

# *Application of GBEP sustainability indicators for bioenergy in developing countries*



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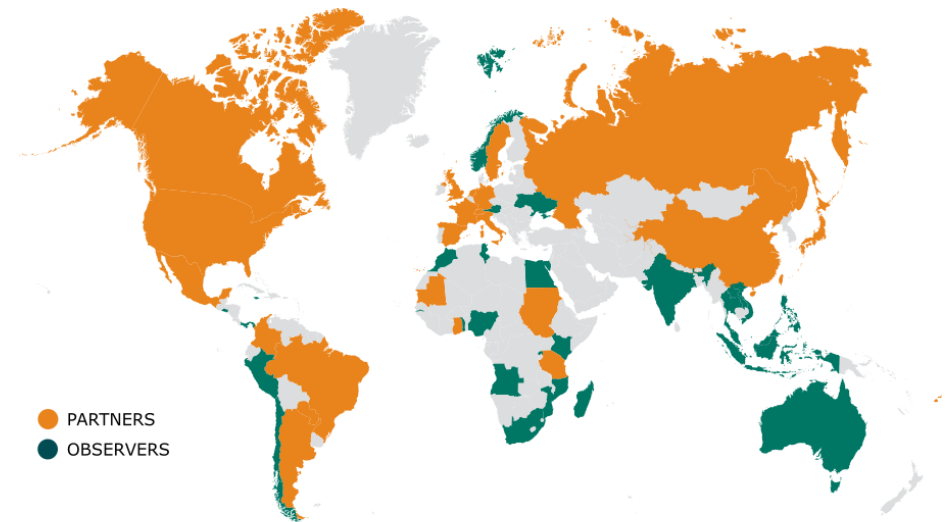
# The Global Bioenergy Partnership

# The Global Bioenergy Partnership (GBEP)

☀ International initiative established to implement the commitments taken by the **G8 in 2005** and receiving renewed mandates from **G7 and G20** since then.

☀ **Argentina and Italy** are the co-Chairs. FAO is a founding partner and hosts its Secretariat at FAO HQ in Rome.

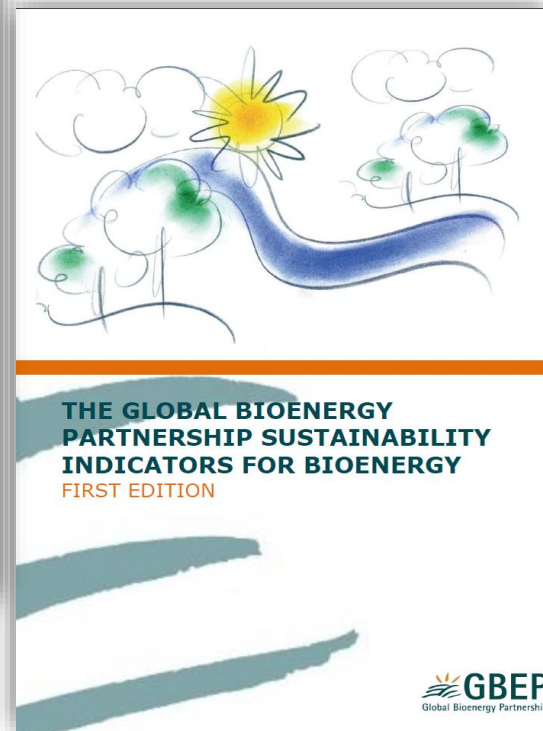
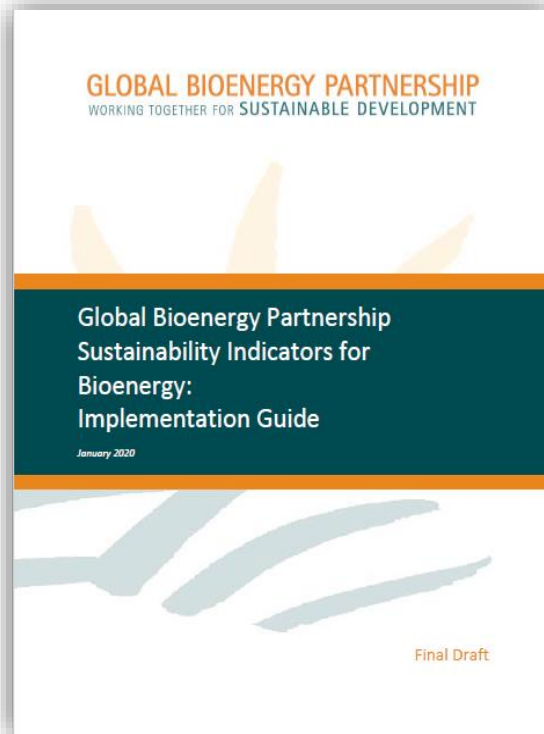
☀ **39 Partners** (including 23 countries and 16 international organizations and institutions) **and 48 Observers** (Governments and International Organizations)



