

Training Seminar for BioCarbon Fund Projects

Comments on Monitoring Methodologies



Winrock International

Evaluated Methodologies:

- ARNM0001 / ARNM0005 The Mountain Pine Ridge Reforestation Project - BELIZE
- ARNM0002 Reforestation Project Using Native Species around AES -Tiete Reservoirs - BRAZIL
- ARNM0003 TIST - TANZANIA
- ARNM0004 Treinta y Tres afforestation combined with livestock intensification - PARAGUAY

- ARNM0006 Bagepalli CDM Afforestation Programme - INDIA
- ARNM0007 Moldova Soil Conservation Project - MOLDOVA

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 - Inadequate quality assurance and quality control
Uncertainty
 - Inadequate assessment of uncertainties and precision

**Monitoring Methodology for:
*TIST (Tanzania)***

Purpose of Methodology

Designed for measurement of afforestation/reforestation activities where the project boundary delineates many discrete areas

Comment on Scope

- The TIST project promotes development by giving an additional income stream to villagers
 - plus the incentive, instruction and encouragement to improve practices
- Tree plantings are on the land of individual villagers who are project participants
- Monitors have limited education and are non-expert in forestry

Comment on Scope

- Methodology is too broad in scope
- In more developed areas this methodology would be considered highly inefficient and costly
- However it is suitable for areas where the very limited income from carbon finance is sufficient to make a difference to individual small landowners



Extraneous Inclusions

Do not overcomplicate the methodology.

For example TIST:

- Included eligibility requirements
- Included positive leakage (currently not allowed under CDM)
- Proposed worldwide application
- Applied methodology to scenarios where measurements are of volume instead of DBH

Monitoring Baseline

- Claim is of a zero carbon baseline
 - Argument of continued deforestation in country
- But baseline is within project boundaries does not include areas outside the project
- So carbon in agricultural crops and fallow vegetation should be measured and a case made why should not be monitored

Measurement Methods – core methods

- Two options for measuring project boundary
 - # of trees x spacing of trees
 - Subject to HUGE error especially as spacing is only measured in one area of planting
 - GPS tracking of boundary
 - Should be chosen as sole method with methods to track error on GPS such as comparison of repeated measurements, comparison with topographic map

Measurement Methods – core methods

- **Non-expert monitor:**
 - Counts number of trees
 - Measures circumference of 20 trees per planting, systematically selected
- **But**
 - All trees counted including trees below minimum DBH for measurement
 - Incorrect methodology applied for calculating biomass from tree counts and DBH measurements

TIST-specific Issues

TIST unusual in:

- The large stake that landowners have in a relatively few trees
 - Make it impossible to mark trees
 - Will be treated differently
- Many non-expert monitors produce data
 - Can't select random trees at each planting at each measurement to be measured
 - A more technical approach would make it more difficult for non-experts to implement and more subject to errors



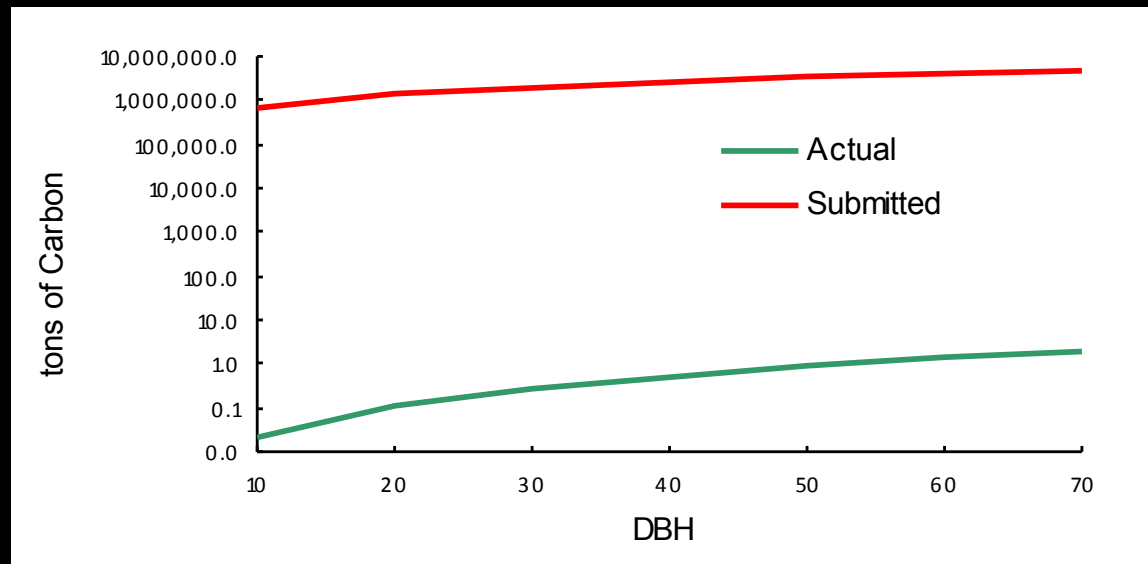
Extraneous Methods

- Do not include extraneous methods
- TIST included calculation of biomass from biomass of just bole/stem
 - This method would be used by foresters, it is unrealistic to assume that a forestry operation would fit under the TIST scenario
 - Creates more complication and opens methodology up for more criticism

