

Policy Brief on Sustainable Bioenergy – Latin America and Africa

Organized by FAPESP Bioenergy Research Program (BIOEN), Stockholm Environmental Institute (SEI), World Agroforestry Center (ICRAF) and the Scientific Committee on Problems of the Environment (SCOPE)

The publication was **launched at FAPESP**, São Paulo in August 9th 2018.

154 experts from 31 countries contributed to the SCOPE report (<http://bioenfapesp.org/scopebioenergy>)

In the event authors debated with top-level experts key findings and conclusions in the light of the Brazilian new biofuels policy framework (RenovaBio) and the new business opportunities.

PRESS RELEASE

Energy from solar and wind can provide electricity, but bioenergy is an especially interesting option, as it can provide fuels that can be stored, fit in the present infrastructure, provide versatility for different uses and have a high energy density.

Getting it right with proper preparation, policies and monitoring can help bring both economic and environmental health and prosperity to Latin America and Africa.

Bioenergy is critical to secure a renewable energy matrix

- Energy from hydro, solar and wind can provide electricity but bioenergy, due to unique characteristics, is an especially interesting option.
- Biomass can be stored to produce continuous rather than intermittent energy, making it easier to use and to integrate into unreliable power grids.
- Bioenergy uses locally available resources.
- Bioenergy can provide fuels that fit in the present infrastructure, while using own resources.
- Bioenergy comes in many forms such as gas, solid, liquid, heat and electricity, providing versatility for various applications.
- The high energy density of ethanol (around 70% of gasoline) highlights its potential to be used in transportation, helping secure a fast transition to a renewable energy matrix alongside solar and wind energy that still lack efficient energy storage systems.

Bioenergy has large scalability and sustainability potential

- Without compromising food security or biodiversity Sub-Saharan Africa and Latin America have an estimated 500 to 900 million hectares of land available for bioenergy.
- Plants and waste material used to create bioenergy are widely available or under development in Latin America and Africa.
- Forests store 18 times more carbon than sugarcane and the combination of both, plus the expected increases in productivity due to technology improvement, could keep ethanol production along with the benefits of sustainable use of biodiversity.
- It is possible to combine forest preservation/recovery and feedstock production for bioenergy.
- Sustainable bioenergy was deployed in scale in Latin America providing energy security in the transportation sector in a short period of time without competing with food production.
- Latin America currently produces more food than it needs and exports food products to the rest of the world.
- The Brazilian ethanol production by 2045 could displace up to 13.7% of global crude oil consumption and 5.6% of the world's CO₂ emissions relative to 2014.
- Currently, bioethanol and biodiesel provide about 3% of the world's transportation fuels, but biofuels could provide up to 30% by 2060 without using forest preservation areas or land necessary for food production.
- Bioenergy technologies are improving significantly and are becoming each time more competitive compared to oil-based energy.

Bioenergy for energy access can bring added benefits

- In Africa in early 2017 a commercial farm became the first company run on biogas to return electricity to their national power grid.
- Biogas is an important alternative for Sub-Saharan Africa to recycle nutrients and produce energy.
- Bioenergy crops can help stop land degradation or even restore depleted soils.
- Bioenergy can help create new markets for residues.
- Creating markets for agricultural waste products can add to farmers' earning potential. Additionally, bioenergy and its feedstocks can be traded.

- Energy access is a prerequisite for key development goals such as education and income as well as advancing overall productivity and health.

Among all renewable energy sources, bioenergy is by far the one with potential to create more jobs in Latin America and Africa.

- The option to use feedstocks for bioenergy or other bio-products has indirect social benefits:
 - Technological gains (e.g. know-how, improvement in academic performance, tech jobs, patents)
 - GDP and education improvements
 - Increased resilience to economic disruption
 - A high potential for innovation (technological advancements such as systems to reduce emissions and improve water use efficiency; organizational advancements such as changes in institutional behavior and green financing; social advancements due to job creation, improved capacity building, better paid jobs)

International cooperation can drive the bioeconomy

- Bioenergy holds promise for international cooperation including monitoring
- Assessing projects should aim at:
 - improving both short and long-term data collection and reporting of lessons learned
 - creating a set of best practices that can be applied across projects
 - creating market-based incentives for resource and infrastructure development
 - linking efforts of global organizations with similar goals on bioenergy and biomass resources

Policy is key

- The total support cost for developing novel biofuels (US\$ 84 billion) represents a very small fraction of the total fossil fuel costs from now to 2040, which would total some US\$ 33 trillion.
- Subsidies for fossil fuels alone amounted to US\$ 5.3 trillion worldwide in 2015.
- Bioenergy programs on a national scale may initially require some combination of subsidies, tax breaks, low interest loans and mandates to remove uncertainties.
- Governments must set target dates for removing these support mechanisms in order to encourage improved technology and more efficient production.

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