

Tracking Sustainable Development of Bioenergy

“Tracking Sustainable Bioenergy Development: focus on Africa”

28 May 2019 - EUBCE - Lisbon, Portugal

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Food and Agriculture Organization of the United Nations (FAO)



The Global Bioenergy Partnership (GBEP)



GBEP was established to implement the commitments taken by the **G8 in 2005**.

GBEP reports every year to the **G7 and G20**, and receives regular mandates from them.

Italy and **Brazil** are currently Chair and co-Chair of the Partnership. The Secretariat is hosted at FAO in Rome.

38 Partners and 41 Observers
(Governments and International Organizations)



SUSTAINABILITY is key

**Bioenergy presents excellent OPPORTUNITIES
not without CHALLENGES.**

SUSTAINABILITY IS KEY to take out the best of opportunities.

The Global Bioenergy Partnership (GBEP)

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

GBEP sustainability indicators for all types of bioenergy

ENVIRONMENTAL		ECONOMIC
1. Lifecycle GHG emissions		Productivity
2. Soil quality		Net energy balance
3. Harvest levels of wood resources		Gross value added
4. Emissions of non-GHG pollutants, including toxics		Change in consumption of fossil fuels and traditional use of biomass
5. Water use and efficiency	<p data-bbox="608 796 1207 935">THE GLOBAL BIOENERGY PARTNERSHIP SUSTAINABILITY INDICATORS FOR BIOENERGY FIRST EDITION</p> 	Training and re-qualification of the workforce
6. Water quality		Energy diversity
7. Biological diversity in landscape		Infrastructure and logistics for distribution of bioenergy
8. Land use and land-use change related to bioenergy feedstock production		Capacity and flexibility of use of bioenergy

GSI – MNV Tool

Tool to Measure, Notify and Verify (MNV) the achievement of:

- **Nationally Determined Contributions (NDCs)**
 - e.g. to evaluate the effectiveness of adopted P&M and/or the efficient use of funds to achieve reduced GHGs emissions;
- **Sustainable Development Goals (SDGs)**



Implementation of the sustainability indicators

ECOFYS



Implemented the GBEP indicators Process of implementation



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GBEP Sustainable for suga
Project developed by

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Excerpt from Update of the GBEP Bioenergy

A German cont Working Group Global Bioener

on behalf of the Energy (BMWi) Federal Minist

Heidelberg, Darmstadt, Berlin
November 2018

Ministry of Agriculture, Forestry and Fisheries (PRIMAFF) 2018

INDICADORES GBEP DE SUSTENTABILIDAD DE LA BIOENERGIA EN ARGENTINA



ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT
WORKING PAPER

70

ENERGY

SOSTENIBILIDAD DE LA BIOMASA FORESTAL PARA ENERGÍA Y DEL ETANOL DE MAÍZ Y CAÑA DE AZÚCAR EN PARAGUAY

Resultados y recomendaciones de la implementación de los indicadores de la Asociación Global de Bioenergía



SUSTAINABLE

Result imple Partu

Lessons learnt: need for further guidance

Lessons learnt → further guidance needed

→ GBEP decided to develop an **Implementation Guide** in order to provide further guidance on **methodological** and **practical issues** related to the implementation of the GSIs.

The Guide includes advice on:

1. **Cross-cutting issues** relevant to implementation of the GSIs
2. **Methodological guidance** for each individual indicator

First draft of the Implementation Guide is available. → On the GBEP website as a 'living document', to be updated as more guidance is produced from further experience of indicator measurement.

Implementation Guide – 1. Cross-cutting issues

Provides guidance on cross-cutting issues:

- integration of definitions;
- ensuring an effective implementation of the indicators; and
- enhancing the practicality of the indicators.

Includes a ‘**stepwise approach**’ for GSI project implementation, guidance on **attribution** of impacts to bioenergy, and information on **best practices**.

Implementation Guide – Definitions

- Instead of updating the first edition report’s definition, the guidance collects **definitions of modern bioenergy** proposed by relevant organisations/initiatives

Organization/ Initiative	Source	Definition
Clean Cooking Alliance (CCA)	CCA, 2019	CCA does not explicitly define modern bioenergy. The term modern bioenergy is used as an alternative to the traditional burning of biomass.
International Energy Agency (IEA)	IEA, 2019	The IEA does not explicitly define modern bioenergy. The agency refers to it as the opposite of traditional use of biomass, which is “the use of local solid biomass resources by low-income households that do not have access to modern cooking and heating fuels or technologies. Solid biomass, such as wood, charcoal, agricultural residues and animal dung, is converted into energy through basic techniques, such as a three-stone fire, for heating and cooking in the residential sector”.
International Renewable Energy Agency (IRENA)	IRENA, 2018	IRENA affirms that “Bioenergy use falls into two main categories: “traditional” and “modern”. Traditional use refers to the combustion of biomass in such forms as wood, animal waste and traditional charcoal. Modern bioenergy technologies include liquid biofuels produced from bagasse and other plants; bio-refineries; biogas produced through anaerobic digestion of residues; wood pellet heating systems; and other technologies”.

