The Potential of Acrocomia Value Webs for Rural Development and Bioeconomy in Paraguay

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Acrocomia spp., is a native palm in the tropics and subtropics in Latin America. Acrocomia fruits have a high oil content in pulp and kernel (40% and 60% in dry basis). Scholars consider this crop as a promising vegetable oil source. Industrial processing generates multiple by-products, which makes Acrocomia an important crop in bioeconomy. It is estimated that in a plantation of 400 palms per hectare, 2.5 tons of oil can be obtained. This palm grows wildly in Paraguay, where it is industrially processed since the 1940s. There, family farming represents around 90% of the farm systems.

Objective and methods

- **Objective**: Analyse the existing Acrocomia value webs in Paraguay and identify pro-poor upgrading strategies.
- **Methods**: Value chain and biomass-based value web analysis (qualitative and quantitative).
- **In-depth interviews with key experts (10), questionnaires with farmers and collectors (23), contact to public servers**
  - Visits to the industry and participatory value chain mapping (10).
- **Study site**: San Pedro del Paraná (Dept. Itapua), Quiindy (Dept. Paraguari), Processors in the Dept. Paraguarí.

**Acrocomia value web**

**Upgrading strategies**

- Direct linkage between producers (farmers) and processors and collective action among farmers.
- Engaging farmers in (pre-) processing activities.
- Developing higher added-value products (emerging links above).
- Promoting plantation of Acrocomia at small scale.
- Improving harvest and post-harvest processes and fruit quality.
- Multi-stakeholder platforms to enhance the competitiveness.
- A study case in San Pedro del Paraná: Promotion of small-scale cultivation and (pre-) processing of Acrocomia fruits (ex-ante analysis of local added value).

**Share of value**

<table>
<thead>
<tr>
<th>Not processing</th>
<th>Pre-processing (dehulling, pulping)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>50%</td>
</tr>
</tbody>
</table>

**Findings**

**From the palm tree to the market**

Peasants and smallholder family farmers gather fruits from wild Acrocomia palm trees in their own or neighbor farms (around 8000 farms) between November and May (peak: Dec-Feb) and sell them to local collectors or sub-collectors. These supply the raw fruits to primary processors who operate around four months per year.

**Production regions**

<table>
<thead>
<tr>
<th>Producer regions</th>
<th>Output per farm</th>
<th>Percentage of production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cruz</td>
<td>2.4</td>
<td>28%</td>
</tr>
<tr>
<td>Paraguarí</td>
<td>2.5</td>
<td>22%</td>
</tr>
<tr>
<td>San Pedro del Parana</td>
<td>2.3</td>
<td>18%</td>
</tr>
<tr>
<td>Paraguarí</td>
<td>2.2</td>
<td>18%</td>
</tr>
<tr>
<td>San Pedro del Parana</td>
<td>2.1</td>
<td>15%</td>
</tr>
<tr>
<td>San Pedro del Parana</td>
<td>2.0</td>
<td>15%</td>
</tr>
</tbody>
</table>

**Economic importance of products and by-products**

- **High economic value**:
  - Kernel oil.
  - Pulp oil.
  - Activated carbon.
- **Low economic value**:
  - Husk.
  - Palm tree stalks.

**Challenges**

- Supply of fruits (ca. 50000 tons in 2016) is lower than demand (total productive capacity ca. 280000 tons). Processors (5) operate under productive capacity and less than six months.
- Various projects have failed in the past due to lack of technical knowledge to cultivate Acrocomia, long period until the palm tree is productive (ca. 5 years) and governance failures.
- Dependence of international market and price of palm kernel oil affects the purchasing price of raw material (0.04 USD/kg).
- Quality problems due to the early harvest of unripe fruits, inappropriate storage and lead times affect the industrial yields and quality of products, mainly in pulp oil.
- Processors incentivize more quantity than quality due to the shortage of raw material.
- Lack of horizontal and vertical linkages among actors and weak enabling environment.
- Processors add around 60% of the total value.
- Purchasing price does not incentivize farmers to collect fruits, which they consider as a time consuming task.
- Almost 100% of the fruits come from wildly growing palm trees. High Variability of yields and fruit characteristics.

**Conclusions**

- Acrocomia represents an alternative income source for peasants and smallholder family farmers in Paraguay.
- Besides the economic importance of Acrocomia, this crop remains neglected, and the sector is still informal.
- The sector is a unique and outstanding case of bioeconomy that relies on wild palm trees. Domestication and plantation is needed in future scenarios.
- Stronger linkages between farmers and a closer relation with industry can increase their benefits and expand their role.

More info: gno.gl/bbYv5E