Carbon offsetting by small holder farmers in the Congo Basin

Economic and policy constraint

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AgriCarb – Background I
- Gabon

- Location: 2,5°N - 4,0° S
  8,5°O - 14,5°O
- Total Area: 267,667 km²
- Forest Area: 82%
- Pop. density: 5,6 Ew./km²
- Urbanisation: 80%
- Resource - economy
- Low Income
- Food import (80%)
- Shifting Cultivation (20% - subsistence)
AgriCarb – Background II

– Aboun

• Village at the border with Equatorial Guinea
• Inhabitants: ~80 (30 permanent)
• Forest Enterprise stopped activities in 2007
• Villagers seek income from Agriculture
• Creation of COAFNO (30 Members)
• 4,800 ha Community forest allocated to COAFNO
AgriCarb – Background III

– Project start 2009

• Stakeholder:
  • COAFNO
  • Univ. Nat. Res. & Life Sciences
  • IRET – Inst. de recherche en écologie tropicale
  • MDN – Ministère Défense Nationale (planed to construct barracks nearby; large customer!!)

• Project Idea:
  • Replacement of SC by permanent Agroforestry
  • Less area needed as compared to SC
  • Slash and char instead of slash and burn
  • Higher initial investment costs compensated by Carbon offset payments
  • 3.600 ha for AF and 1.200 ha Conservation
AgriCarb – Results I
– Project Status by Sept. 2010

• Work done I:
  • Base camp (for non local personnel)
  • Study on socio-economic situation
  • Assessment of Carbon stocks in primary forest, degraded forest, SC Parcells
  • GIS – data for the whole project area
  • Establishment of a plant proliferation unit (fruit trees, manioc, Nyam)
AgriCarb – Results II
– Project Status by Sept. 2010

- Work done II:
  - Preparation of first AF Parcels:
    - clearing of understory
    - thinning from below
    - felling of non-commercial canopy species to create favourable sun/shade patterns
  - Assess. of land demand for SC&AF
  - Charcoal production with felled timber
AgriCarb – Results III
– offsetting Calculations

- C-Stocks:
  - Forest: 200 tC/ha (50/150 – soil/biomass)
  - SC: 110 tC/ha (60/50 – mean over 12yrs)
  - AF: 135 tC/ha (60/75)

- Carbon Offset:
  - Forest vs. SC: 90 tC/ha
  - SC vs. AF: 25 tC/ha

- Difference in land demand:
  - SC zu AF: 3 to 1

Total offsetting volume: 2,000,000 t CO₂ Equivalent!!!
AgriCarb – Results IV
– discounted Cash flow

Comparison of scenarios over the project life cycle (30yrs.)
SC, AF, and AF + Carbon payments
AgriCarb – Backdrops I

• SDPG replaced its CEO
• Former CEO was elected by the villagers as Vice-President of COAFNO
• SDPG pulled out and had its former CEO expelled (at a cost of 30.000.000 XAF)
• MDN ended its support for AgriCarb
• MDN ended cooperation with SDPG
• SDPG was dissolved
AgriCarb – Relaunch efforts I
- 2011 to 2012

• New stakeholders:
  – COAFNO
  – IRET
  – Univ. Nat. Resources and Life Sciences
  – Ministère d‘Agriculture
  – ONADER – Office National de développement rural
  – Labour Union of Gabon
AgriCarb – Relaunch efforts II
- difficulties

- No more big investor !!
- No big customer at hand !!!
  (MDN pulled out, no barracks close by)
- Rethinking and re-dimensioning of project

Solution:
The single farmer as offsetting entity!!
AgriCarb – Relaunch efforts III
- the single farmer perspective

• Carbon offsetting potential of a single farmer:

  8,1 ha SC vs. 2,7 ha AF (Δ 5,4 ha)
  Δ land req.: 5,4 ha x 90 tC = 486 tC
  Δ SC vs AF: 2,7 ha x 25 tC = 67,5 tC

Sum: 553,5 tC or 2029,5 t CO₂ Eqv.
AgriCarb – Relaunch Results I
– discounted cash flow

Comparision of SC and AF (single farmer):

Net-benefit per Farmer (€)

AF_50%
AF_0%
SC_50%
SC_0%

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

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AgriCarb – Relaunch results II
– opportunity costs

- Opportunity Costs (relative to the minimum wage):
AgriCarb – Relaunch results III
– opportunity costs

- Oportunity Costs (relative to SC):
AgriCarb – Backdrops II
– reimbursement

• ONADER:
  • Reimbursement of opportunity cost vs. minimum wage

• Labour Union:
  • Reimbursement of opportunity costs vs. shifting cultivation

• Ministry of Agriculture:
  • No payments at all!
  • Just Machetes and Planting Material
AgriCarb – Final results
– September 2013

• No more researchers involved!
• Carbon offsetting is no longer a topic!
• Villagers continue shifting cultivation at the subsistence level!
• ONADER and Min. of Agric. pulled out!
• Lab. union proposed fish as income source!

• Cash income is generated by weekly bushmeat delivery to local merchants!
  (barely legal)
• Other hunting activities for Asian markets!
  (completely illegal)
END OF AGRICARB

Thank you for your attention!