

Commercial and project-based responses and associated research initiatives in the forest sector

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Example Questions

- Is it easy or difficult to quantify and verify the benefits delivered by forest-based climate change mitigation projects and business ventures?
- Carbon incentive or credit schemes may contain unintended loopholes or consequences. How do we avoid them?
- How should the benefits of intensive forest management for climate-change mitigation be weighed against alternative benefits from non-intensive forest management (e.g., water supply quantity and quality, biodiversity, albedo, aesthetics, etc.)?
- Given that viable mitigation and adaptation systems and schemes must be formulated, are there gaps in knowledge or understanding that need to be addressed by new research?
- What specific research needs to be completed to facilitate unbiased and tractable application of carbon mitigation schemes?

Project Strategies

- Any strategy must achieve a real emissions reduction or offset.
- Biofuels for Mitigation
 - 1. Need commercial and economically viable systems
 - Do we recognize why they aren't already underway?
 - Cost, convenience,...
 - 2. Need to create incentives to jump-start such initiatives
 - A government role
 - 3. Methods for mitigation must be evaluated prior to application
 - Do they take a global view?
 - Do they apply a systems approach? (avoid 'Shell Games')
 - Do they avoid obvious unintended pitfalls?
 - Don't ship low-density fuels long distances
 - Actions need to be simple if they are to be adopted
 - "Think about the complexity, but act simply"
 - One might tolerate sub-optimum results to get methods initiated

- Mitigation of Deforestation/Forest Degradation
 - Need to define the desirable outcome
 - Can we claim permanent C storage?
 - Need to provide a method to value(\$) any approach used
 - Where to apply incentives?
 - How do conservation or preservation strategies deal with the risk associated with non-anthropogenic disturbance?
 - Shouldn't focus only on carbon --- seek added value
 - biodiversity, enhanced water supplies, etc.

- Mitigation of Deforestation/Forest Degradation (continued)
 - Need to consider who owns the land of concern
 - Boreal, Amazon forests,
 - Private vs. public lands will require different schemes.
 - Any approach needs a monitoring and certification processes
 - Who plays the role of the Carbon Police?
 - Is such an activity a commercial opportunity?
 - To what extent can we rationalize that managed systems contain sustainable C pools and should be a component of conservation and protection approaches?
 - Levels of productive potential may set logical limits to what might be conserved vs. what might be used for sustainable production of wood products and biofuels.

Mitigation Research Needs

- Mitigation Using Biofuels
 - Research to support these methods may already be available and may have even be translated to specific management tools, however, commercialization mechanisms are lacking.

- Afforestation and Reducing Deforestation
 - Need to define appropriate baselines
 - Static vs. dynamic? Rates of climatic change and unforeseen results could undermine our initial assumptions.
 - Need to apply systems approaches for comprehensive analyses
 - Need further research on methods of evaluating C stocks
 - Do these methods need especially high accuracy to deter leakage?
 - Can remote sensing approaches be improved so that they have quantifiable meanings related to C storage?
 - Satellite and/or airborne remote sensing
 - Above ground volume methods might be improved
 - Can below ground carbon stocks be assumed to follow on with time?
 - Biometric evaluations will be needed to validate remote sensing methods
- Instructions for use by land owners may be needed
 - Technology transfer opportunities
 - “Carbon Management for Dummies”
 - Who is responsible for writing the standard methods?

- Plans for adaptation are also needed!
- High impact version of the wedge concept for the forestry sector is needed. E.g. examples of regionally-specific portfolios for forest sector mitigation strategies.

Uncertainties Associated with Climatic Change Impacts Should be Reduced

- We need to provide the specific atmospheric greenhouse gas concentrations leading to unacceptable forest sector responses
- We need to project when unacceptable outcomes take place (not just if they will take place).
- We need to determine which unacceptable consequences deserve priority attention.

A Climatic Change Impact Reality

- Observations and experimental manipulations alone will not be able to generate sufficient input data for forest management and policy maker's needs.
- Tools for evaluating future climate responses at regional to global scales are dependent on the development of mechanistic models that can be integrated through time and space for prognostic estimates of future ecosystem response.
- New observations, experiments, and enhanced modeling capabilities of forest sector responses will also be needed to fine tune risk analyses and cost benefit calculations in support of forest management and policy decisions.