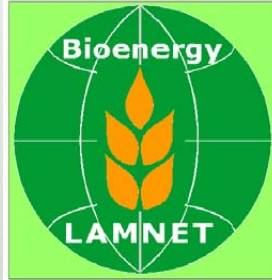
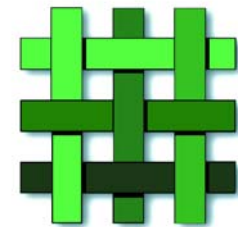




European Biomass
Industry Association



ETA –
Renewable
Energies



Exchange of biofuel experience

between Brasil and EU

Norbert N. Vasen

ETA renewable energies

9th Lamnet project workshop

Ribeirão Preto, São Paulo, Brasil

13 – 17 September 2004

Overview

- **Background**
 - **Problems**
 - **Technology overview**
 - **Possible impact**
 - **Conclusions**
-

Background

Problems

- Energy shortage and political imbalance
- Environmental problems
- Water

Opportunities

- Innovative technologies in different countries
 - There is interest in concrete projects
 - International co-operation
 - Economic parameters are promising
-

Points to address to exploit opportunities

- Information
 - Co-operation
 - Financing feasibility studies and other supporting activities
 - Technical issues
 - Scale enlargement needed
 - Testing of biomass
-

Technology overview

- Mechanical low energy pelletising technology
 - Utilisation of sugar cane waste as solid and modern fuel
 - Hydrogen and biomethanol from pellets
 - Pellets for siderurgy, replacing expensive cokes
 - Charcoal pellets for water purification
 - Large units for cost reduction
 - Small mobile units to pelletise voluminous biomass on place
-

Technology overview

- New synthetic crystals for decreasing energy for:
 - Desalination of water
 - Distillation of alcohol
 - Sugar condensation for better storage
 - distillers can work whole year on sugar
 - Distributed small scale generation
 - Small pelletisers and steam engines
 - Alcohol for microturbines
 - infrastructure already present (in Brazil)
 - Flexfuel car
-

From Brazil to Europe

- Large juice extractors and distillation technology
 - Scale enlargement of pellet machines
 - Evaluation of large scale application of alcohol in transport
 - Presence of alcohol infrastructure for knowledge
 - about market and testing of microturbines
-

From Europe to Brasil

- Mechanical low energy pelletising technology
- New synthetic crystals for decreasing energy for:
 - Sugar dehydration (easier storage to gain time for processing)
 - Distillation of alcohol
- Distributed small scale generation
 - *Pelletisers and steam engines*
 - *Microturbines for alcohol*

General framework of activities

- Sweet Sorghum Project Romania
 - Co-operation with Russia
-

Sweet Sorghum Romania

Project with part for industrialisation and for demonstration

- Start with 20 000 ha Sweet Sorghum
 - Romanian actors
 - Biomass association Romania, land owners, industry
 - Main market: big contract with Germany
 - Play ground for many countries
 - China, Russia, USA, Brazil, European countries
 - They invest and learn from a unique project
 - Agreement is in preparation
 - Large replication potential
 - Ethanol is world commodity (since few months quoted)
 - Transport (many mio's of cars running on it, most in Brazil)
 - Distributed cogeneration, leading to rural development
 - Sweet Sorghum is a promising energy crop
-

Co-operation with Russia

- Agreement Ministry RF – EUBIA
 - with role for ETA renewable energies
- Pelletising combined with forest maintenance
 - Small and large units are both needed
- Steam engine for electricity off grid
 - Combined with pelletisers
- Four step process for hydrogen from waste
- Synthetic crystals
- Green certification

Thank you
for your attention

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