements practices, e.g. with increasing stand density or less intensive management practices (e.g. subsidizes actions to increase DW, e.g. more tree parts remain on-site) likely DOM and LT are not sources
- 3) An increase in events causing trees mortality likely lead to DW to be a sink

²to be added under NIR section “11.3.1.2 Justification when omitting any carbon pool or GHG emissions/removals from activities under Article 3.3 and elected activities under Article 3.4”, according annotated outline of the NIR



Additional information and thinking on:

Reasoning based on sound knowledge of likely system responses for **AR** e.g.:

At stand level, DW, LT in AR on cropland and grassland cannot be a source (at least for many years, e.g. before the first thinning, except in case of natural disturbances), especially if previous land use did not have perennial woody biomass. In AR the stands development follow exponential patterns (always increasing over first decades, i.e. over 1990-20012), which can also be theoretically attributed to all other C pools

Is DW expected to meet the national definition used by national reporting system (e.g. > 10 cm diameter and certain length of wood pieces as in NFI)? If not, there is no DW.

Reasoning based on average national/regional/local soil C stocks of previous land use and forest land, e.g. if soil C stock/ha is 60t in Grassland and 80t in Forestland. Are averages enough? (i.e. confidence intervals needed). Note that, on grassland conversions, several studies showed that SOC may decrease in the first few decades after AR, even if in the longer term soil is a sink.

Use of proxies: e.g. i) annual AR rate, showing there is annually an ever increasing established AR area; ii) no disturbance in AR lands, iii) depth of organic layer in mineral soil (if increased, likely not a source)



Additional information regarding:

Scientific evidences, from:

- surveys of relevant peer-reviewed literature or/and national “grey” literature from similar/neighboring geographical or eco-climatic region/ecosystem type/management type/disturbance type or confirmed by national experts
- Independent and especially recent results of ongoing research
- Studies that give evidence to system responses to national /regional/local circumstances (i.e. from long time integration of monitoring) issued from authoritative institutions or organizations (e.g national/regional research entities)



Example of individual or combined elements to support application of “not a source”:

- A number of local studies (not fully representative of the country, and not fully comparable among them) always indicate a sink in FM soil, although an accurate country-estimate cannot be derived.
- A just-implemented model shows a sink and the sensitivity analysis under various plausible scenarios shows a sink. However, field verification of model’s results is still ongoing. While waiting for these final test, current model’s results may be temporarily used to support the “not a source”, in which case additional arguments have to be provided.
- Results from national inventory will soon be available. While waiting for these results, one or more among the reasoning above may be temporarily used to support the “not a source”
- In argumentation, type and the size of disturbances plays a key role

In general, the chance of convincing the ERT that a pool is not a source will increase if more lines of evidence and various arguments are provided !