

## Global Bioenergy Partnership (GBEP)

<b>Country/ Organization</b>	Global Bioenergy Partnership (GBEP) - Task Force on Sustainability	<b>Year and status</b>	under development
<b>Initiative</b>	Development of a set of relevant, practical, science-based, voluntary indicators regarding the sustainability of bioenergy		
<b>Membership<sup>1</sup></b>	36 Partners (23 countries and 13 international organizations); 30 Observers (22 countries and 8 international organizations)		
<b>Governing bodies</b>	Steering Committee; Secretariat; Technical Working Group; Task Forces; Task Forces Sub-Groups		
<b>Type and implementation approach</b>	Development of a set of relevant, practical, science-based, voluntary themes and indicators regarding the sustainability of bioenergy. The themes and indicators are intended to guide any analysis undertaken of bioenergy at the domestic level with a view to informing decision making and facilitating the sustainable development of bioenergy	<b>Geographical coverage</b>	Global
<b>Feedstock(s) covered</b>	All	<b>Supply chain coverage</b>	Biofuel feedstock production, processing, and biofuel transportation/distribution and use
<b>Type(s) of biofuels covered</b>	All		
<b>Link</b>	<a href="http://www.globalbioenergy.org/">http://www.globalbioenergy.org/</a>		

### Overview.

The Global Bioenergy Partnership (GBEP) is an international initiative established to implement the commitments taken by the G8 in the 2005 Gleneagles Plan of Action to support "biomass and biofuels deployment, particularly in developing countries where biomass use is prevalent" and it was invited by the 2007 G8 Heiligendamm Summit "to continue its work on biofuel best practices and take forward the successful and sustainable development of bioenergy". The 2008 Hokkaido Toyako Summit declared renewed support for GBEP's work and invited it to "work with other relevant stakeholders to develop science-based benchmarks and indicators for biofuel production and use". The 2009 L'Aquila Summit welcomed GBEP's work and "invite[d] GBEP to accelerate its work in developing science-based benchmarks and indicators for sustainable biofuel production and to boost technological cooperation and

<sup>1</sup> The complete list of GBEP Partners and Observers is available on the following GBEP web-page: <http://www.globalbioenergy.org/partners0/en/>

innovation in bioenergy”. Most recently, G8 Leaders at the 2010 Muskoka Summit “welcome[d] the work of the Global Bioenergy Partnership (GBEP) and commit[ed] to facilitating swift adoption of voluntary sustainability criteria and indicators, as well as on capacity building activities”.

GBEP is a forum where voluntary cooperation works towards consensus amongst governments, intergovernmental organizations and other partners in the areas of the sustainability of bioenergy and its contribution to climate change mitigation. It also provides a platform for sharing information and examples of good practice.

The main objectives of the Global Bioenergy Partnership are to:

- promote global high-level policy dialogue on bioenergy policy-related issues and facilitate international cooperation;
- support national and regional bioenergy policy-making and market development;
- favour the transformation of biomass use towards more efficient and sustainable practices;
- foster exchange of information, skills and technologies through bilateral and multilateral collaboration; and
- facilitate bioenergy integration into energy markets by tackling barriers in the supply chain.

In June 2008, GBEP established a Task Force on Sustainability, under the leadership initially of the United Kingdom and then (since November 2010) of Sweden. In May 2011, the GBEP Steering Committee endorsed the set of 24 relevant, practical, science-based, voluntary sustainability indicators for bioenergy defined by the Task Force. The indicators are intended to guide any analysis undertaken of bioenergy at the domestic level with a view to informing decision making and facilitating the sustainable development of bioenergy and, accordingly, shall not be applied so as to limit trade in bioenergy in a manner inconsistent with multilateral trade obligations.

An initial report, including supporting information for the indicators (currently under finalization), is expected by autumn 2011 for submission to the G20 Summit. GBEP is already exploring the possibility of piloting and consultation.

GBEP indicators fall under three pillars: Environmental; Social; and Economic. GBEP considers the following themes relevant, and these guided the development of indicators under the three pillars:

- **ENVIRONMENTAL:** Productive capacity of the land and ecosystems; Air quality; Water availability, use efficiency and quality; Biological diversity; Land-use change, including indirect effects.
- **SOCIAL:** Price and supply of a national food basket; Access to land, water and other natural resources; Labour conditions; Rural and social development; Access to energy; and Human health and safety.
- **ECONOMIC:** Resource availability and use efficiencies in bioenergy production, conversion, distribution and end-use; Economic development; Economic viability and competitiveness of bioenergy; Access to technology and technological capabilities; Energy security/Diversification of sources and supply; and Energy security/Infrastructure and logistics for distribution and use.

