



INOCAS

INNOVATIVE OIL AND
CARBON SOLUTIONS



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

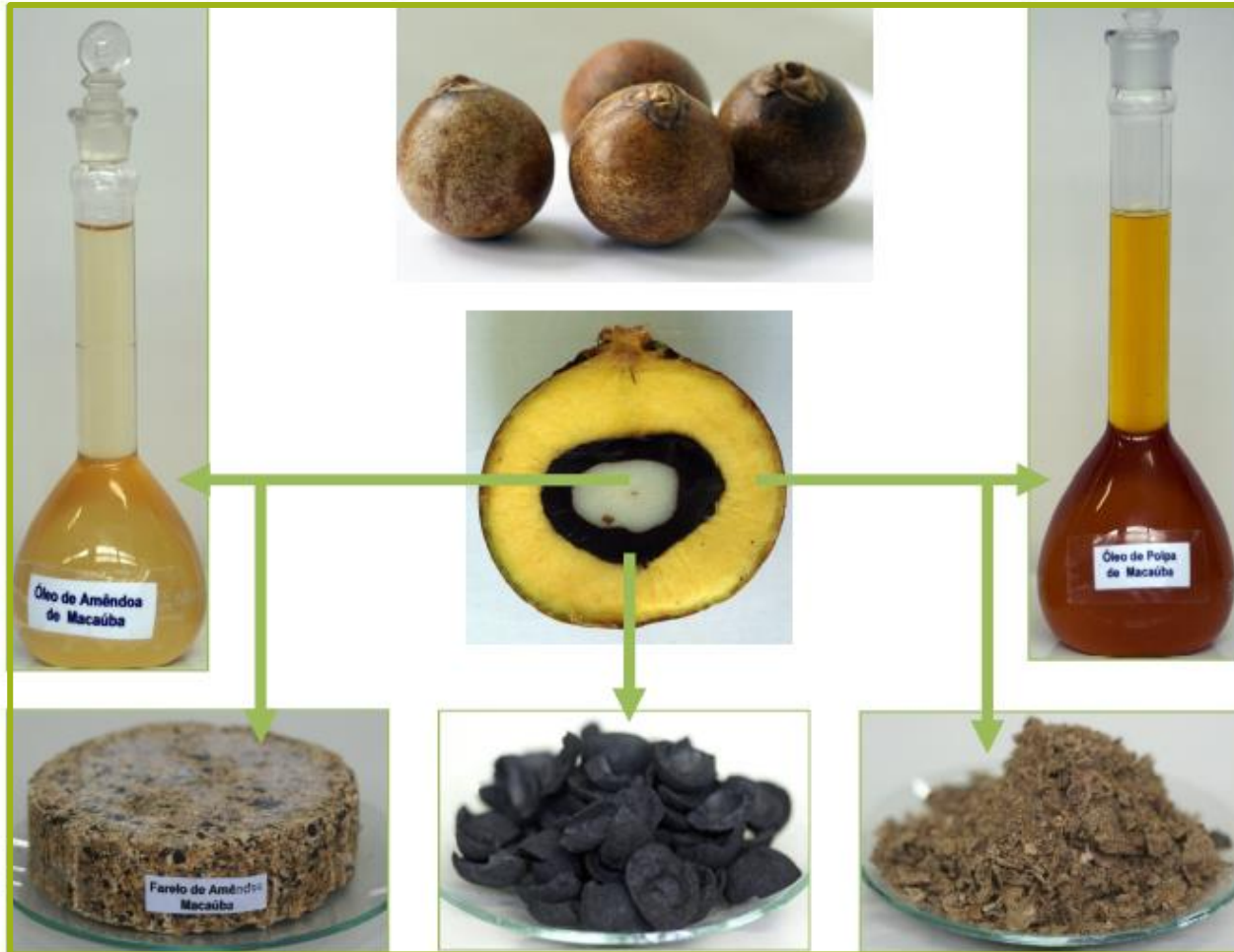
Our solution: Silvopastoral systems with Macauba are a sustainable alternative to conventional palm oil

...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**

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

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 2,000ha 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

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

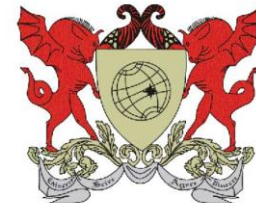
Results of Leuphana University feasibility study:



- **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

Environmental sustainability: significant carbon sequestration without additional land use

