

## **ICRAF Position on the Clean Development Mechanism In the land-Use, Land-Use Change and Forestry Sector**

### **Vulnerability**

The poorest countries are agrarian and derive the major portion of their gross domestic product from agricultural activities. It is this structure in the economies that leads to heightened vulnerability to climate change at the macro scale. Productivity growth of agriculture (and natural resources) is a key driver of economic development in agrarian economies. Therefore, structural transformation and poverty reduction will be important elements in reducing vulnerability in countries that are adversely affected by climate change.

The Clean Development Mechanism (CDM) could be a useful tool to combine efforts towards mitigation of the drivers of climate change and facilitating adaptation amongst those most likely to be adversely affected by the changes. CDM projects need to be done in the most cost effective way to meet the greenhouse gas reduction commitments of Annex I countries. The poorest, most disenfranchised people live in 'fragile' environments where climate change scenarios are most worrying. However, these most vulnerable people and most fragile environments may not be the places with the greatest biophysical potential for CDM mitigation projects. Thus, there is a need for the creation of a financial mechanism to fund adaptation activities in developing countries that are negatively affected by climate change.

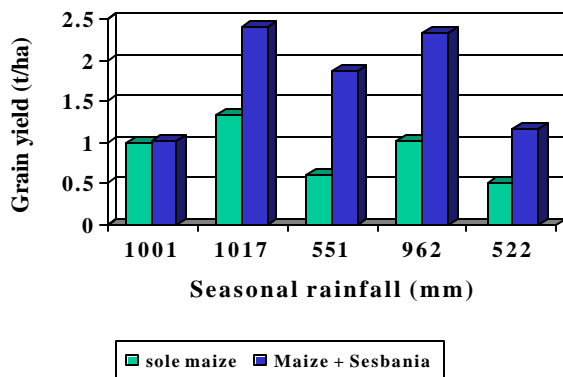
Just as there are differences in vulnerability among nations there are strong reasons to expect important differences within and among districts, communities, and households. We don't know much about these patterns of vulnerability, including the adaptive capacity and coping strategies likely to be important at different scales of analysis and in different social, economic, and political contexts. What we do know is that broad-based prosperity is the antidote to vulnerability for the world's poorest nations and the rural poor who will likely be most negatively affected by climate change. Elements of rural prosperity include:

- Diversity in livelihood options
- Food security
- Water security
- Healthy environment (pest, disease, pollution control)
- Energy security
- Secure shelter (and other assets)

These elements must be fit into land-use, land-use change and forestry projects carried out as part of the CDM.

### **Benefits of Agroforestry Systems**

Agroforestry systems offer a win-win opportunity for developing countries wishing to participate in the Clean Development Mechanism (CDM). These systems can help smallholder farmers cope with increasing climate variability and they can sequester significant amounts of carbon. Agroforestry is a dynamic, ecologically based, natural resources management system that, through the integration of trees on farms and in the agricultural landscape, diversifies and sustains



*Figure 1. Maize yields compared for farmer practice vs. improved fallow at Makoka, Malawi*

conducted to evaluate improved fallow species showed the benefit over the farmers' current practice. For example, in many regions of Africa, high biomass yield and greater crop yield increment was noted very short rotation fallows (9 months to 2 years). In figure 1, we show the results obtained at one trail in Malawi. During the first year of the trail, no effect of the fallow was noted, as would be expected. Following the first rotation, yield increased by 60%. Two of the following 3 years of the trial were drought years, with annual rainfall below 600 mm per year. Even at these low rainfall levels, maize yields remained at reasonable levels, and exceeded the yields of farmer practice in good rainfall years.

production for increased social, economic and environmental benefits for land users at all levels. A variety of land-use systems that incorporate trees into agricultural production systems will qualify under the current definitions of afforestation and reforestation. Some examples would include tree-based production systems (cacao, jungle rubber, etc.), tree-fallow – cereal rotations, wind breaks, and live fencing.

