

# Linkages between the SDGs and the GBEP Sustainability Indicators for Bioenergy

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# GBEP and the SDGs

- **GBEP Task Force on Sustainability (TFS):** enhance practicality of GBEP Sustainability Indicators for Bioenergy (GSI) by producing a **complementary Implementation Guide** to the GSI report
- 13th TFS Meeting 2016: Understand GSIs in the context of **Sustainable Development Goals (SDGs)**
- As a contribution to this, a **Technical Paper** is being prepared by IINAS and IFEU to highlight linkages between SDGs and GSIs, and to determine how they may be mutually reinforcing

# SDGs and GSIs – why bother?

- SDGs are to be **implemented nationally** by all countries – this includes GBEP members
- More GBEP members implement the GSIs as well - are there potential overlaps & benefits?
  - Possibilities to **share data**, and/or to **jointly develop** relevant new data sources
  - SDG **indicator work** continues, TFS “guidance” to GSIs is under preparation – now is a good time!

# The SDGs and bioenergy

**15 out of 17** SDGs are directly or indirectly **linked** to **land** and **bioenergy**, especially

- 2 (food & agriculture)
- 4 (water)
- 7 (energy)
- 8 (growth, employment)
- 11 (cities)
- 12 (consumption & prod.)
- 13 (climate change)
- 15 (forests, land)

SDG **indicators now available**  
(Spring 2017)

SDG	Key wording	Driver	Safe-guard
<b>1</b> <small>NO POVERTY</small>	End poverty in all its forms everywhere	(✓)	(✓)
<b>2</b> <small>NO HUNGER</small>	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	✓	✓
<b>3</b> <small>GOOD HEALTH AND WELL-BEING</small>	Ensure healthy lives and promote well-being for all at all ages	(✓)	(✓)
<b>4</b> <small>QUALITY EDUCATION</small>	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all		
<b>5</b> <small>GENDER EQUALITY</small>	Achieve gender equality and empower all women and girls	(✓)	(✓)
<b>6</b> <small>CLEAN WATER AND SANITATION</small>	Ensure availability and sustainable management of water and sanitation for all	(✓)	(✓)
<b>7</b> <small>AFFORDABLE AND CLEAN ENERGY</small>	Ensure access to affordable, reliable, sustainable and modern energy for all	✓	(✓)
<b>8</b> <small>ECONOMIC GROWTH</small>	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	✓	(✓)
<b>9</b> <small>INDUSTRIALIZATION, INNOVATION AND INFRASTRUCTURE</small>	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	(✓)	
<b>10</b> <small>REDUCED INEQUALITIES</small>	Reduce inequality within and among countries		
<b>11</b> <small>SUSTAINABLE CITIES AND COMMUNITIES</small>	Make cities and human settlements inclusive, safe, resilient and sustainable	✓	(✓)
<b>12</b> <small>RESPONSIBLE CONSUMPTION AND PRODUCTION</small>	Ensure sustainable consumption and production patterns	✓	(✓)
<b>13</b> <small>CLIMATE ACTION</small>	Take urgent action to combat climate change and its impacts	✓	✓
<b>14</b> <small>UNDERSEA OCEANS AND MARINE RESOURCES</small>	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	(✓)	(✓)
<b>15</b> <small>LAND, UNDERSEA OCEANS AND MARINE RESOURCES</small>	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	✓	✓
<b>16</b> <small>PEACE, JUSTICE AND STRONG INSTITUTIONS</small>	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels		(✓)
<b>17</b> <small>PARTNERSHIPS FOR GOAL ACHIEVEMENT</small>	Strengthen the means of implementation and revitalise the global partnership for sustainable development	(✓)	(✓)

Source: own elaboration based on SDKP (2015). **Bold text:** SDG related to energy; (✓) = partially relevant

# The GBEP Sustainability Indicators for Bioenergy (GSI)

Environmental pillar	Social pillar	Economic pillar
1. Life-cycle 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

# Conceptual Structuring of the SDGs









# The SDGs and GSIs for Bioenergy

Linkages between the SDGs (on the level of their indicators) and the GSIs were analyzed and mapped for each of the GSI pillars, using a generic matrix (see table below)









Sustainable Development Goal, Targets, Indicators and Tier level				GBEB Sustainability Indicators for Bioenergy
SDG	Target	Indicator	Tier	GSI
X	X.n	X.n.m		M
Y	Y.n	Y.n.m		N
etc.				etc.