# Focus on SUSTAINABILITY

## The Global Bioenergy Partnership (GBEP)

has developed the most widely recognized and agreed **set of indicators for the assessment and monitoring of bioenergy sustainability.**



### Characteristics

- ☀ Science based
- ☀ For all forms of bioenergy
- ☀ Voluntary – not legally binding
- ☀ AIM: To facilitate the harmonization of sustainability assessments and support policy formulation



# GBEP sustainability indicators for all types of bioenergy

ENVIRONMENTAL	SOCIAL	ECONOMIC
1. Lifecycle GHG emissions	9. Allocation and tenure of land for new bioenergy production	17. Productivity
2. Soil quality	10. Price and supply of a national food basket	18. Net energy balance
3. Harvest levels of wood resources	11. Change in income	19. Gross value added
4. Emissions of non-GHG air pollutants, including air toxics	12. Jobs in the bioenergy sector	20. Change in consumption of fossil fuels and traditional use of biomass
5. Water use and efficiency	13. Change in unpaid time spent by women and children collecting biomass	21. Training and re-qualification of the workforce
6. Water quality	14. Bioenergy used to expand access to modern energy services	22. Energy diversity
7. Biological diversity in the landscape	15. Change in mortality and burden of disease attributable to indoor smoke	23. Infrastructure and logistics for distribution of bioenergy
8. Land use and land-use change related to bioenergy feedstock production	16. Incidence of occupational injury, illness and fatalities	24. Capacity and flexibility of use of bioenergy

# GSI as a MRV tool

Measured over time, the indicators show progress towards or away from a sustainable development path as determined nationally.

Tool to **Measure, Report and Verify (MRV)** the achievement of:

☀️ **Nationally Determined Contributions (NDCs)**

e.g. to evaluate the effectiveness of adopted policies and/or the efficient use of funds to achieve reduced GHGs emissions








☀️ **Sustainable Development Goals (SDGs)**



# Links between GSI and SDGs

☼ All GSIs from the environmental and social pillars and the majority from the economic pillar are linked to SDGs and their targets and indicators

☼ GSI implementation can support data collection for SDG monitoring

Sustainable development goals, targets and indicators				GBEP Sustainability Indicators for Bioenergy (GSI)
SDG	Target	Indicator	Tier	GSI
	1.1	1.1.1	I	10. Price and supply of a national food basket
	1.2	1.2.1 1.2.2	I II	11. Change in income
	1.4	1.4.2	III	9. Allocation and tenure of land for new bioenergy production
	2.1	2.1.1 2.1.2	I III	10. Price and supply of a national food basket
	2.3	2.3.1 2.3.2	III	9. Allocation and tenure of land for new bioenergy production
	2.4	2.4.1	III	7. Biological diversity in the landscape 2. Soil quality
	2.c	2.c.1	II	10. Price and supply of a national food basket
	3.9	3.9.1	I	15. Change in mortality and burden of disease attributable to indoor smoke
	5.4	5.4.1	II	13. Change in unpaid time spent by women and children collecting biomass
	6.3	6.3.1 6.3.2	II III	6. Water quality
	6.4	6.4.1 6.4.2	II I	5. Water use and efficiency
	7.1	7.1.1 7.1.2	I	14. Bioenergy used to expand access to modern energy services
	7.2	7.2.1	I	14. Bioenergy used to expand access to modern energy services 22. Energy diversity
	7.3	7.3.1	I	19. Gross value added 22. Energy diversity
	7.a	7.a.1	III	all GBEP work
	8.1	8.1.1	I	19. Gross value added
	8.2	8.2.1	I	12. Jobs in the bioenergy sector
	8.3	8.3.1	II	12. Jobs in the bioenergy sector
	8.5	8.5.1 8.5.2	II I	11. Change in income
	8.8	8.8.1 8.8.2	I III	16. Incidence of occupational injury, illness and fatalities

Source: Fritsche et al. 2018

# GSI implementation: main objectives

☀️ Create **country ownership** by ensuring the **participation of all stakeholders**

☀️ **Strengthen the capacity** of national institutions to assess bioenergy sustainability through the GSI therefore setting the basis for a long-term monitoring of bioenergy sustainability

☀️ Use results to **inform bioenergy policy-making** within the context of low-carbon development