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GLOBAL BIOENERGY PARTNERSHIP (GBEP)		
ASPECTS/ISSUES	INDICATOR NAME	INDICATOR DESCRIPTION
<b>1. ENVIRONMENTAL</b>		
1.1 Land-use change (direct and/or indirect)	8. Land use and land-use change related to bioenergy feedstock production	<ul style="list-style-type: none"> <li>Total area of land for bioenergy feedstock production, and as compared to total national surface and agricultural and managed forest land area</li> <li>Percentages of bioenergy from yield increases, residues, wastes and degraded or contaminated land</li> <li>Net annual rates of conversion between land-use types caused directly by bioenergy feedstock production, including the following (amongst others):               <ul style="list-style-type: none"> <li>arable land and permanent crops, permanent meadows and pastures, and managed forests;</li> <li>natural forests and grasslands (including savannah, excluding natural permanent meadows and pastures), peatlands, and wetlands</li> </ul> </li> </ul>
1.2 Biodiversity and ecosystem services	7. Biological diversity in the landscape [Also relevant to aspect(s)/issue(s): <a href="#">1.4</a> Crop management and agrochemical use.]	<ul style="list-style-type: none"> <li>Area and percentage of nationally recognized areas of high biodiversity value or critical ecosystems converted to bioenergy production</li> <li>Area and percentage of the land used for bioenergy production where nationally recognized invasive species, by risk category, are cultivated</li> <li>Area and percentage of the land used for bioenergy production where nationally recognized conservation methods are used</li> </ul>
1.3 Productive capacity of land  <a href="#">Back to table of contents</a>	2. Soil quality  [Also relevant to aspect(s)/issue(s): <a href="#">1.4</a> Crop management and agrochemical use.]	Percentage of land for which soil quality, in particular in terms of soil organic carbon, is maintained or improved out of total land on which bioenergy feedstock is cultivated or harvested
	3. Harvest levels of wood resources	Annual harvest of wood resources by volume and as a percentage of net growth or sustained yield, and the percentage of the annual

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ASPECTS/ISSUES	INDICATOR NAME	INDICATOR DESCRIPTION
		harvest used for bioenergy
1.4 Crop management and agrochemical use	See description for <a href="#">Indicator 2: Soil Quality</a> on soil quality and soil organic carbon at aspect/issue 1.3 Productive capacity of land.	
	See description for <a href="#">Indicator 6: Water quality</a> on pollutant loadings to waterways attributable to fertilizer and pesticide application at aspect/issue 1.5 Water availability and quality.	
	See description for <a href="#">Indicator 7: Biological diversity in the landscape</a> on application of nationally recognized conservation methods at aspect/issue 1.2 Biodiversity and ecosystem services.	
1.5 Water availability and quality <a href="#">Back to table of contents</a>	5. Water use and efficiency	<ul style="list-style-type: none"> <li>Water withdrawn from nationally-determined watershed(s) for the production and processing of bioenergy feedstocks, expressed as the percentage of total actual renewable water resources (TARWR) and as the percentage of total annual water withdrawals (TAWW), disaggregated into renewable and non-renewable water sources</li> <li>Volume of water withdrawn from nationally-determined watershed(s) used for the production and processing of bioenergy feedstocks per unit of useful bioenergy output, disaggregated into renewable and non-renewable water sources</li> </ul>
	6. Water quality  [Also relevant to aspect(s)/issue(s): <a href="#">1.4</a> Crop management and agrochemical use.]	<ul style="list-style-type: none"> <li>Pollutant loadings to waterways and bodies of water attributable to fertilizer and pesticide application for bioenergy feedstock cultivation, and expressed as a percentage of pollutant loadings from total agricultural production in the watershed</li> <li>Pollutant loadings to waterways and bodies of water</li> </ul>

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1.5 Water availability and quality (continued)	6. Water quality (continued)	attributable to bioenergy processing effluents, and expressed as a percentage of pollutant loadings from total agricultural processing effluents in the watershed
1.6 GHG emissions	1. Lifecycle GHG emissions	Lifecycle greenhouse gas emissions from bioenergy production and use, as per the methodology chosen nationally or at community level, and reported using the GBEP Common Methodological Framework for GHG Lifecycle Analysis of Bioenergy 'Version One'
1.7 Air quality	4. Emissions of non-GHG air pollutants, including air toxics	Emissions of non-GHG air pollutants, including air toxics, from bioenergy feedstock production, processing, transport of feedstocks, intermediate products and end products, and use; and in comparison with other energy sources
<b>2. SOCIO-ECONOMIC</b>		
2.1 Land tenure/access and displacement	9. Allocation and tenure of land for new bioenergy production	Percentage of land – total and by land-use type – used for new bioenergy production where: <ul style="list-style-type: none"> <li>• a legal instrument or domestic authority establishes title and procedures for change of title; and</li> <li>• the current domestic legal system and/or socially accepted practices provide due process and the established procedures are followed for determining legal title</li> </ul>
2.2 Rural and social development	13. Change in unpaid time spent by women and children collecting biomass	Change in average unpaid time spent by women and children collecting biomass as a result of switching from traditional use of biomass to modern bioenergy services
	19. Gross value added	Gross value added per unit of bioenergy produced and as a percentage of gross domestic product
2.4 Employment, wages and labor conditions <a href="#">Back to table of contents</a>	11. Change in income	Contribution of the following to change in income due to bioenergy production: <ul style="list-style-type: none"> <li>• wages paid for employment in the bioenergy sector in relation to comparable sectors</li> </ul>

