**Detailed Submission on the Flaws in MoFuSS-Derived fNRB Values for CDM Projects**

The current methodology for determining the fraction of non-renewable biomass (fNRB) using the MoFuSS (Model for Fuelwood Supply and Sustainability) model contains a critical oversight that significantly impacts the accuracy of emissions calculations, particularly in countries like India where forest dynamics are complex.

The fundamental issue lies in the model's treatment of all forest biomass as a uniform supply source and this approach fails to distinguish between

1. naturally occurring forests and,
2. purpose-grown plantations/agroforestry species.

Due to the approach of not distinguishing the type of biomass, the approach leads to a systematic underestimation of fNRB values as agro-forestry plantations have increased due to food security and demand of fruit bearing trees/government policy with focus on horticulture species across the country. The MoFuSS model considers these agro forestry plantations as Forests supplying wood, however in actual conditions they are not used for wood harvesting rather for meeting fruit requirements/food security.

Due to the inability of MoFuSS to distinguish between the two type of biomass, it results in incorrect baseline emissions calculations and an unfair reduction in certified emission reductions (CERs) for legitimate projects addressing forest degradation.

A thorough analysis of India's Forest Survey of India (FSI)[[1]](#footnote-1) reports from 1980 to 2023 reveals a crucial trend: while the country's total forest cover has increased, this growth is entirely attributable to large-scale afforestation and agroforestry programs. During the same period, natural forests—particularly accessible forests that communities traditionally depend on for fuelwood—have continued to degrade, with declining growing stock and reduced ecological quality.

The MoFuSS model, by not differentiating between these two distinct categories of biomass, incorrectly incorporates purpose-grown plantation supply into its "sustainable biomass" calculations. This leads to an **inflated estimate of renewable biomass availability** and consequently depresses the fNRB value.

**This methodological flaw has serious implications for all the Household-biogas/ICS/Clean drinking water projects in various mechanisms.**

The fNRB is meant to represent the proportion of biomass extraction that is non-renewable—that is, the depletion of existing carbon stocks that cannot be naturally regenerated within a reasonable timeframe. **According to IPCC 2006 Guidelines Volume 4 chapter 2**, only biomass loss from natural forests should factor into this calculation, as managed plantations are intentionally maintained as renewable resources.

By including plantation-derived biomass in the sustainable supply pool, the current approach violates this principle and creates a perverse incentive: projects that genuinely mitigate degradation of natural forests receive lower Emission Reductions than they deserve, while the accounting system fails to reflect actual carbon stock depletion. This has an adverse impact on the community projects in selected geographic areas we have specifically shared the data from India.

Further analysis of India’s forest dynamics reveals a critical contradiction in the current fNRB assumptions. While MoFuSS presumes biomass demand is met through purpose-grown plantations, FSI data shows a consistent year-on-year decline in moderately dense forests (natural forests) alongside an increase in open forests (degraded/degrading). **This proves extraction is still occurring from natural stocks.**

The default 7% fNRB value implies 93% of biomass is renewable in India, yet the reality is that degraded open forests now dominate India’s landscape. If plantations truly supplied most biomass, natural forests would recover; instead, their continued decline exposes the flaw that there is an error in MoFuSS’s modelling. The acceptance of such disparity would be detrimental to all the existing as well as new projects and in a way leading to continued baseline.

Further we would like to highlight the existing fNRB values in the ongoing projects, the drastic reduction in India’s fNRB values—from 70-90% under earlier Tool 30 to just 7% now—raises alarming questions. All the projects have referred to Forest Survey of India (*Forest Survey of India (FSI) is an organisation under the Ministry of Environment & Forests, Government of India. Its principal mandate is to conduct survey and assessment of forest resources in the country*) and data which is publicly available and updated every 2 years.

If the earlier values were correct, then hundreds of projects overestimated emissions reductions, implying systemic failure in CDM’s/Carbon Mechanism’s oversight. If the new values are correct, the CDM is effectively strangling the sector: a 7% fNRB makes most projects financially unviable, deterring investors and betraying commitments to clean cooking. This isn’t methodological refinement—it’s a policy contradiction.

By conflating purpose-grown plantations (renewable) with degraded natural forests (non-renewable), the CDM EB is forcing a perverse choice: halt afforestation progress or abandon clean cooking initiatives. Neither outcome aligns with India’s climate goals or the International Paris Agreement mandate to support sustainable development.

We therefore urge the Methodology Panel to address this issue through one of the following corrective measures:

1. Modify the MoFuSS model to explicitly exclude purpose-grown plantations and agroforestry systems from its sustainable biomass supply calculations, ensuring fNRB reflects only extraction from natural forests.
2. Develop country-specific fNRB adjustments based on empirical data (such as India’s FSI's degraded forest records) where the MoFuSS model cannot be sufficiently refined.

1. Forest Survey of India reports for each consecutive year can be seen from the link: <https://fsi.nic.in/forest-report-2009> The details of the tree cover and forest cover are provided in chapter 2 of every report. [↑](#footnote-ref-1)