# SDGs & GSIs: Aggregated Mapping

Sustainable development goals, targets and indicators				GBEB Sustainability Indicators for Bioenergy (GSI)
SDG	Target	Indicators	Tier	GSI
 1 NO POVERTY	1.1	1.1.1	I	10. Price and supply of a national food basket
	1.2	1.2.1	I	11. Change in income
		1.2.2	II	
1.4	1.4.2	III	9. Allocation and tenure of land for new bioenergy production	
 2 ZERO HUNGER	2.1	2.1.1	I	10. Price and supply of a national food basket
		2.1.2		
	2.3	2.3.1	III	9. Allocation and tenure of land for new bioenergy production
		2.3.2		
	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 GOOD HEALTH AND WELL-BEING	3.9	3.9.1	I	15. Change in mortality and burden of disease attributable to indoor smoke
 5 GENDER EQUALITY	5.4	5.4.1	II	13. Change in unpaid time spent by women and children collecting biomass
 6 CLEAN WATER AND SANITATION	6.3	6.3.1	II	6. Water quality
		6.3.2	III	
	6.4	6.4.1	III	5. Water use and efficiency
6.4.2		II		
 7 AFFORDABLE AND CLEAN ENERGY	7.1	7.1.1	I	14. Bioenergy used to expand access to modern energy services
		7.1.2		
	7.2	7.2.1	I	14 (see above) + 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



# SDGs & GSIs: Aggregated Mapping

Sustainable development goals, targets and indicators				GBEB Sustainability Indicators for Bioenergy (GSI)
SDG	Target	Indicators	Tier	GSI
 8 RECENT WORK AND ECONOMIC GROWTH	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
 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9.4	9.4.1	I	1 + 19
 10 REDUCED INEQUALITIES	10.1	10.1.1	I	11. Change in income
 11 SUSTAINABLE CITIES AND COMMUNITIES	11.6	11.6.1 11.6.2	II I	4. Emissions of non-GHG air pollutants, including air toxics
 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12.2	12.2.1 12.2.2	III II	20. Change in the consumption of fossil fuels and traditional use of biomass
 13 CLIMATE ACTION	13.2	13.2.1	III	1. Lifecycle GHG emissions
 15 LIFE ON LAND	15.1	15.1.1 15.1.2	I	8. Land use and land-use change related to bioenergy feedstock production
	15.2	15.2.1	II	3. Harvest levels of wood resources
	15.3	15.3.1	III	2. Soil quality
	15.8	15.8.1	III	7. Biological diversity in the landscape
 17 PARTNERSHIPS FOR THE GOALS			I - III	GBEP work in general












# GSI for Bioenergy and the SDGs

The inverse mapping identified linkages between the GSIs and SDGs (on the level of their indicators) for each of the GSI pillars













The SDG tier classification is shown as well:

- **Tier I:** Indicator conceptually clear, established methodology and standards available and data regularly produced by countries
- **Tier II:** Indicator conceptually clear, established methodology and standards available **but** data are **not regularly** produced by countries
- **Tier III:** Indicator for which there are **no established methodology** and standards or methodology/standards are being developed/ tested






# GSI Environment Pillar and SDGs

GBEB Sustainability Indicators for Bioenergy (GSI)	Sustainable development goals, targets and indicators			
GSI	SDG	Target	Indicators	Tier
1. Lifecycle GHG emissions		13.2	13.2.1	III
		9.4	9.4.1	I
2. Soil quality		2.4	2.4.1	III
		15.3	15.3.1	III
3. Harvest levels of wood resources		15.2	15.2.1	II
4. Emissions of non-GHG air pollutants, including air toxics		11.6	11.6.1 11.6.2	II I
5. Water use and efficiency		6.4	6.4.1 6.4.2	III II
6. Water quality		6.3	6.3.1 6.3.2	II III
7. Biological diversity in the landscape		2.4	2.4.1	III
		15.8	15.8.1	III
8. Land use and land-use change related to bioenergy feedstock production		15.1	15.1.1 15.1.2	I

