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Interactive comment on "Carbon Emissions and Removals by Forests: New Estimates 1990–2020" *by* Francesco N. Tubiello

Anonymous Referee #2

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This paper is a timely important piece of work and data could be useful for upcoming verification of the performance of the REDD+ activities in developing countries.

Main problems at this stage are more on consistencies in presenting the results. 1. Unit of carbon: Authors used Gt CO2, Gg CO2, converting from Mt CO2 to Gg CO2. Although Gt CO2 and Gg CO2 are the same in terms of value, I think authors should use only one type i.e. Gg CO2 because the equations were expressed in terms of Gg CO2, not GtCO2

2. Living biomass: Authors mentioned living biomass to refer to two carbon pools, but they did not refer specifically to aboveground and belowground. It might be useful to say specifically as per the IPCC Guidelines.

3. Five vs Six carbon pools: I believed that IPCC Guidelines refer to five carbon for national reporting. The HWP pool is optional and not eligible for performance verification. Please check this again carefully

4. In Introduction part, authors may want to describe the need for understanding the past carbon emissions under the REDD+ scheme to make this study more relevant to the on-going international policy.

5. Forest flux, forest change (L60): I think these terms are still confusing. Can we add "forest carbon fluxes", "forest area change", etc.

6. (L65) Bi should be TgC (not MtC. TgC is correspoding to Gg while Mt is corresponding to Gt). Please add living biomass (aboveground and belowground)

7. L65, 44/12 ... Mt C should be Tg C (Teragram = 1000000 MgC or GgC/1000)

8. Uncertainties I think this section needs several more references to support the arguments. Please see early comment about six carbon pools

9. Results To be in line with the on-going REDD+ scheme, I think authors should describe the results by simply say Firstly, report the emissions: refer to emissions from deforestation only (please check FREL of the REDD+ Rules) Secondly, report the removals Thirdly, report the net emissions (please check FRL) Although REDD+ is more on developing countries (presumably all Non-Annex 1 countries), it would useful to describe the results in line with the REDD+ Rules or the Warsaw Framework

Authors should also describe, something like ... Our results will be presented by Annex 1 and Non-Annex 1 countries before referring audiences to the Table 1, in which nothing was described earlies.

3.1. can it be Forest Carbon Flux? forest flux could mean many things

L135: i.e. net of deforestation .... I think it should be i.e. after deducting the net deforestation.

From here, authors described the emissions in terms of Gt CO2 but it was Gg CO2 in the equations.

Conclusion From the tone of this writing, this paper seems to be the work of the FAO, not the authors themselves. Please re-think and rewrite if possible.

Table 1: Title here is confusing to me. can it be Estimates of total forest carbon fluxes from deforestation and planted forest by Annex 1 and Non-Annex 1 countries between 1990-2020

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