Platform for Sustainable Biokerosene Production

- First information on open positions for PhD candidates and

post-doctoral research associates -

LEUPHANA UNIVERSITÄT LÜNEBURG

EUROPÄISCHE UNION

Europa fördert Niedersachsen

Platform for Sustainable Biokerosene Production – Research Project and Consecutive Implementation

Key questions

- **Is it possible to produce renewable fuels in a sustainable way - without reducing food security?**
- **Could the production of biokerosene feedstock mitigate poverty in developing countries?**
- **And how can afforestation projects increase biodiversity, mitigate climate change and at the same time produce feedstock for renewable fuels?**

We are looking for 11 researchers (PhD candidates or post-doctoral research associates) who will be dealing with these and other questions. The objective is to develop consistent concepts of a socially, environmentally and economically sustainable production of biokerosene feedstock on a global scale - concepts, which will be put into practice by a spin-off company.

The research project is located at the Leuphana University of Lüneburg (Prof. Schaltegger and Prof. Klein) in cooperation with Yale University (Prof. Bailis) and the University of South Australia (Prof. Burritt).

Vacancies: 9 full-time and 2 part-time positions, fixed-term for 2-3 years starting at the beginning of 2011. Applications and enquiries: averdunk@leuphana.de; full job postings online soon at www.leuphana.de/aktuell/ausschreibungen/offene-stellen/inkubator.html

Background and Motivation

The International Air Traffic Association (IATA) is committed to the use of 10% renewable fuels by 2017 in order to reduce carbon emissions as well as the industry's dependency on fossil fuels. As of today, plant oils are the most viable feedstock for biokerosene production. The volume required to fulfill IATA's 2017 target is estimated at 15 - 30 Mio. tons p.a. This amount represents 10-20% of today's global plant oil production. The greatest challenge in this context is thus to produce large additional volumes of plant oil in an environmentally and socially sustainable way, i. e without reducing food security.

The research interest of the project is to analyze and advance existing concepts of sustainable plant oil production and to put them into practice. These concepts comprise the use of oil bearing trees and shrubs in afforrestation projects (e.g. Jatropha and Moringa) as well as intercropping systems including short seasoned oil plants (e.g. Camelina).

Funding of over €2.5 Mio. for the project has been received from the Innovation Incubator, a program initiated by the Leuphana University of Lüneburg, financed by the European Union and the German Federal State of Lower Saxony with a total investment volume of €100 Mio.[1]

[1] For further details see: www.leuphana.de/inkubator.html

First information on open positions:
1. Environmental sustainability of biokerosene feedstock production

Requirements: MSc degree/ PhD in environmental (tropical) sciences such as agricultural or forestry sciences

1.1 Concepts for biodiversity-friendly biokerosene production in tropical countries:

Evaluate existing plant oil production systems and develop concepts to combine different plant community mixtures and planting schemes of (oil) trees, shrubs, and other plants to optimize biodiversity while producing plant oil (bearing in mind the economic feasibility of afforestation projects)

1.2 Concepts for carbon sequestration for plant oil producing land-use systems in the tropics:

Evaluate existing plant oil production systems and develop concepts for the optimal combination of (oil) trees, shrubs and other plants to maximize carbon sequestration and enhance the quality of soil, water and air (bearing in mind the economic feasibility of afforestation projects)

1.3 Environmental sustainability of plant oil production in moderate climate zones:

Develop concepts to produce additional plant oil without reducing food production in temperate climate zones; focus: intercropping and use of marginal/depleted/unused land

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First information on open positions:
2. Social sustainability of biokerosene feedstock production

Requirements: MSc degree/ PhD in economics, environmental or social sciences, work experience in developing countries, contacts to NGO/ farmer associations

2.1 Social sustainability in developing countries:

- Develop concepts and business models to maximize positive social impacts of plant oil production projects in developing countries bearing in mind their economic feasibility
- Asses and initiate potential cooperation with NGOs, small farmer associations and other socially oriented organizations

2.2 Global social sustainability/ food security:

- Analyze and develop concepts to reduce competition between food and fuel in the context of biokerosene production
- Develop approaches to avoid negative effects of plant oil production on global food prices and the resulting deterioration in local food security in developing and developed countries

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First information on open positions:
3. Overall production potential of biokerosene feedstock production

Requirements: MSc degree/ PhD in environmental (tropical) sciences such as agricultural or forestry sciences, work experience in agricultural projects

3.1 Biokerosene feedstock production potential in tropical countries:

- Prepare the implementation of concepts for sustainable plant oil production in tropical countries (mainly Africa) focusing on different types of oil producing trees
- Incorporate concepts to optimize biodiversity (see profile 1.1), carbon sequestration and other environmental impacts (see profile 1.2) while maximizing positive social effects (see profile 2.1) and avoiding competition between food and fuel production (see profile 2.2)

3.2 Biokerosene feedstock production potential in moderate climate zones:

- Prepare the implementation of concepts for sustainable plant oil production in countries with moderate climate (mainly Europe) focusing on intercropping systems and use of marginal/depleted/unused land
- Incorporate concepts to optimize carbon sequestration and other environmental impacts (see profile 1.3) while avoiding competition between food and fuel production (see profile 2.2)

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First information on open positions:
4. Sustainability accounting, certification and communication

Requirements: Degree in business administration, sustainability management, social-environmental studies or simila degreesr, preferably work experience or PhD

4.1 Sustainability performance measurement and sustainability accounting (preferably PostDoc):

- Develop concepts for sustainability performance measurement and sustainability accounting for supply/value chains, using the case of plant oil production for biokerosene
- Analyze data requirements to assess and prove the social and environmental sustainability of biokerosene supply/value chains
- Conduct reliable calculations of biokerosene supply/value chains (including LCA and further accounting methods)

4.2 Certification and communication of sustainability (preferably work experience):

- Analyze existing concepts and frameworks to certify and communicate the sustainability of agricultural feedstock i. e. for biokerosene production bearing in mind its economic feasibility
- Develop a certification and communication framework for sustainable plant oil production considering technical and societal risks and opportunities as well as information, communication and marketing issues

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First information on open positions:
5. Carbon compensation financing and business models

Requirements: Degree in business administration or similar degrees, knowledge in financial modelling, work experience (corporate/project financing, investment appraisal, business economics), preferably PhD

5.1 Carbon compensation financing models:

- Analyze and develop financing models for biokerosene feedstock projects based on carbon credits in tropical countries
- Analyze existing and potential projects for carbon compensation, usability of standards and investors' preferences

5.2 Business models for sustainable biokerosene feedstock

- Analyze existing business models for plant oil production and the sustainability of those projects, their supply chains and value added networks; develop concepts for evaluating business models
- Identify patterns, designs and interrelations of low-income and industrial market business models along the biokerosene supply chain
- Asses the global production potential for plant oil in terms of feasibility, social and environmental impacts, model financial viability of business models

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