

Answer to reviewer's comments

24 April 2023

Never offer quantification of food system emissions. Mentioned multiple times but never quantified. Thus, using Fig 5 for example, one could check (rounding) 1/3 of total food emissions (top pie chart), then 1/3 of pre- and post-production (middle chart), then finally 1/3 of household for NRB fraction. (If authors quote plus/minus 60% uncertainties, how can they then show percentages to 0.x%?) We never get any numbers to work with? Why? Working from earlier paper by same group (<https://doi.org/10.5194/essd-14-1795-2022>) one finds 16.5 Gt CO₂eq yr (2019) for total food systems and 5.8 for pre- and post-production. 1/3 of 5.8 gives 1.9 for household emissions, times another 1/3 for NRB (authors say 36.3%) gives 0.6 -0.7 Gt, consistent with and within uncertainty range of 0.7 Gt quoted by authors. Why did I have to do this? Authors need to provide numbers! Readers should not need to chase! Show us that you provide reliable information on NRB sources!

The reviewer is right and his/her calculations also right. We agree that readers may be interested in numbers describing how household woodfuel emissions relate to agrifood system emissions, and we added them in the text.

And, clarify in Figure 1? Do these numbers represent total wood fuel use or non-renewable only. From calculations above this reader concludes total rather than NRB, but manuscript focuses on NRB. Also, for Fig 1, authors claim 6% increase 1990 to 2019 but with uncertainty ranges so large how can they certify any trends?

These numbers represent non-renewable emissions, which correspond to wood fuel emissions too, since the "renewable fraction" is assumed to be "net-zero".

Figure 2 claims "top 10 emitters" but only shows five countries?

Thank you for spotting this. It was our mistake. Now corrected.

Fig 3 supposedly shows emissions by region but, earlier (p 4, lines 14-15 and 24) authors claim justification for omitting tropical regions and fail to provide details on how they identified regions or subregions. This reader finds no justification to assess Fig 3. If NRBf declined in four regions, then emissions must have increased in the remaining one or in others not accounted?

We clarified it in the text: that regions and sub-regions are identified based on FAOSTAT categorization, and clarified which subregions are related to pan-tropical. One important assumption is that most of unsustainable wood harvesting for food preparation takes place in pan-tropical countries (i.e. in the regions represented in figure 3). Other non-tropical regions (e.g. Europe) are not covered by the analysis, since the NRBf is expected to be much lower or negligible.

Figure 4 needs error bars. Again, this reader doubts that data support any conclusion about temporal trends.

We agree that the uncertainty does not support any straight conclusion, however we can identify a trend. Error bars have been added to figure 5 as suggested.

Fig 5 addressed above, needs quantification.

Resolved (first point above).

AFOLU acronym used several times but never defined.

Good point. The acronym has been now explained in the text.