TABLE FOR COMMENTS

Name of submitter: Rory McDougall

Affiliated organization of the submitter (if any): DelAgua Health Rwanda Limited

Contact email of submitter: rory.mcdougall@delagua.org

| **0** | **1** | **2** | **3** | **4** | **5** | **6** |
| --- | --- | --- | --- | --- | --- | --- |
| **#** | **Para No./Annex / Figure / Table** | **Line Number** | **Type of comment****ge** = general**te** = technical **ed** = editorial  | **Comment** **(including justification for change)** | **Proposed change** **(including proposed text)** | **Assessment of comment****(*to be completed by UNFCCC secretariat*)** |
| **1** | **2.11** **Table 4** | **46** | **te** | **Residential Biomass Consumption**The MoFuSS tool estimates non-renewable biomass primarily as a function of population data and estimated fuel consumption metrics. In particular, the authors use a default wood fuel consumption of 0.4 tonnes per capita across Sub Saharan Africa. We consider this default to be too low as there is no academic support or justification for its inclusion. | The quantification of wood fuel consumption data should be done nationally and should be sourced from updated Host Country approved surveys. |  |
| **2** | **Table 5 Results** | **82** | **ge** | **Results**The latest proposed fNRB numbers are drastically different than the previous CDM defaults as well as the Q3 2023 MoFUSS output. | These variations in the computation and final default fNRB values highlights the need for further and broader scientific engagement before any determinations on the matter are concluded. We propose a third round of public consultation on any updated numbers, given the significant changes from 2023 to 2024.  |  |
| **3** | **3.4** | **92** | **ge** | **Data Inputs**“Regarding the second factor, we are planning to improve MoFuSS to better accommodate the errors inherent in large spatial AGB maps; however, this is still a work in progress and was not prepared for this assessment”. The comment indicates that the MoFuSS values are still in preparation and not yet final. Thus, how can these values than be open for public consultation and be implemented afterwards. | Provide more funding and time to the MoFuSS authors to complete the study and submit the most accurate and up to date values for a third public consultation.  |  |
| **4** | **2.8** | **39 & 40** | **te** | **Non-residential biomass consumption**Bailis acknowledges that non-residential biomass consumption was previously not factored into the MoFUSS model and that this has now been applied in the revised numbers. By sampling 4 countries (including Rwanda), a weighted average has been applied. However, the weighted average is lower than the specific data referenced for Rwanda by Bailis. When trying to build credibility into these numbers, especially with sub-Saharan African governments, where accurate country level data exists, it should be applied for said country as opposed to applying a weighted average. The Rwanda non-residential biomass consumption figures come from high-quality Government of Rwanda data and as such by taking a generic multipler, fNRB for Rwanda is inaccurate. | In cases where there is accurate and reliable data on non-residential biomass consumption, such as is the case in Rwanda, this multiplier should be made in the MoFUSS model numbers for that country based on the actual data, not through a weighted average. In these revised numbers, Rwanda has an fNRB calculation with a non-residential biomass usage input that is incorrect. Whilst Bailis acknowledges that ‘when carrying out detailed, country specific studies these numbers can be adjusted’ the current consequence is that these public revised default fNRB numbers for Rwanda are based on this incorrect data input. The model should be run again for Rwanda with the specific country evidence backed assumptions used as inputs. In general, the default fNRB numbers should always apply national-level data and inputs, rather than generic inputs.  |  |
| **5** | **2,9** | **41 & 42** | **te** | **Data Inputs**The lack of accounting for forest plantations in the model is likely to have a significant impact on fNRB numbers in countries that have clearly defined policies on forest plantations that are effectively enforced. For example, Rwanda has clear legislation on types of protected forest areas at the state, regional and district level which appears not to be being accounted for ([Law Determining Management and Utilisation of Forests in Rwanda.)](https://rwandalii.org/akn/rw/act/law/2013/47bis/eng%402013-09-16/source) These areas are protected locally and not chopped for fuel consumption with detailed national regulations in place on illegal felling. These areas are therefore inaccessible for the population and should not be accounted for when considering fuelwood supply. Including these areas is inaccurate as there are inaccessible for the population. | Stakeholders should be able to present evidence on the status of forest plantations, and their resulting accessibility, at the national level and the quality of this evidence should be assess with a view to including this in revised fNRB numbers.Rwanda has been used as an example; however, each country should be reviewed individually and results should be used to input into the model. |  |
| **6** | **2.9** | **43** | **te** | **Residential Biomass Consumption**Regionalized wood usage estimates are not appropriate in context where accurate government data exists. In addition, where project developers have submitted KPTs, these should also be considered to avoid a standardised baseline biomass consumption figure being applied to all sub-Saharan Africa, for which there does not appear to be any scientific or evidence basis. | An additional round of published MoFUSS numbers is needed that must account for a combination of evidence from recent KPTs and other surveys, often commissioned by Governments themselves, at the individual country level when considering baseline biomass consumption by households.Specifically, the Government of Rwanda has conducted credible and accurate surveys (with funding from the EU) of biomass consumption across the country as recently as 2020 (Ministry of Infrastructure/Ministry of Finance ‘National Survey on Cooking Fuel Energy and Technologies in Households, Commercial and Public Institutions) which calculated household biomass consumption to be considerably higher than the baseline of 400KG used in these published numbers. |  |
| **7** | **2.16** | **74** | **te** | **Country Groupings**Bailis acknowledges that groupings of countries are needed to account for cross border trade (where there is strong evidence that it occurs.) As a result, in the revised numbers, Rwanda has been included in a grouping, where previously Rwanda had been treated in isolation from other countries. However, strong evidence exists that suggests that Rwanda annually imports (legally) only 200,000kg of biomass (a mixture of charcoal and firewood) and there is little to no strong evidence of significant illicit trade of biomass for cooking. This argument is further strengthened by several Government of Rwanda papers as well as evidence of regular and consistent border closures.As such, the cross border groupings should be reconsidered as part of the modelling exercise.  | The MoFUSS numbers for Rwanda should be run again with either the exact figure of annual biomass importation (for cooking) taken from the [Ministry of Commerce Wood Products Cluster Strategic Plan 2014-2019](https://rwandatrade.rw/media/2014-2019%20MINICOM%20Strategic%20plan%20for%20Wood.pdf) (page 20) being applied to the calculation of cross border trade, or, Rwanda should not be grouped with any country (in figure 9.) and no cross border trade of biomass should be considered as there is no significant verifiable evidence that it is taking place. |  |
| **8** | **2.5** | **23** | **ed** | **Data Inputs**Global Forest Watch data is referenced several times as a source of information on forest change. It is not entirely clear the extent to which this data is relied on, yet analysis of a cluster of countries has raised a concern in relation to revised fNRB numbers. When reviewing GFW data for several countries from [the database](https://www.globalforestwatch.org/), it was noted that ‘annual tree cover loss by dominant driver’ between 2001-20223 is as follows:

