

BIOENERGY & SUSTAINABILITY

Glaucia Mendes Souza

Chemistry Institute / University of São Paulo (IQ/USP)

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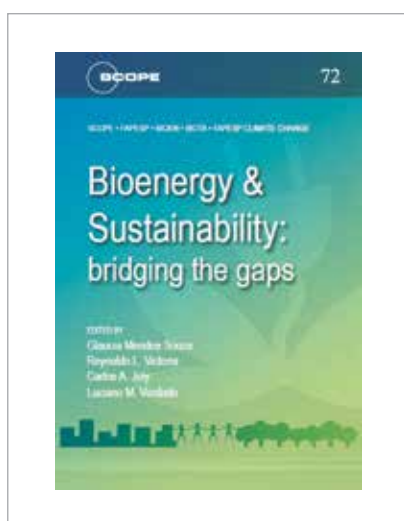


Figure 1. Book cover
"Bioenergy & Sustainability: bridging the gaps"

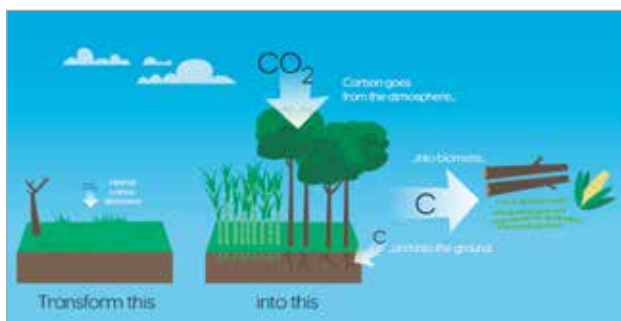


Figure 2. Converting degraded into productive land using biomass

This project aims to conduct a global evaluation of bioenergy sustainability, including advantages, drawbacks, and the criteria to analyze its social, economic and environmental impacts. A *Synthesis of Knowledge* volume and a *Policy Brief*, under the aegis of SCOPE (Scientific Committee on Problems of the Environment), were written with solution-oriented recommendations for public policies on the sustainable expansion of bioenergy.

Technologies that lead to less pollution, lower energy consumption and decreased greenhouse gas emission for bioenergy production and use were evaluated regarding their economic feasibility, the industry capacity for their implementation in scale and the short and long-term impacts on the environment, human health and generation of wealth.

A Scientific Advisory Committee defined both the scope of the synthesis volume and the experts to contribute to the assessment. This committee first met in São Paulo on February 27th and 28th, 2013, at FAPESP, during the *Scoping Meeting*, which had as goal the definition of background themes, authors and reviewers. The *Scoping Meeting* was preceded by an international workshop organized by FAPESP's Programs BIOEN, BIOTA and RPGCC, in which we gathered the broader community's recommendations for bioenergy policies. After producing thirteen background chapters, the roster of national and international experts met at UNESCO, Paris, on December 2013, for the *Rapid Assessment Process (RAP)* to discuss key findings and recommendations.

SUMMARY OF RESULTS TO DATE AND PERSPECTIVES

Over the past two years, 137 experts from 24 countries and 82 institutions have collaborated to analyze a range of issues related to the sustainability of bioenergy production and use. The resulting report *Bioenergy & Sustainability: Bridging the Gaps* was launched on April 14th, 2015, at FAPESP headquarters in São Paulo, Brazil.

The report references over 2,000 studies, providing a wide-range analysis of the current bioenergy landscape, technologies, production, financing systems and markets, and the potential for sustainable growth of bioenergy use, in parallel with a critical review of its impacts.

The *Bioenergy & Sustainability* report calls attention to the value of bioenergy as an alternative power source and an option to reduce the impact of fossil fuel combustion. It also highlights the opportunities for enhancement of energy security and mitigation of climate change through advanced biomass conversion technologies that would also help to offset the negative environmental impact of deforestation and land degradation due to agriculture and cattle grazing.

Another conclusion of the report is that bioenergy production systems based on sustainable practices can help to offset greenhouse gas emissions resulting from land use changes or loss of biodiversity. These technologies and procedures include combinations of different feedstocks, use of co-products, integration of bioenergy with agriculture, pasture intensification, agro-ecological zoning, landscape-level planning, improving yields, and other land management practices adapted to local conditions.

In addition, the authors affirm that sufficient land is available worldwide for expansion of biomass cultivation, most of this land being located in Latin America and Africa, and that the use of these areas for bioenergy production would not represent a threat to food security and biodiversity under the proper conditions. Moreover, they present evidence that soil improvement technologies, production chain integration and use of bioenergy byproducts in poor rural areas could boost economic performance, enhance food quality and energy access, reduce pollution and create jobs.

To download the full report (open access) please visit: <http://bioenfapesp.org/scopebioenergy/index.php/chapters>

MAIN PUBLICATIONS

Souza GM et al. 2015. *Bioenergy & Sustainability. SCOPE Policy Brief*. p. 6, 2015. ISSN 2411-6149. (<http://bioenfapesp.org/scopebioenergy/index.php/policy-brief>)

Souza GM et al. (Editor). 2015. *Bioenergy & Sustainability: bridging the gaps*. SCOPE. Vol.72, p.779. Paris. ISBN 978-2-9545557-0-6 (<http://bioenfapesp.org/scopebioenergy/index.php/chapters>)

Souza GM. 2015. SCOPE Bioenergy & Sustainability. Technical Summary. In *Bioenergy & Sustainability: bridging the gaps*. Eds. Souza, G. M. et al. SCOPE vol. 72. pp 8-26. Paris. France. ISBN 978-2-9545557-0-6 <http://bioenfapesp.org/scopebioenergy/index.php/chapters/technical-summary>

Souza GM. et al. 2015. Bioenergy numbers. In *Bioenergy & Sustainability: bridging the gaps*. Eds. Souza, G. M. et al. SCOPE vol. 72. pp 22-57. Paris. France. ISBN 978-2-9545557-0-6 (<http://bioenfapesp.org/scopebioenergy/index.php/chapters/bioenergy-numbers>)

Souza GM et al. 2015. The much needed science: filling the gaps for the sustainable bioenergy expansion. In *Bioenergy & Sustainability: bridging the gaps*. Eds. Souza, G. M. et al. SCOPE vol. 72. pp 218-227. Paris. France. ISBN 978-2-9545557-0-6 <http://bioenfapesp.org/scopebioenergy/index.php/chapters/the-much-needed-science>

Glucia Mendes Souza

Instituto de Química
Universidade de São Paulo (USP)
Departamento de Bioquímica
Av. Prof. Lineu Prestes 748, sala 954
CEP 05508-900 – São Paulo, SP – Brasil

+55-11-3091-8511
glmsouza@iq.usp.br