Costs-benefits of REDD+ mitigations in smallholder agriculture in selected REDD+ pilot villages of Tanzania: Are they pro-poor?

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Outline

• REDD+ and smallholder agriculture
• Some big questions
• REDD+ pilot in Kilosa
• The approach: conceptual framework
• Farmers’ livelihoods in the context of REDD+
• Economics of REDD+ mitigations in agriculture
• Policy and REDD+ design implications
REDD+ & smallholder agriculture

• Agriculture and particularly smallholder farming practicing shifting cultivation, account for ¾ of all tropical deforestation

• The sector accounts for approximately 31% of GHG emissions (IPCC, 2007).

• Upgrading agricultural productivity will have a win-win situation of delivering both mitigation and adaptation
REDD+ Dilemma

We need it intact.

Livelihoods?

Food.

Commercialization path >> $ $$$. 
Some big questions

• What are livelihood implications of REDD+ interventions?
• Are REDD+ mitigations in agriculture pro-poor?
• What livelihood changes imply on REDD+ policy and design?
REDD+ pilot in Kilosa

• One of the 9 REDD+ pilots in Tanzania – started in 2010
• Covering 10 villages (~ 21 000 people), more about 33,500 ha of village forest
• Potential forestland 140,000 ha after 10,000 ha been deforested btn 2001 and 2011
• Interventions started with a “forest bias” then agriculture was strongly considered
• We conducted a case study covering 2 villages (popn. 2570, 13500 ha village forest = 40% of 33500 ha in 8 pilot villages)
The approach: conceptual framework

Data across REDD+ planning scales

- **Farm and household**
  - (e.g. land uses, forest benefits, demography etc)

- **Community/Project**
  - (e.g. productions, costs, prices, livelihoods, carbon stocks etc)

REDD+ driver in agriculture

- **Conventional farming (BaU)**
  - (unsustainable cultivation, slash & burn, shifting, low-input)

- **Conservation agriculture**
  - (minimum tillage, terracing, high-input)

REDD+ mitigations in agriculture

Agricultural land use economics (NPVs)
Farmers’ livelihoods in the context of REDD+

- The value of tradable forest products was about US$165/household
- Low adoption of improved stoves aggravated fuelwood consumption particularly among the poor
Economics of REDD+ mitigations in agriculture
Economics of REDD+ mitigations....

Maize yields under different farming systems

<table>
<thead>
<tr>
<th>Farming System</th>
<th>Yield (ton/ha)</th>
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<tr>
<td>Conventional</td>
<td>1.7</td>
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<tr>
<td>Minimum tillage</td>
<td>6.0</td>
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<tr>
<td>Fanya terracing</td>
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</table>
Economics of REDD+ mitigations...

NPV (US$/ha)

<table>
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<tr>
<th>Switch from...</th>
<th>Natural forest</th>
<th>Conv. farming</th>
<th>Min. tillage</th>
<th>Fanya terracing</th>
</tr>
</thead>
<tbody>
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<td>Natural forest</td>
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<td>1 142</td>
<td>4 795</td>
<td>12 993</td>
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<tr>
<td>Conventional farming</td>
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<td>3 654</td>
<td></td>
<td>8 198</td>
</tr>
<tr>
<td>Minimum tillage</td>
<td></td>
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Implications for REDD+ policy and design

• REDD+ design must be in tandem with plans for achieving pro-poor and sustainable growth

• The current trend of rural livelihood diversification out of agriculture must be supported to ease pressure on land
Implications for REDD+ policy and design....

• REDD+ must ensure that the poor land users do not lose out as they comply – instead their welfare even improve sustainably

• Radical REDD+ interventions such as evacuation of farmers from the mid of forestland must be gradual and smooth
Implications for REDD+ policy and design:

- Initial costs of transforming into conservation agriculture may be unbearable to the poor – capital subsidies through REDD+ funds
Implications for REDD+ policy and design....

• Access to profitable markets must be improved to optimize returns from farm investments – generate wealth and livelihood resilience.
Thank you for your attention