|  |  |
| --- | --- |
| Rwanda | 12% |
| DRC | 0.23% |
| Uganda | 2.8% |
| Tanzania | 0.64% |
| Burundi | 0.85% |
| Kenya | 3.6% |

Whilst we accept that fNRB is calculated under a separate equation, from an overall assessment perspective, it is difficult to understand how Rwanda can have the lowest fNRB of all of these countries yet has the highest rate of permanent deforestation occurring as a result of tree cover loss. | The comparison of Global Forest Watch data with regards to the relationship between overall tree cover loss and annual tree cover loss by dominant driver (resulting in permanent deforestation) suggests a reassessment of the fNRB value for Rwanda. |  |
| **9** | **N/A** | **NA** | **ge** | **Data Inputs / Results**It is clear from reviewing the latest report that there are several local / national variations that need to be considered and researched to build an accurate understanding of fNRB values. For these numbers to become de facto defaults the UNFCCC needs to commission local or regional studies to use localised inputs and assumptions for accurate fNRB values. Only once local inputs and assumptions have been used in the MoFuSS model should there be ‘default’ values approved by the UNFCCC. In the interim period CDM Tool30 v4 should still be applicable. | Local / national variations need to be included in the results before they become de facto default values. |  |
| **10** | **N/A** | **N/A** | **ge** | **Results**The current report does not provide any suitable reviewing advice for carbon credit buyers, developers and investors to illustrate that these numbers are effectively desk based figures that are subject to material changes when new inputs and assumptions are used (which are often generated from utilising local knowledge). Instead, the UNFCCC / the authors needs to make clear that these figures can, and fundamentally should, change when the MoFuSS inputs and assumptions are updated with better and more contextual understanding of the underlying country and region. | As part of any ‘official’ communication of such figures there needs to be a disclaimer that these figures are derived from desk-based research and subject to material change when inputs and assumptions are revised to adhere to local knowledge. Ideally the report should also clearly list in a table where generic assumptions have been made so that the average carbon market participant, who is not an academic in nature, can better understand why there are likely to be material differences in model outputs when improved inputs are used. |  |
| **11** | **2.5** | **23** | **te** | **Data Inputs**Globally calibrated remotely sensed products are usually measured with considerable error with forest / non-forest classifications especially in off the shelf products that are being used by the research team. Two specific papers that detail these can be found here: Kinnebrew, E., Ochoa-Brito, J. I., French, M., Mills-Novoa, M., Shoffner, E., & Siegel, K. (2022). Biases and limitations of Global Forest Change and author-generated land cover maps in detecting deforestation in the Amazon. PLOS ONE, 17(7), e0268970Lindquist, E. J., & D’Annunzio, R. (2016). Assessing Global Forest Land-Use Change by Object-Based Image Analysis. Remote Sensing, 8(8), Article 8. https://doi.org/10.3390/rs8080678 | More detail is required about how the authors considered these well understood, and written about, data issues to calculate accurate, and reliable, fNRB numbers. |  |
| **12** | **2.5** | **23** | **te** | **Data Inputs**As per comment #11, how does this misclassification that is inherent to global remotely sensed products impact the outcomes. | An additional section in the report detailing how these misclassifications would impact the ‘default’ fNRB figure |  |
| **13** | **2.5** | **23** | **te** | **Data Inputs**The Global Forest Watch data has particularly come under scrutiny. It requires a very high threshold of change: pixels are 30 meters in size, and a pixel is classified as "deforested" only when it has almost been entirely cleared. So, if half the pixel has been cleared, it does not measure as deforestation. Moreover, the data classifies all of Rwanda's plantations as forest which means that whole 30 metre pixels will need to be cleared before it is deemed as deforested. Rwanda is unlikely to clear 30 metres in one specific pixel due to the land constraints and instead are likely to be deforesting across numerous pixels but rarely 100% within a specific pixel and as such deforestation in Rwanda is likely to be significantly understated. Therefore, it is not a surprise that the GFC suggests that Rwanda is "stable" when Government documents suggested a significantly worsening deforestation problem with citizens struggling to access biomass for their fuel needs. | Country specific data and locally produced spatial maps with greater granularity are needed to calculate an accurate fNRB figure. |  |