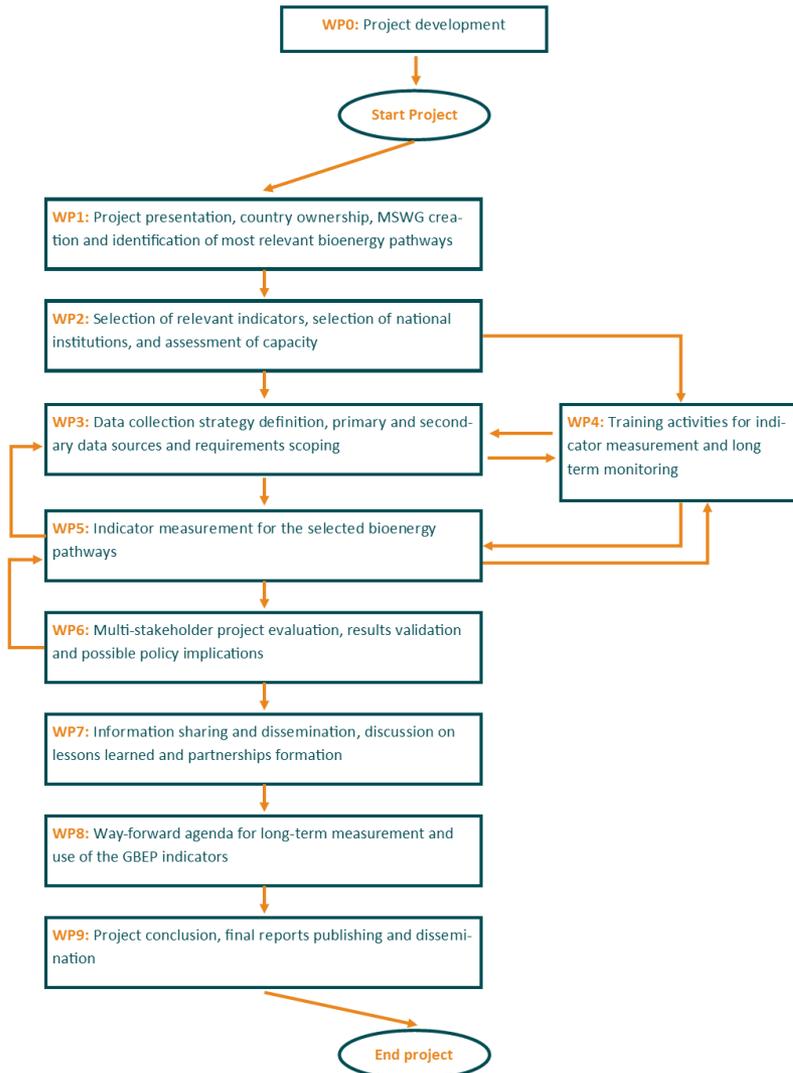
Implementation Guide - Attribution

- The production and use of bioenergy cuts across multiple sectors and parts of the entire economy → attribution of impacts requires **separating bioenergy from other sub-sectors**
- Guidance presents a **TIER approach** (representing levels of methodological complexity):
 - Tier 1 is the basic method;
 - Tier 2 intermediate; and
 - Tier 3 is most demanding in terms of complexity and data requirements.

Overarching considerations for tackling attribution:

- Plausibility
- Transparency
- Practicability
- Consistency

Implementation Guide – Effective implementation



Stepwise approach and Gantt chart for implementation of a GSI project

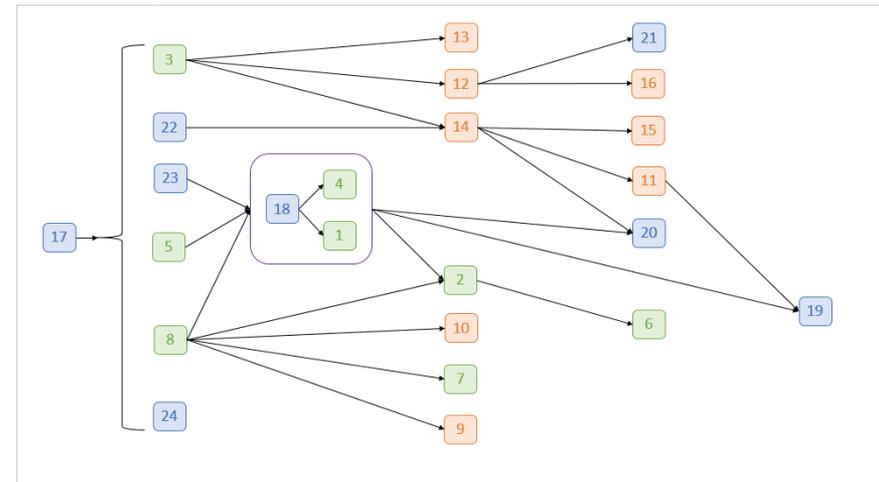
Working Packages	Year 1 Months												Year 2 Months											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WP1: Project presentation, country ownership, MSWG creation and identification of most relevant bioenergy pathways	█	█	█																					
WP2: Selection of relevant indicators, selection of national institutions, and assessment of capacity		█	█	█																				
WP3: Data collection strategy definition, primary and secondary data sources and requirements scoping					█	█	█																	
WP4: Training activities for indicator measurement and long term monitoring					█	█	█	█	█	█	█	█	█	█										
WP5: Indicator measurement for the selected bioenergy pathways						█	█	█	█	█	█	█	█	█										
WP6: Multi-stakeholder project evaluation, results validation and possible policy implications												█	█	█	█	█	█							
WP7: Information sharing and dissemination, discussion on lessons learned and partnerships formation																			█	█	█			
WP8: Way-forward agenda for long-term measurement and use of the GBEP indicators																					█	█		
WP9: Project conclusion, and final reports publishing and dissemination																							█	█