Allometric Equation

- We suggested that TIST harvest trees where possible to create a region specific equation
- As an alternative we provided an equation
 - TIST incorrectly listed the equation in the methodology

CAREFULLY CHECK ALL EQUATIONS AND NUMBERS SUBMITTED



Allometric Equation

- Any project wanting to use a generic equation should verify applicability
- This can be done by harvesting a limited number of trees across the expected size range

Leakage

- TIST Project suggested there is no leakage apart from those associated with travel
- No measurements of potential for:
 - Increased income leading to more livestock and more fertilizer
 - Displaced farmland - scrub/shrubs/trees cut to replace farmland lost to afforestation
- These possibilities must be tracked or a strong case made that they are not likely

Uncertainty

- QA/QC plan exists, it includes blind resampling of 5 % of plantings
 - Difference between measurements could be expressed as a % measurement error
- 95 % confidence intervals should be reported for all measurements

Conclusions

- For TIST we advised
 - Tightening of methods to include just the specific conditions under which it will be applied
 - Removal of extraneous details
 - Discussion of uncertainty and illustration that sampling level is enough to produce very high precision
- Refer to the IPCC Good Practice Guidance to improve your chances or success

Monitoring Methodology for:
Restoration of Degraded Lands through
Afforestation/Reforestation
(Moldova Project)

Purpose of Methodology

- Designed for monitoring of afforestation/reforestation activities:
 - Project boundary delineates many discrete areas
 - Degraded lands - Baseline assumed to be zero

Overall Strengths and Weaknesses:

- Can only be applied to areas of zero or negative baseline
- Methodology is simple, easy to follow, relatively well organized
- Inconsistent level of detail given in methods
- All leakage issues not addressed

Proposed methodology:

- Overall, good methodology
- The interaction between field measurements and CO2FIX model unclear
 - Need to state that model is for projections only
- Some methodology steps are missing
 - Project area delineation - not addressed
 - Field survey
 - Stratification
 - Sampling design - not addressed
 - Selection of plot size and number
 - Monitoring and measuring
 - Quality assurance

Actual net GHG removals by sinks data:

1. Monitoring frequency
2. Project Boundary - not addressed
3. Stratification
4. Sampling Design - not addressed
5. Plot number
6. Sample Frame
7. Data Collection

Description of formula + models used to monitor:

- Straight forward methods
- Standard practices - IPCC Good Practice Guidance
- Need to eliminate project specific information
- Lacks
 - Some detailed field and analysis methods
 - Uncertainty Analysis
 - Analysis at 2nd sampling time period
 - Expansion factors
 - Discussion of fire, disease, extreme events

Leakage

1. Diversion of pre-existing A/R activities
2. Shifting of activities - not addressed
3. Market affects - not addressed

General Guidance on Preparing Monitoring Methodologies

General Guidance on Preparing Monitoring Methodologies

- Keep it simple and be generic—details come in the application in the PDD
- Check all equations reported in document — many sloppy mistakes in submitted methodologies
- If English is not preparers first language, get someone with English to edit it—must communicate methodology succinctly
- Work together, learn from each other, pool expertise

General Guidance on Preparing Monitoring Methodologies

- **Sampling**
 - Give step by step methods, following those in the IPCC GPG Ch 4.3 but without great details
- **QA/QC**
 - Include step by step methods
 - Develop SOPs and include in Appendices
- **Uncertainty**
 - Adequately address uncertainty and precision

General Guidance: Leakage monitoring

■ Activity shifting

- Create generic leakage monitoring plan
- Sample Use same techniques would use for forest sampling
- Sample proportion of 'project participants' over time -examine their emissions before and throughout project
 - Stratify participants: livelihood sources (herding, fruit production, etc), economic level, etc
- Plan should produce conservative estimates
- Plan should include monitoring for additional activities that occur during project life

General Guidance: Leakage monitoring

- **Market effects**

- Not predicted to occur significantly in most currently eligible LULUCF projects
- However, must be addressed in NMM
- State clearly why no market effects will occur due to project activity

Conclusions

- Keep it simple
- Follow Good Practice Guidance
- Address leakage and uncertainty