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2.4 Employment, wages and labor conditions (continued)		<ul style="list-style-type: none"> <li>net income from the sale, barter and/or own-consumption of bioenergy products, including feedstocks, by self-employed households/individuals</li> </ul>
	12. Jobs in the bioenergy sector	<ul style="list-style-type: none"> <li>Net job creation as a result of bioenergy production and use, total and disaggregated (if possible) as follows:               <ul style="list-style-type: none"> <li>skilled/unskilled</li> <li>temporary/indefinite</li> </ul> </li> <li>Total number of jobs in the bioenergy sector and percentage adhering to nationally recognized labour standards consistent with the principles enumerated in the ILO Declaration on Fundamental Principles and Rights at Work, in relation to comparable sectors</li> </ul>
	21. Training and re-qualification of the workforce	Percentage of trained workers in the bioenergy sector out of total bioenergy workforce, and percentage of re-qualified workers out of the total number of jobs lost in the bioenergy sector
2.5 Human health and safety	15. Change in mortality and burden of disease attributable to indoor smoke	Change in mortality and burden of disease attributable to indoor smoke from solid fuel use, and changes in these as a result of the increased deployment of modern bioenergy services, including improved biomass-based cookstoves
	16. Incidence of occupational injury, illness and fatalities	Incidences of occupational injury, illness and fatalities in the production of bioenergy in relation to comparable sectors
2.6 Energy security and access <a href="#">Back to table of contents</a>	14. Bioenergy used to expand access to modern energy services	<p>Change in average unpaid time spent by women and children collecting biomass as a result of switching from traditional use of biomass to modern bioenergy services</p> <ul style="list-style-type: none"> <li>Total amount and percentage of increased access to modern energy services gained through modern bioenergy (disaggregated by bioenergy type), measured in terms of energy and numbers of households and businesses</li> <li>Total number and percentage of households and businesses</li> </ul>

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ASPECTS/ISSUES	INDICATOR NAME	INDICATOR DESCRIPTION
2.6 Energy security and access (continued)		using bioenergy, disaggregated into modern bioenergy and traditional use of biomass
	18. Net energy balance	Energy ratio of the bioenergy value chain with comparison with other energy sources, including energy ratios of feedstock production, processing of feedstock into bioenergy, bioenergy use; and/or lifecycle analysis
	20. Change in the consumption of fossil fuels and traditional use of biomass	<ul style="list-style-type: none"> <li>• Substitution of fossil fuels with domestic bioenergy measured by energy content and in annual savings of convertible currency from reduced purchases of fossil fuels</li> <li>• Substitution of traditional use of biomass with modern domestic bioenergy measured by energy content</li> </ul>
	22. Energy diversity	Change in diversity of total primary energy supply due to bioenergy
	23. Infrastructure and logistics for distribution of bioenergy	Number and capacity of routes for critical distribution systems, along with an assessment of the proportion of the bioenergy associated with each
	24. Capacity and flexibility of use of bioenergy	<ul style="list-style-type: none"> <li>• Ratio of capacity for using bioenergy compared with actual use for each significant utilization route</li> <li>• Ratio of flexible capacity which can use either bioenergy or other fuel sources to total capacity</li> </ul>
2.7 Good management practices and continuous improvement <a href="#">Back to table of contents</a>	17. Productivity	<ul style="list-style-type: none"> <li>• Productivity of bioenergy feedstocks by feedstock or by farm/plantation</li> <li>• Processing efficiencies by technology and feedstock</li> <li>• Amount of bioenergy end product by mass, volume or energy content per hectare per year</li> <li>• Production cost per unit of bioenergy</li> </ul>
2.8 Social sustainability (cross-cutting)	19. Gross value added	Gross value added per unit of bioenergy produced and as a percentage of gross domestic product
	23. Infrastructure and logistics for distribution of	Number and capacity of routes for critical distribution systems,

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	bioenergy	along with an assessment of the proportion of the bioenergy associated with each
<b>4. FOOD SECURITY</b>		
4.5 Food security (cross-cutting) <a href="#">Back to table of contents</a>	10. Price and supply of a national food basket	<p>Effects of bioenergy use and domestic production on the price and supply of a food basket, which is a nationally-defined collection of representative foodstuffs, including main staple crops, measured at the national, regional, and/or household level, taking into consideration:</p> <ul style="list-style-type: none"> <li>• changes in demand for foodstuffs for food, feed, and fibre;</li> <li>• changes in the import and export of foodstuffs;</li> <li>• changes in agricultural production due to weather conditions;</li> <li>• changes in agricultural costs from petroleum and other energy prices; and</li> <li>• the impact of price volatility and price inflation of foodstuffs on the national, regional, and/or household welfare level, as nationally-determined</li> </ul>