| **14** | **Figure 9** | **74** | **te** | **Figure 9**It is not clear from the map the groupings of countries in the region when looking at the image. | For clarity, a table highlighting grouped countries for cross border trade is needed to avoid confusion. |  |
| **15** | **NA** | **NA** | **ge** | **Country Approval**While we welcome the increased sophistication of fNRB estimation, the MoFUSS model presented is complex. Neither the model nor the data inputs have been adequately validated by Designated National Authorities (DNAs) due to the short timeframe provided for analysis. | The determination of the fNRB deserves critical scientific consensus before final values are released. The current 5-week review period provides little room for sufficient stakeholder engagement and inadequate time for DNAs to assess and provide comprehensive feedback on the input and results accuracy. We urge the CDM Executive Board to delay the implementation of the new fNRB estimates until a broader scientific consensus is achieved. This will ensure the integrity and accuracy of the environmental claims, aligning with ISO standard ISO 5725-1:1994, which emphasizes accuracy over conservativeness in scientific guidelines. |  |
| **16** | **NA** | **NA** | **ge** | **Other Stakeholder Approval**We have concerns with respect to the MOFUSS tool’s use in the determination of the fNRB without independent validation or approval from a broad selection of experts in the biomass, forestry and geo-imaging industries. While the MOFUSS tool has undergone peer review, the data inputs for fNRB computations have not, driving wide variance between the latest submission and the October defaults. We note with concern that there is a limited availability of individuals or organizations with the required combination of statistical, computing and forestry expertise that this model and its outputs require to assess.  | In the absence of a governing framework that can review and certify the outputs of the model in real time, we observe a risk in adoption of values as presented in its current iteration, but also in future iterations of the tool or the underlying definitions of fNRB following these consultations.In particular, we recommend that assumptions from global datasets are validated by ground truthed studies, and approved by Host Country governments. |  |
| **17** | **Table ES1** | **3** | **ge** | **Summarised Results**We note with concern that standard deviations are high and outside of accepted statistical practice, bringing the accurateness of the model and values into question. | Please provide a clearer explanation for the high Standard Deviations  |  |
| **18** | **2.8** | **39** | **te** | **Non-Residential Biomass Consumption**The MoFUSS tool uses example studies in Kenya, Rwanda, Ethiopia and Uganda to extrapolate non-residential fuel consumption across the entire sub-continent. Each country should have its own figure for this rather than a default multiplier of 1.1 and 1.2. This will lead to more accurate inputs and resulting figures. | The quantification of non-residential fuel consumption should be informed by national studies by Host Country governments. As per comment 4, the Government of Rwanda has completed this study and yet a significantly more conservative value has been used for Rwanda. It is impossible to get to accurate figures with such data being overlooked. |  |
| **19** | **N/A** |  | **ge** | **Results**There continue to be material and substantial concerns with the calculation of the fNRB results across Africa with concerns raised by a variety of stakeholders. As such, it would be inappropriate to approve these numbers without a further round of consultation.  | Schedule a third public round of consultation.  |  |
| **20** | **N/A** |  | **ge** | **Results**From speaking with various stakeholders, the default values under the MOFUSS model are incorrectly perceived as the set fNRB by country when that was never the intention and that national level inputs should be applied in addition.  | The UNFCCC should make clear in all external communication that the default values from the MOFUSS model is a basis for calculating fNRB and that Host Countries and project developers should apply their own, evidence-based inputs into the model to calculate an accurate fNRB. The UNFCCC should also release a statement clarifying this.  |  |