Agroforestry systems can help small holder farmers by reducing their risk to climate change and by diversifying their production systems. Several experiments

### **Non-permanence and Agroforestry systems**

One of the concerns regarding agriculture and forest management projects is the issue of permanence. A number of countries have expressed reservations about national sovereignty and compromising future development opportunities by locking land up in carbon sequestration projects. The option of treating carbon sequestration as a service, rather than a commodity has been proposed as a means of overcoming this obstacle. In this scenario, an investor would pay for the services of locking up a tonne of carbon for a number of years, rather than in perpetuity. A number of accounting methods could be applied to make this feasible. The three most commonly considered are: 1.) The carbon tonne year; 2.) Temporary certified emissions reduction units (TCERs); and 3.) Average carbon storage capacity. Each of these solutions has positive and negative aspects, but all would facilitate the implementation of agroforestry projects under the CDM, while protecting the rights of participating countries.

### **Baselines**

Existing provisions for the establishment of baselines require accounting of carbon pools in: aboveground biomass, belowground biomass, litter, dead wood, and soil organic carbon. At issue is the methodology for establishing the carbon stocks in the belowground biomass and soil organic carbon pools, especially for large projects areas (greater than 100 square kilometers). There is also need to target soil types that can produce good plant growth and protect carbon from decomposition and also assess impacts of soil erosion on carbon changes. The application of advances in remote sensing and geographic information systems makes this task much simpler

than it has been in the past. In particular, new developments in reflectance spectroscopy allow rapid assessment of soil organic carbon and soil quality so that statistically sound baselines and monitoring can be done over large areas. Using these advances, the baselines provide information not only for feasibility studies and targeting of interventions for carbon projects but also a sound basis for planning integrated watershed management projects and monitoring land degradation and rehabilitation.

### **Environmental and Socioeconomic Impacts**

Modalities for implementation of CDM projects require that socioeconomic and environmental impacts of the project be monitored so as to ensure that the project does indeed meet development goals of the host country. A key element to accomplishing this is the establishment of socioeconomic and environmental baselines, against which additionality of benefits generated due to the project can be assessed. The environmental impacts of afforestation and reforestation CDM projects must be assessed to evaluate their contribution to the objectives of other global environmental conventions (e.g. CBD, CDD).

Additionally, each project must assess

- **Opportunity costs** – economic incentives & alternative development opportunities
- **Transaction costs** – ‘costs of doing business’ – including measurement and verification costs

In many cases, participating in the CDM could have opportunity costs by placing restrictions on other development opportunities. For the case of tropical rainforests, conversion is privately profitable and can (sometimes) reduce poverty. Typically there is a tradeoff between development and carbon stocks. From our work in the Alternatives to Slash and Burn Programme (ASB), evidence indicates that direct opportunity costs of C storage in the humid tropics can be lower than abatement costs in high-income countries.

The conventional wisdom about smallholder CDM versus large-scale plantation projects is that transaction costs of dealing with many smallholders and local communities are higher than when dealing with big operating units. Yet there is scope for significant reduction in these ‘costs of doing business’ with large numbers of smallholders. The key is to learn by doing. Several ‘bundling’ schemes have been proposed and by working through ongoing development projects we have the opportunity to learn how this is likely to work and how to do smallholder CDM with minimum transactions costs.

### **Definitions**

While the Marrakech Accords resolved a number of the definitions issues associated with afforestation and reforestation, there will be a number of questions to resolve at the national level. Current definitions of forests require that areas considered for inclusion in CDM activities must minimum standards for area and crown cover. Every country will decide standards that it applies to LULUCF projects, but they must meet these minimum standards. While agroforestry activities meet the minimum criteria in almost all cases, there is concern that if a country sets standards too low, many agricultural landscapes may already have too many trees and thus may not qualify for afforestation and reforestation activities, including agroforestry.

### **Criteria for CDM projects**

The CDM must meet development objectives as well as greenhouse gas mitigation objectives if it is to be successful. Yet, there are a number of proposals on the table that clearly would not meet development objectives. We propose that countries seeking to host CDM projects adopt specific criteria that lay out clear principles for projects qualifying for CDM approval in the land-use, land-use change and forestry sector. These principles should include:

- Social criteria (equity, exploitation issues, indigenous rights)
- Technical criteria (appropriate scale and intensity)
- Legal criteria (national and international provisions)
- Environmental criteria (biodiversity, water, soils)
- Economic criteria (efficient, viable, expected returns to participants)