Making charcoal production in Sub-Saharan Africa sustainable

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Sustainable Biomass
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• Making charcoal production more sustainable: results
• Next steps and follow up activities
## Netherlands Programmes Sustainable Biomass

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<thead>
<tr>
<th></th>
<th><strong>Global Sustainable Biomass</strong></th>
<th><strong>Sustainable Biomass Import</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal</strong></td>
<td>Support Developing Countries in sustainable biomass production for energy to obtain access to world market.</td>
<td>Support the increase of sustainable biomass for energy in major producing countries to the Netherlands</td>
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<tr>
<td><strong>Subsidy Budget</strong></td>
<td>12.5 M€</td>
<td>7.5 M€</td>
</tr>
<tr>
<td><strong>Supporting program</strong></td>
<td>2.75 M€</td>
<td>1.5 M€</td>
</tr>
<tr>
<td><strong>Focus countries</strong></td>
<td>Indonesia, Vietnam, Colombia, Nicaragua, Mali, Tanzania, Mozambique and South Africa</td>
<td>Canada, Brazil, Ukraine, Baltic States and Russia</td>
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## Pilot Projects contracted

<table>
<thead>
<tr>
<th>Crop</th>
<th>Number</th>
<th>Projects by continent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algae</td>
<td>2</td>
<td>Africa</td>
</tr>
<tr>
<td>Agricultural Residues</td>
<td>3</td>
<td>Asia</td>
</tr>
<tr>
<td>Jatropha</td>
<td>15</td>
<td>Europe</td>
</tr>
<tr>
<td>Palm Oil</td>
<td>8</td>
<td>North America</td>
</tr>
<tr>
<td>Nuts</td>
<td>4</td>
<td>South America</td>
</tr>
<tr>
<td>Oilseed</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Sugar (Cane, Sorgum &amp; Palm)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Wood</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Bamboo</td>
<td>2</td>
<td></td>
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Examples: project highlights

- **Jatropha Alliance**: Certification of jatropha biofuels in Mozambique

- **Solidaridad**: Greenhouse gas emissions measurements of soy biofuels in Argentina

- **Mali FolkCentre**: sustainable production of biofuels, Mali

- **Utz Certified**: energy from coffee waste, Nicaragua

- **Everest Energy**: ‘urban wood’ for wood pellets, USA

- **Ghana/Ecowas**: quantification of GBEP criteria and indicators in Ghana
Project support sustainable biomass:

- **Biomass production**: Jatropha assessment; charcoal production

- **Tool box** sustainability assessments, e.g.:
  - Benefit sharing
  - Stakeholder consultation
  - High conservation value assessment
  - Social and environmental impact assessment

- **Guidance** on certification: “How to select a biomass certification system?”

- **Support** on business planning
Charcoal production: Objective of study

Conducted by BTG Biomass Technology Group

A study to assess how charcoal production in Africa can be made more sustainable, assessing bottlenecks and possible solutions (with a special focus on South Africa, Mozambique and Tanzania).
Structure of the charcoal value chain

The complete charcoal value chain has been taken into account:

- Woodfuel production and harvesting
- Conversion of woodfuel into charcoal ("carbonisation")
- Charcoal marketing (including transport, wholesaling and retailing)
- Charcoal use (in particular as household fuel for cooking)

In each step a wide range of actors and operators with varying interests and stakes are active.

Recommendations based on case studies and examples.
General characteristics

**Sourcing:** Fuel wood for charcoal originates from:
- Clear felling
- Selective cutting
- Dedicated plantations

**Charcoal marketing:** a reliable supply chain, largely informal sector

**Charcoal use:** Africa >23 Mio tonnes/year
(1 ton/urban household per year)

**Economic relevance:** high employment, generation of income
Wood fuel production and harvesting

**Sustainability issues:**
- Plantation-based charcoal is at an economic disadvantage
- Contribution to deforestation
- Who gets the benefits?

**Lessons learned**
(Based on forest management examples in Senegal, Madagascar, Rwanda and South Africa.)
- Security of tenure (property rights) is key factor in sustainable forest management
- Alternative feedstocks exist: biomass or fossil (paraffin/LPG)
Charcoal production

*Sustainability issues*
- Charcoalers are not formally organised, no access to investment capital
- Health aspects and emissions to air, soil and water

*Lessons learned*
- Skills of charcoal producer are more important than technology (traditional or improved kilns)
Charcoal marketing

*Sustainability issues:* Marketing takes place in informal sector; traders benefit most

*Lessons learned*
Modernization of the value chain:
1. Regulation of the charcoal sector is needed to reduce the tight grip of specific stakeholders.
2. Modernisation of the charcoal value chain requires stakeholders to formally associate and professionalise
Charcoal use

*Sustainability issues:* Traditional stoves have low energy efficiency: Poor households pay more for the same amount of charcoal than richer households.

*Lessons learned:*
1. The banning of charcoal production has proved counter-productive (experiences in Tanzania and Chad)
2. The Kenya Ceramic Jiko (KCJ) is one of the most successful charcoal stoves in Africa. KCJ-type improved stoves are widely used
Charcoal policy

*Sustainability issues*
The role of charcoal is underestimated: charcoal policy receives too little attention.

*Lessons learned*
- Integrated policies are needed: charcoal is part of future energy mix
- Regulatory and tax framework need to be developed to formalise the charcoal sector
- Sudan has valuable experience in developing a sound charcoal policy

Recommendations for NL Agency involvement:

*Develop recommendations on alternative feedstock pilots*
Pilots and assessment of alternative feedstocks for charcoal

Development of a screening tool, based on:

- Feedstock sustainability
- Charcoal production
- Feedstock availability
- Logistics
- Price and quality of end product

Analysis of a large number of feedstocks:

- Energy crops
- Invasive species
- Harvest residues
- Processing residues
- Charcoal dust
Top ten of alternative feedstocks:

- Cotton stalks
- Bamboo processing residues
- Coconut shells
- Olive stones
- Palm Kernel shells
- Invader bush
- Millet stalks
- Bagasse
- Rice straw
- Charcoal dust

Further analysis:

➢ Charcoal dust
➢ Cotton and millet stalks
➢ Bamboo processing residues and bamboo as energy crop

Results:

- Decision making tool
- Recommendations on alternative feedstocks
Thank you for your attention

QUESTIONS?

MORE INFORMATION:
WWW.AGENTSCHAPNL.NL/Biomass

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