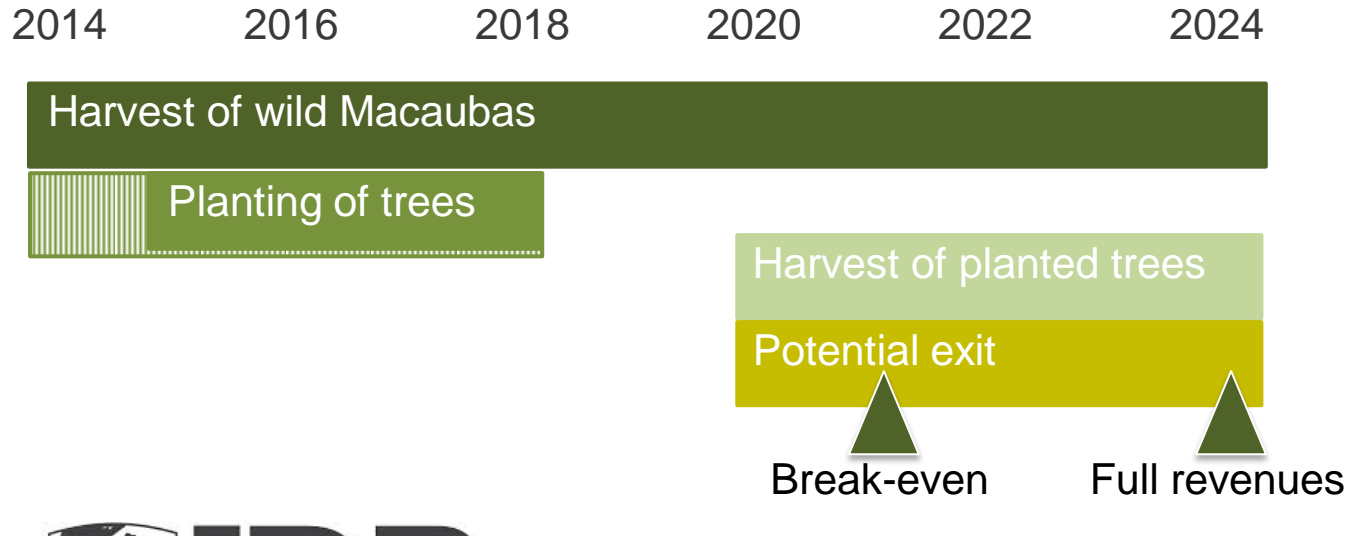
A carbon sink:



**Universidade Federal
de Viçosa**

- 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

Economic sustainability: break even after 7 years, highly profitable venture; financing need: USD 2m



- 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



Inter-American Development Bank

CLIMATE INVESTMENT FUNDS



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
Entrepreneur, formerly Boston Consulting Group, headed 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
Entrepreneur, set up a social business in Vietnam, previously worked for GIZ, Master's in International Development from LSE



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

PARTNERS

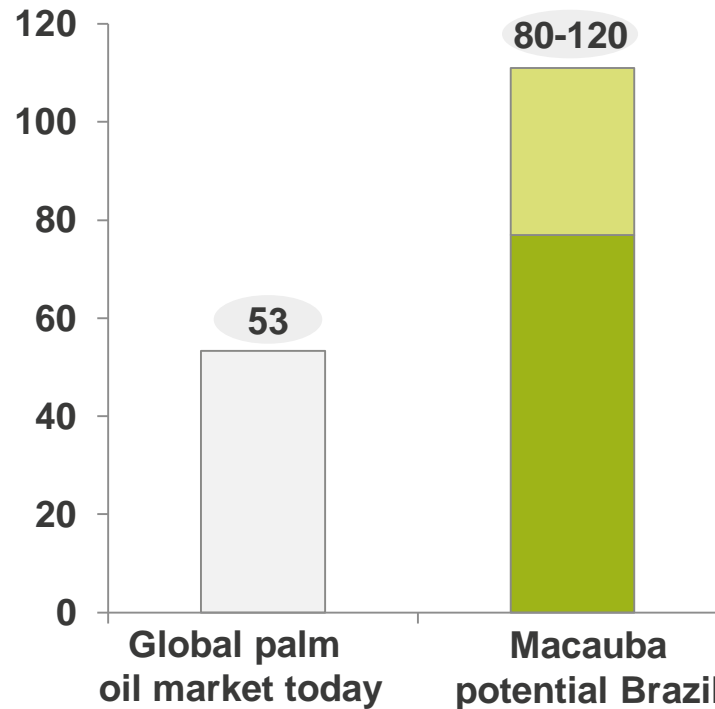


Cooperative producing milk and dairy products and selling animal fodder, 98,000 ha of pasture land managed by its members



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

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



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