Implementation Guide – Effective implementation

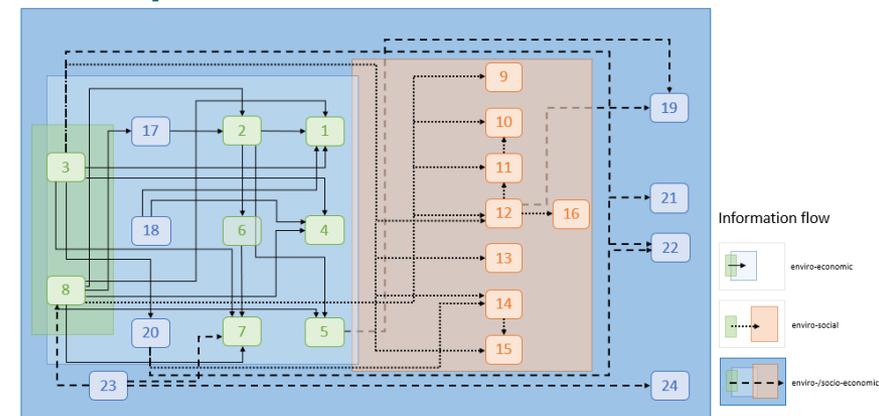
Flowchart of indicator measurement

- Advice on **sequencing of indicator measurement**, based on previous experiences of GSI implementation
- Provides **multiple options** for approaching indicator measurement on the basis of the choice of implementation strategy of the country

Example 1



Example 2



Implementation Guide – Effective implementation

Some possible no-regret strategies or agreed good practices:

- better use of farm and forest residues;
- boosting yields of food crops;
- sustainable intensification of pastureland, provided it enhances biodiversity;
- reducing waste and losses in the food chain; and
- restoring degraded land pursuant to the Bonn Initiative and associated Africa Forest Restoration initiative (AFR-100).

Implementation Guide – 2. Individual indicators

Provides guidance on the **methodology for each individual indicator** under the three pillars:

- gives clarifications to the original GSI report;
- suggests **proxy approaches** to indicator measurement;
- provides further data sources and guidance on data collection; and
- presents guidance on **attribution** relevant for each indicator.

Implementation Guide – Individual indicator 13

e.g. **Indicator 13** - Change in unpaid time spent by women and children collecting biomass

- Challenges identified:
 - **Data collection** – fuelwood is often collected/traded in informal markets; given lack of secondary data, this indicator relies heavily on surveys (resource intensive).
 - **Adjustment/extension** of the indicator for more indicative results if gender neutral; if opportunity cost of traditional biomass is included (rather than just time); and if saved time in cooking and cleaning is also included.

Implementation Guide – Individual indicator 13

e.g. **Indicator 13** - Change in unpaid time spent by women and children collecting biomass

- Guidance provided:
 - **Data collection** – guidance to include questions on woodfuel in informal sector in household surveys
 - **Gender neutrality** - “Change in unpaid time spent collecting biomass *per household*”
 - **Potential extensions** – opportunity cost and time saved cooking and cleaning

Conclusions

- Bioenergy offers many opportunities to agriculture and forestry sectors
- Sustainability is key
- Monitoring sustainability is a necessary step in order to understand, evaluate and improve the performances of the sector
- GBEP is actively working on the diffusion of sustainability in the processes of production and use of bioenergy resources with several activities and tools, including the **GBEP Sustainability Indicators for Bioenergy (GSIs) and its Implementation Guide**
- Particularly for **policymakers**, GBEP represents an important forum for discussion and harmonization of **policies**
- Africa is one of the region where we have worked most, to facilitate a transition to modern and more sustainable bioenergy

Thank you



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<http://www.globalbioenergy.org>

