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

The current methodology used to calculate the fraction of non-renewable biomass (fNRB) through the MoFuSS (Model for Fuelwood Supply and Sustainability) model contains a critical shortcoming—one that significantly affects the accuracy of emissions estimations, especially in a diverse and complex country like India.

The core issue lies in how the model treats all forest biomass as a single, uniform source. It does not distinguish between:

a) Naturally occurring forests, and  
b) Purpose-grown plantations or agroforestry systems.

This lack of differentiation is problematic. In India, agroforestry and plantation development—driven by food security goals, rising demand for fruit-bearing trees, and government horticulture initiatives—has grown substantially. However, these agroforestry plots are rarely harvested for fuelwood. Their primary purpose is to provide fruit, improve nutrition, and support livelihoods—not to serve as a source of wood fuel.

By not distinguishing between these types of biomass, MoFuSS inadvertently inflates the perceived availability of renewable wood, leading to a systemic underestimation of the actual fNRB. As a result, the model generates inaccurate baseline emissions data. This not only undermines the credibility of Clean Development Mechanism (CDM) projects but also unfairly reduces the number of Certified Emission Reductions (CERs) awarded to initiatives genuinely working to combat forest degradation.

A closer look at the Forest Survey of India (FSI) reports from 1980 to 2023 underscores the issue. While overall forest cover appears to have increased, the gain is largely due to extensive afforestation and agroforestry programs. At the same time, natural forests—especially those easily accessible to local communities for fuelwood—have been degrading. The growing stock in these forests has declined, and their ecological integrity continues to suffer.

In short, MoFuSS paints an overly optimistic picture of forest biomass availability by ignoring crucial distinctions. For CDM projects to be accurately assessed and fairly rewarded, the model must evolve to reflect the ground realities of forest use and management in countries like India.

By not differentiating these sources, the MoFuSS model mistakenly includes plantation-derived biomass in its calculation of “sustainable” supply. This inflates the availability of renewable biomass and, in turn, artificially lowers the fNRB value.

This oversight undermines the integrity of emissions calculations. The fNRB is intended to reflect the portion of biomass that is non-renewable—meaning biomass extraction that results in a net loss of carbon stock that nature cannot replenish in the short term. According to the **IPCC 2006 Guidelines (Volume 4, Chapter 2)**, only biomass drawn from natural forests should be considered when calculating fNRB, as plantations are managed and designed to be renewable.

By lumping both sources together, the model contradicts this principle, distorting carbon accounting and penalizing community projects that are genuinely protecting or restoring natural ecosystems. These projects, many focused on clean cooking solutions like improved cookstoves, biogas, and safe drinking water, are left with reduced Certified Emission Reductions (CERs), despite their real impact on reducing forest degradation.

We’ve conducted a detailed analysis using decades of publicly available data from the **Forest Survey of India (FSI)**—a government authority under the Ministry of Environment, Forest and Climate Change. The findings highlight a stark disconnect: while MoFuSS assumes that increasing plantation coverage meets rising biomass demand, FSI data shows a consistent decline in moderately dense forests (natural forests) and a steady increase in open forests (which are degraded or degrading).

This clearly suggests that people are still harvesting wood from natural forests, not plantations. If plantations were genuinely meeting the demand, we’d expect to see recovery in natural forests—not the ongoing degradation that FSI reports show.

Currently, the model assigns a **default fNRB value of just 7% for India**, implying that 93% of biomass use is renewable. This is dangerously misleading. Degraded open forests now form a large portion of India’s forest landscape. If the majority of biomass truly came from plantations, natural forests would not be shrinking. The model's assumptions don't match what’s happening on the ground.

This disconnect isn’t just a data issue—it’s a policy contradiction with real consequences. Under the earlier Tool 30, India’s fNRB values were in the range of **70%–90%**. If those figures were wrong, it would mean hundreds of projects have overestimated emissions reductions—a systemic failure in carbon mechanism oversight. But if today's 7% value is taken as correct, it renders most clean energy projects financially unviable, potentially halting progress in clean cooking and disincentivizing investment.

Such a drastic drop is not a methodological improvement—it’s a shift that undermines the very goals of the **CDM and international climate commitments** under the Paris Agreement. By conflating plantations with forests, the current methodology forces stakeholders to choose between two bad options: abandon clean cooking efforts or stall afforestation and sustainable land management.

We urge the Methodology Panel to address this issue by adopting one of the following corrective measures:

1. **Revise the MoFuSS model** to explicitly **exclude purpose-grown plantations and agroforestry systems** from the renewable biomass supply pool, ensuring fNRB values reflect only extraction from natural forest ecosystems.
2. Where revising the model is not immediately feasible, **develop country-specific fNRB values** grounded in **empirical evidence**, such as FSI’s biennial forest degradation data, to provide a more realistic and regionally appropriate estimate.

Accurate and fair fNRB accounting is critical to ensuring the credibility of emission reductions and sustaining momentum in climate action at the grassroots level.