Gaps and Barriers - Examples

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Main topics

• CDM - *Carbonization Project - Mitigation of Methane Emissions in the Charcoal Production of V&M Florestal, Minas Gerais, Brazil.*

• CDM - *Coconut shell charcoaling and power generation at Badalgama, Sri Lanka*

• CDM - *Use of charcoal from renewable biomass originated from forest plantations for the production of primary iron in Vallourec & Mannesmann do Brasil*

• NAMA Study on Sustainable Charcoal in Uganda
Carbonization Project - Mitigation of Methane Emissions in the Charcoal Production of V&M Florestal, Minas Gerais, Brazil.

Figure 1.A: Traditional Charcoal Plant in Brazil
Figure 1.B: Modified kiln FR 190 (project)

Figure 1.C: Typical carbonization process in Brazil
Figure 1.D: 390 FR kiln used in the project

CDM PDD: Carbonization Project - Mitigation of Methane Emissions in the Charcoal Production of V&M Florestal, Minas Gerais, Brazil.
"In order to implement such technological and management improvements the company has faced and faces several barriers that could only be overcome after the approval of the methodology AM0041 and its consequent opportunities to generate additional revenue through the sale of carbon credits."
Barriers

Traditional carbonization practices are deeply rooted in Brazil; Need of a complete paradigm shift, involving risks to the enterprise, i.e. investment decision, research, training, chances of success, etc.

• Barriers represented by prevailing practices (*First-of-its-Kind*)
• Barriers to technological development and implementation
First-of-its-Kind Barriers

• There is no standardization agreement on kilns and processes among charcoal producing companies.
• There are differences in size, shape, air and gas circulation system, etc., which leads to differences related to emission reduction and yield.
• Need to hire carbonization experts and consultants to identify this dynamic and transform it into process control.
  • The consulting services would involve:
    • The preparation, design and evaluation of the baseline research
    • Definition of a specific regression model
    • Quantification of methane emissions in the carbonization process
    • Evaluation of existing equipment and procedures
      – (Kiln models and management operations)
It would be necessary to make significant changes in the carbonization process, to hire and train workers, to test and implement processes for a new model of technology development and transfer.

The charcoal producers are not concerned with methane emissions in the absence of regulations and incentives. The lack of regulations and the lack of incentives discourage investments in technology and/or process improvements, when these do not lead to assured financial gains.
Coconut shell charcoaling and power generation at Badalgama, Sri Lanka

- Reduced methane previously released in manufacturing of charcoal from coconut shell in open pits
- Electricity generation

CDM PDD: Coconut shell charcoaling and power generation at Badalgama, Sri Lanka
• Lack of internal capacity to undertake the analysis of energy generation potential by the charcoal manufacturing plant was.

Attempts were made to analyze the composition of the vapors released to estimate the potential for power generation. This proved to be a challenge as Sri Lanka did not have the necessary expertise and equipment to reliably perform this analysis. Experts needed to be hired from Singapore.
Regulation and financial

• The prevailing regulations prevented the power being sold to any other party.
• The electricity tariff determined solely by the utility was very low.
• The potential of obtaining revenue by the sale of the carbon credits from the project was considered to carry ahead the project.
Use of charcoal from renewable biomass originated from forest plantations for the production of primary iron in Vallourec & Mannesmann do Brasil

- Use of dedicated plantations as fuel source

CDM PDD: Use of charcoal from renewable biomass originated from forest plantations for the production of primary iron in Vallourec & Mannesmann do Brasil
Financing

Time:
• The first harvesting period for most economic uses (eucalyptus), including charcoal, cannot occur before the seventh year. The first revenues are only obtained after 7 years, which makes the structuring of financing schemes for the project extremely complex.

Need for government funding:
• Loans must have a grace period of at least 7 years (first harvesting period), and a minimum duration of about 10 years, which is almost non-existent in the Brazilian financial market. As a result, it increases the demands for governmental funding, which must meet priorities competing for the limited available resources.

Lack of funding availability even in public banks:
• From 2000 to 2010 only $113.9 million was made available from public banks for the entire reforestation sector in the state of Minas Gerais.
Policy

• Reduction of forest cover in the state
  • high harvesting levels, low levels of replanting. 2.6 million hectares in 1992, 1.67 in 1998

• The federal government launched the National Forest Programme in 2000 to expand the planted forests through multiple initiatives
  (Increase in funding, removing regulatory bottlenecks and strengthening the governmental institutional capacity)
  • However the stock in 2006 reached only 1,17 million hectares
Charcoal

NAMA Study - Uganda

Source: UNDP: Nationally Appropriate Mitigation Action Study on Sustainable Charcoal in Uganda
Policies and institutions

- Weak institutional capacities of bodies mandated to manage the forest and energy sector
- Absence of a Nationally Driven Biomass Energy Research Agenda
- Lack of Standards for the Biomass Sector
- Lack of Relevant Charcoal Data along the Charcoal Value Chain
Financial

- Lack of incentives to switch to renewable biomass or of interventions in improving charcoal production efficiency
- Non-renewable charcoal is generally under-priced by 20 to 50 percent
- Increased costs for charcoal briquette projects if they need to generate their own electricity due to lack of electrification on site
Technological - Infrastructure

• **Low levels of rural electrification:**
  Barrier to the deployment of briquetting technologies in places where the grid is not accessible.

• **Local Capacity:**
  • Need to either import or developed the technology in the country.
  • Need for trained staff to replicate and maintain the technology.
Overcoming Barriers  
- GEF Founded Project

1. Data collection and improved coordination and enforcement of relevant regulation.
2. Dissemination of appropriate technologies for sustainable charcoal production
3. Strengthening the capacity of key stakeholders in best practices and establishment of sustainable woodlots.
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