

BIOENERGY CONTRIBUTION OF LATIN AMERICA, CARIBBEAN AND AFRICA TO THE GSB PROJECT – LACAF-Cane I

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FAPESP Process 2012/00282-3 | Term: Mar 2013 to Feb 2017 | Thematic Project

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Figure 1. Charcoal for cooking in Mozambique: an unfortunate reality

Modern and sustainable bioenergy production can be a sustainable way to meet future demands of energy, particularly for transportation, which remain dependent on limited and environmentally hazardous (i.e. GHG emissions) fossil fuel sources. However, the overall scale of bioenergy production will, in part, depend on the availability of fertile land with appropriate agroecological conditions, thus implying limited trade-offs with food production and biodiversity conservation. In this regard, Latin America and Africa have a significant role to play as, according to some estimates, these regions contain the largest amounts of unexploited arable land that maybe the key to the world sustainable expansion of food and bioenergy. Therefore,

project LACAf will focus in these two continents in order to evaluate opportunities and limitations for bioenergy, with emphasis on sugarcane ethanol. Bioelectricity production from sugarcane will also be considered due to its important impacts on rural development and its synergy with ethanol production. Moreover, LACAf intends to be a contribution to the Global Sustainable Bioenergy Project (GSB – <http://bioenfapesp.org/gsb/index.php>), which was initiated in 2009 by a group of scientists, engineers, and policy experts from universities, government agencies, and the non-profit sector across the globe, with the overall goal of providing guidance with respect to the feasibility and desirability of a sustainable bioenergy-intensive future. The core objective of the GSB Project is to test the hypothesis that it is physically possible for bioenergy to sustainably meet a substantial fraction of future demand for energy services while feeding humanity and meeting other needs from managed lands, preserving wildlife habitat, and maintaining environmental quality.

The LACAf's key questions are:

1 - *Why produce bioenergy?*

Approach: Regional assessment of bioenergy potential through the integrated analysis of socioeconomic and environmental issues

2 - *How much is it possible to produce?*

Approach: Land availability and agroecological potential for sugarcane production

3 - *How to do it?*

Approach: Biofuel production models that may enlarge local gains (socioeconomic) diminish environmental risk and promote investment returns

SUMMARY OF RESULTS TO DATE AND PERSPECTIVES

The initial activities have involved initiatives to understand and discuss the African countries (more specifically Mozambique and South Africa), through regional workshops, meetings and technical missions, in order to answer the following topics: land use & land availability, energy & food security, sugarcane agricultural management, sugar/ethanol production & use, social demands and sustainability. This first step was essential to consolidate partnerships with local researchers and institutions, to collect & validate data and, to understand clearly the local scenery and demands. Nowadays, the same approach has been conducted in Latin American countries (mainly Guatemala and Colombia). The second step (in course) consider the data analysis and modelling scenery of sugarcane production and expansion aiming to answer the three key questions (Why, How much and, How?). The goal is to produce 20 scientific papers in order to present the results.



Figure 2. Sugarcane plantation to sugar production in Mozambique (Marromeu's Sugarcane Mill): existing know-how and perspectives

MAIN PUBLICATIONS

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