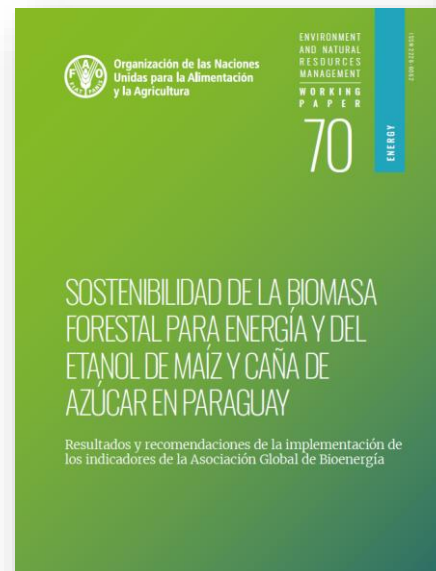
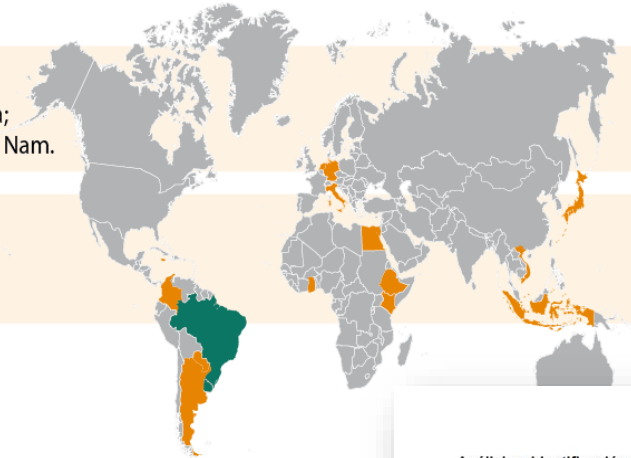


# Implementation of the GSI

- 14 countries have implemented the GBEP indicators
- 2 countries are in the process of implementation

● **IMPLEMENTED:** Argentina; Colombia; Egypt; Ethiopia; Germany; Ghana; Indonesia; Italy; Jamaica; Japan; Kenya; Netherlands; Paraguay; Viet Nam.

● **IMPLEMENTATION PHASE:** Brazil; Uruguay.



Análisis e identificación de indicadores de sostenibilidad relevantes definidos por GBEP para las cadenas de producción de energía en base a residuos de biomasa forestal, biodiesel y bioetanol en Uruguay

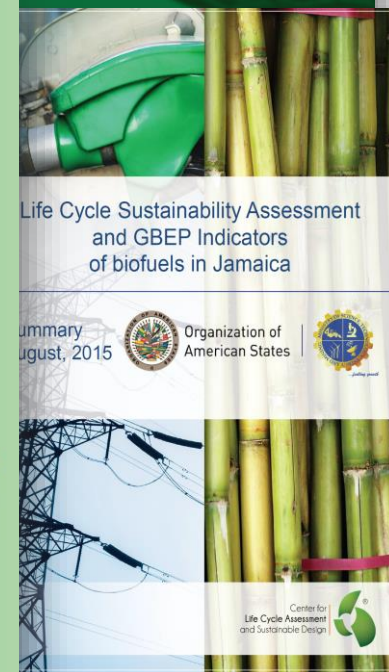
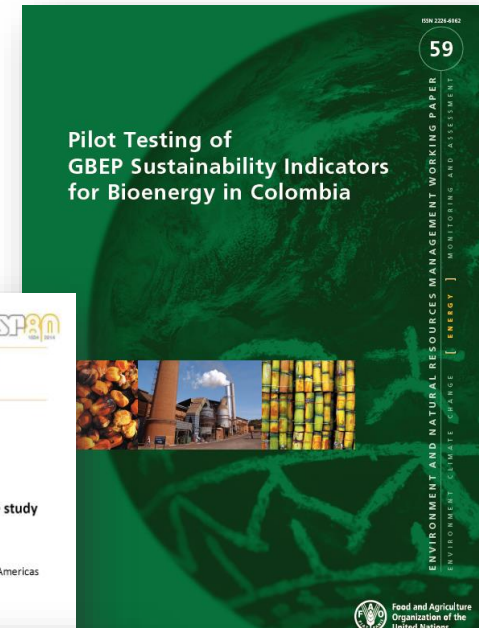
**SEGUNDO INFORME:**  
Propuesta metodológica y fuentes de información

Proyecto FAO – MIEM

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# Trainings on the GSI – Example from **SUB-SAHARAN AFRICA**

