Macauba – Plant Oil with Impact
Project Presentation
January 2015
The problem: Deforestation is one of the world’s most pressing issues – and palm oil is one of the drivers

The problem...

- 14 million ha land are deforested each year (= size of the UK)
- Especially palm oil monocultures have caused environmental disasters
- In Brazil, deforestation and land use change account for 77% of GHG emissions
- Brazil’s target: become a palm oil exporting country – huge plantations planned

Source: FAO; Brazil's Second National Communication to the UN Framework Convention on Climate Change
Pictures: Crustmania, Greenpeace
Our solution: Silvopastoral systems with Macauba are a sustainable alternative to conventional palm oil

...and our solution for Brazil:

MACAUBA:

- Indigenous palm, more **drought resistant** than the African oil palm
- Produces **similar products** like the African oil palm, but does not require rainforest conditions
- **Attractive oil yields confirmed** by studies of different universities
- Can be **integrated into vast existing pastures** (= agroforestry) to produce plant oil **without decreasing the pasture’s yield**
- Can **produce plant oil without deforestation or land use change**

Source: INOCAS
Macauba fruits contain five products all of which can be sold on national and international markets.

**Pulpa oil**
- Comparable to palm oil

**Kernel oil**
- Comparable to palm kernel oil

**Press cakes**
- Pulpa: animal fodder, comparable to soymeal
- Kernel: animal fodder, higher value than pulpa press cake

**Kernel shell**
- Raw material for high value granulate

Source(s): Vicoso University, Scheffer de Rojas (2009) Mbokaja or Coca as a source of Animal feed
The technical feasibility and economic sustainability of the concept has been evaluated by Leuphana University.

Research project of the Leuphana University (Germany) in cooperation with Yale University sponsored by the European Union with € 2.7m.

Objective: analysis of the social, environmental and economic sustainability as well as the technical feasibility of innovative plant oil production systems.

Feasibility study on Macauba:

- Harvested 300 tons of Macauba
- Analyzed yields, costs and revenue components
- Evaluated the social impact, effect on biodiversity and carbon storage

As commercial, independent spin-off company, INOCAS will implement these findings.
INOCAS aims to establish a full Macauba value chain with two major components

1: Process Macauba fruits from native trees
   - Collect up to 1,500 t of Macauba fruit p.a. from existing trees
   - Engage coffee harvesters off-season and improve their income with Macauba collection
   - Process and sell Macauba products and by-products
   - Build on-the-ground credibility with farmers for component 2

2: Establish a 2,000 ha Macauba silvopastoral system
   - Establish 2,000 ha plantation, with 300 trees/ha
   - Continue milk production on the land, no plantation on non-pasture areas
   - Land owned by smallholders (no land grabbing)
   - Coordination and extension service in cooperation with a large milk cooperative

Both components to be started in parallel

Source: INOCAS
Social sustainability: The project will significantly increase income of smallholder farmers and workers

- **Smallholder farmers**: >100% additional income possible
- **Harvest workers**: wages significantly (> 2x) above minimum wages
- **Income diversification**: Macauba harvest takes place after the coffee harvest, allowing for additional income during these months of the year

Source: Leuphana University Feasibility Study
Environmental sustainability: significant carbon sequestration without additional land use

A carbon sink:

- Planted Macauba trees represent a significant carbon sink
  - The carbon storage per palm is ~1t according to a Vicosa University study → the project will sequester over 500,000 tons of CO2
  - Macauba reduces soil degradation

Sources: Toledo (Vicosa University), INOCAS
**Economic sustainability:** break even after 7 years, highly profitable venture; financing need: USD 2m

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<th>2014</th>
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<td>Harvest of wild Macaubas</td>
<td>Planting of trees</td>
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<td>Potential exit</td>
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- Revenue potential of ~USD 5m p.a.
- Break-even in year 7
- Stable cash flows (before financing) of ~USD 2m after year 10
- Highly profitable

**IDB and CIF‘s FIP will invest USD 4m (3m loan + 1m grant) – Additional investment of total of USD 2m required; combination of different forms (equity, debt, grant) and funding sizes possible**
We have a strong team and experienced partners locally and internationally

**TEAM**

**Johannes Zimpel**, Managing Director  
Brazilian-German, >15 years of work experience, former project manager promoting sustainably produced plant oils in Brazil with GIZ

**Dr. Katharina Averdunk**, Controlling and Planning  
Enterprise, formerly Boston Consulting Group, head of research project on Macauba at Leuphana University

**Jakob Zunk**, Chief Agronomist  
Forest engineer who previously worked as agroforestry expert in Brazil and Mozambique with GIZ and FAO

**Malte Hoepfner**, Project Developer  
Enterprise, set up a social business in Vietnam, previously worked for GIZ, Master’s in International Development from LSE

**Thilo Zelt**, Strategy  
Enterprise and project developer who has been developing sustainable plant oil projects since 2005, head of Jatropha Alliance and Roland Berger Principal

**PARTNERS**

Cooperative producing milk and dairy products and selling animal fodder, 98,000 ha of pasture land managed by its members

EU-funded R&D project which analyzed environmental, social & economic sustainability of Macauba projects

Source: INOCAS
The future: Macauba has significant potential to scale

Market potential [Mio. t]

- Macauba can become a source of vegetable oil as important as palm oil (African oil palm)
- Assumptions: Yield: ~1t oil and 1.8t animal fodder per ha (confirmed by field study)

The vision: Creating the most important vegetable oil without converting a single additional piece of natural habitat

Source: INOCAS
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