# GSI Social Pillar and SDGs

GBEB Sustainability Indicators for Bioenergy (GSI)	Sustainable development goals, targets and indicators			
GSI	SDG	Target	Indicators	Tier
9. Allocation and tenure of land for new bioenergy production	 1 NO POVERTY	1.4	1.4.2	III
	 2 ZERO HUNGER	2.3	2.3.1 2.3.2	III
10. Price and supply of a national food basket	 1 NO POVERTY	1.1	1.1.1	I
	 2 ZERO HUNGER	2.1	2.1.1 2.1.2	I
11. Change in income	 1 NO POVERTY	1.2	1.2.1 1.2.2	I II
	 8 DECENT WORK AND ECONOMIC GROWTH	8.5	8.5.1 8.5.2	II I
	 10 REDUCED INEQUALITIES	10.1	10.1.1	I
	 8 DECENT WORK AND ECONOMIC GROWTH	8.2 8.3	8.2.1 8.3.1	I II
13. Change in unpaid time spent by women and children collecting biomass	 5 GENDER EQUALITY	5.4	5.4.1	II
14. Bioenergy used to expand access to modern energy services	 7 AFFORDABLE AND CLEAN ENERGY	7.1	7.1.1 7.1.2	I
		7.2	7.2.1	I
15. Change in mortality and burden of disease attributable to indoor smoke	 3 GOOD HEALTH AND WELL-BEING	3.9	3.9.1	I
16. Incidence of occupational injury, illness and fatalities	 8 DECENT WORK AND ECONOMIC GROWTH	8.8	8.8.1 8.8.2	I III

# GSI Economic Pillar and SDGs

GBEB Sustainability Indicators for Bioenergy (GSI)	Sustainable development goals, targets and indicators			
	SDG	Target	Indicators	Tier
17. Productivity	no linkage			
18. Net energy balance	no linkage			
19. Gross value added	 7 AFFORDABLE AND CLEAN ENERGY	7.3	7.3.1	I
	 8 DECENT WORK AND ECONOMIC GROWTH	8.1	8.1.1	I
	 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9.4	9.4.1	I
20. Change in the consumption of fossil fuels and traditional use of biomass	 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12.2	12.2.1 12.2.2	III II
21. Training and re-qualification of the workforce	no linkage			
22. Energy diversity	 7 AFFORDABLE AND CLEAN ENERGY	7.2	7.2.1	I
		7.3	7.3.1	I
23. Infrastructure and logistics for distribution of bioenergy	no linkage			
24. Capacity and flexibility of use of bioenergy	no linkage			

# GSI and SDGs: Key findings

- **Several SDG** indicators could benefit from **GSI** data
- Many GSI ENV are linked to SDG indicators of **Tier III** (7 out of 14): **more work needed!**
- Some mismatch of SDGs and their indicators: SDG 12 (no energy!), opportunity to improve in national implementation - possible role for GSIs?
- **Proxies for GSIs** (best practices etc.) could support SDG **Tier III discussion**, and national implementation: systemic indicator approach

# GSI and SDGs: Some conclusions

- **National SDG implementation** could be option to **initiate** GSI work and **GSI work** could provide (some) data for national SDG implementation
- **GSI Implementation Guide** should take up SDG interlinkages, based on Technical Paper
- Discussion on **proxies for GSIs** (best practices etc.) should be linked to **national SDG indicator** work  
→ consider **paper** for GBEP TFS (with IRENA)?
- Seek further discussion with **“SDG scene”** (e.g. AG6 event during World Water Week 2017)

# SDGs and GSIs – next steps

- **Your feedback** on the Draft Technical Paper – comments welcome!
- We'll consider outcomes of the workshop
- **(AG6 inputs to the paper)**
- **Final draft** before TFS meeting 2017 (Rome)



 International Institute for Sustainability Analysis and Strategy

in collaboration with  ifeu  
INSTITUT FÜR ENERGIE- UND UMWELTFORSCHUNG HEIDELBERG

**Linkages between the Sustainable Development Goals (SDGs) and the GBEP Sustainability Indicators for Bioenergy (GSI)**

**Technical Paper for the GBEP Task Force on Sustainability**

**- DRAFT VERSION -**

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# More Information



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