**Wood energy** has been recognized as the most important (and critical) bioenergy pathway in both countries.

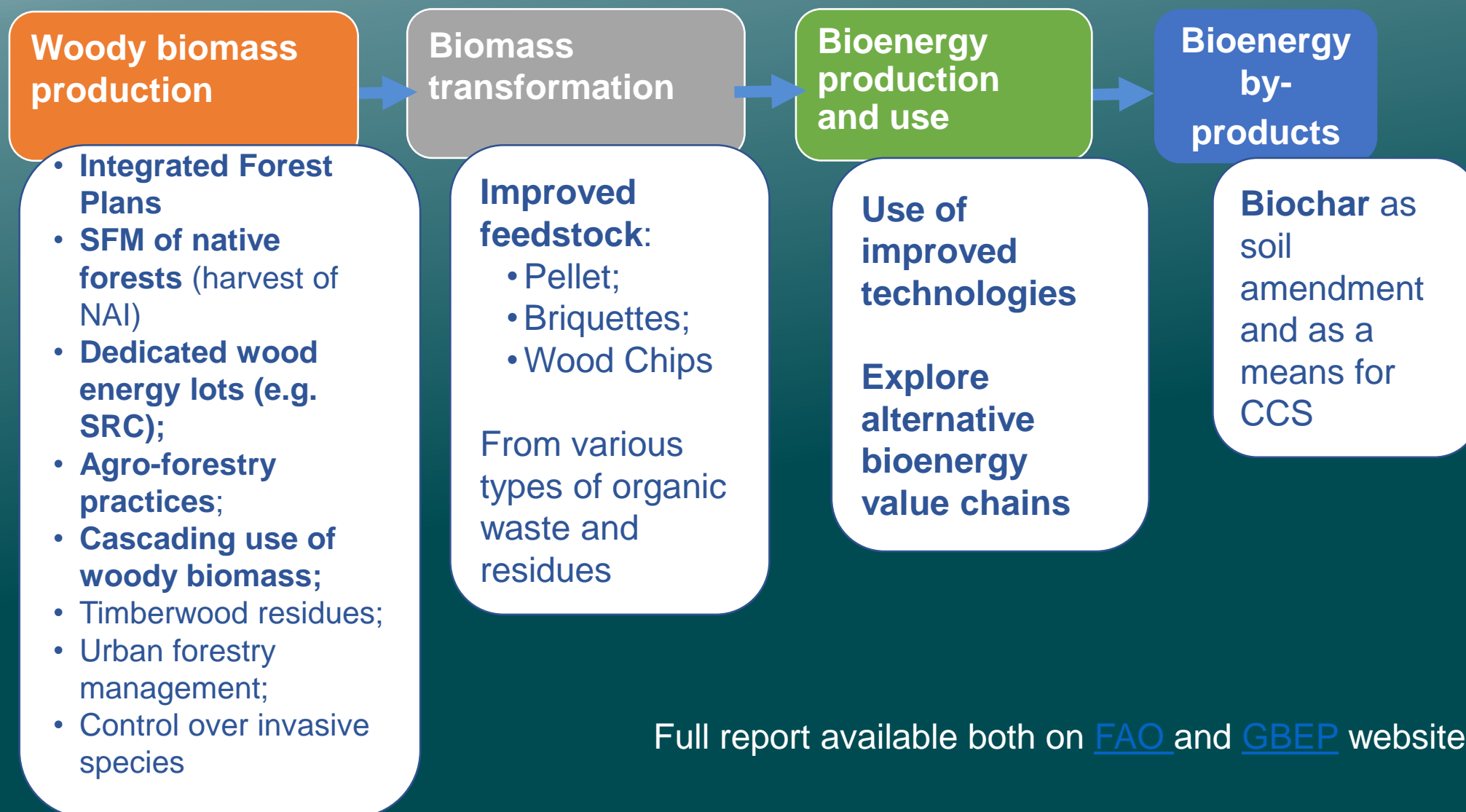
**Traditional bioenergy value chains (e.g. charcoal) have devastating effects on forest landscapes**

☀️ They are **inefficient** (traditional charcoal has production yield between 15 and 20 percent; and traditional cooking stoves also have low efficiency)

☀️ **Demand is higher than sustainable supply**

**Need to reduce the pressures on forests from wood energy production**

# Improve the sustainability of wood energy pathway in Sub-Saharan Africa as a contribution to Forest Landscape Restoration



**Outcomes  
from GSI  
implementation on  
various countries  
and bioenergy  
pathways**

**Paraguay**

- Biodiesel from soybean
- Ethanol from sugarcane or Maize

**Viet Nam**

- Biogas from livestock residues and agro-industrial wastewater

# Thank you for your attention

FOR MORE INFORMATION



[www.globalbioenergy.org](http://www.globalbioenergy.org)



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