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## GLOBAL-BIO-PACT IMPACT INDICATORS

**Socio-economic Impacts of Biofuels and Bio-Products**  
*Final conference of the Global-Bio-Pact Project*  
*Brussels 29-30 January 2013*



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## Content



- Indicators overview
- Social Indicators
- What to measure
- Global-Bio-Pact Indicators
- Conclusions

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## Overview



- Indicators and indices are useful to monitor and to examine trends, to determine rises and falls of a particular condition
- International and national institutions have been using indicators to assess the regional and national performance and development: income, education, health and welfare.
- Socioeconomic indicators used for statistics to analyse the particular social field or for society as whole

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## Indicators




- To monitor a period of time (against a baseline)
- Measure or collect data (qualitative and/or quantitative)
- To be considered along a standard or certification scheme
- To collect data along a production chain
- Assess the impact of certification schemes
- **Verification ≠ impact**

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Theme	Indicator
Demographic and health	Born and death rate Child mortality rate Life expectancy at birth Under nutrition Malnutrition rate
Educational and cultural	Illiteracy rate Average schooling Information and culture access
Employment (Labour market)	Unemployment rate Average income
Income and poverty	GDP per capita Poverty rate Gini Index
Housing and urban infrastructure	House condition Urban services accessibility Transport infrastructure
Quality of life and Environment	Satisfaction with house, neighbourhood, city and basic infrastructure Environment (air condition, water, garbage collection)
Development	Human Development Index

**Synthesis of factors to consider when selecting indicators.**

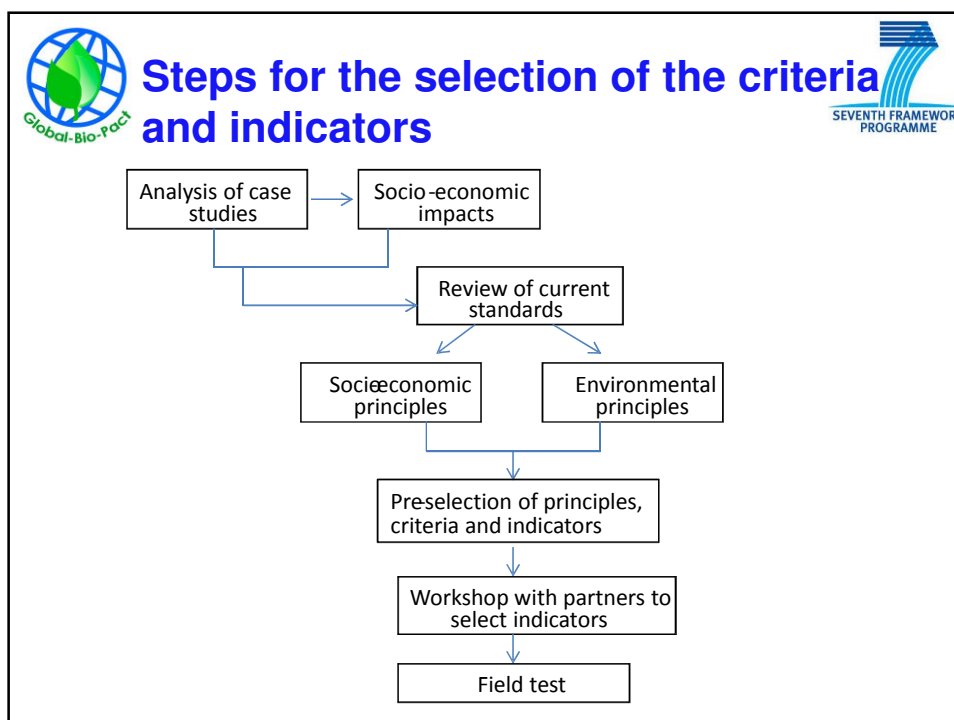
Factors	Description
Reliability and quality	The accuracy of the data; a measure of the information collected. Based on theory and science when possible.
Validity	Whether the indicator truly measures what it is supposed to measure
Realistic and practical →	The collection of the data or information should be accurate and easily collectable, assuming the costs of collection.
Spatial and temporality →	Consider temporal and spatial scale as well as changes over time
Simplicity and clarity	Clarity in design and simple in format; understandable for any person
Comparability	To allow comparisons at the adequate level
Consensus	Among different actors (local, national, international, sound groups)
Measurability →	According to the data they are interpreting (qualitative/quantitative)
Reviewed	Considerations to update the information
Limitation and balance →	In number. Extensive sets of indicators are not in use any more. They should be short in number and balanced in the three dimensions of SD.
Links	To show causal links among indicators or relevant data (even processes) and to strengthen links among institutions.
Relevance	Direct relevance to the goal or objectives of the set of indicators
Cost/benefit →	To show a relationship

## Steps to select Global-Bio-Pact Indicators

- Benchmarking of standards for environmental and social indicators
- Identification of impacts mentioned in selected Global-Bio-Pact case studies
- Identification of socio-economic impacts in supply chains
- Links between environmental and social impacts
- Macro and micro indicators in the case studies

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## Boundaries



- No intention this set will provide definitive criteria and indicators
- The set does not attempt to be a certification or verification system
- Expected to be useful:
  - to initiate or assess a bioenergy proposal or project
  - to assess the sustainability of a feasibility report for a bioenergy proposal or project
  - to monitor impacts at the local and regional level
  - to be used in addition to a standard

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## Testing in the field





- **Measurability** – how easy is to measure the impact
- **Easiness to gather the data** – how easy and cost-effective is to gather the data for the indicator
- **Usefulness for assessing socio-economic impacts** – if they really represent the assessment of the impact
- **Temporality** – what is the timeframe for the usefulness of the indicator including the data

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## Global-bio-pact Set of Indicators

Impact	Examples of indicators
<b>Basic information</b>	
Framework conditions	Location, average yield
<b>Socio-Economic</b>	
Contribution to local economy	Value added, employment
Working conditions and rights	Employment benefits
Health and safety	Work related accidents
Gender	Benefits
Land rights	Land rights and conflicts
Food security	Land converted from staple crops
<b>Environmental</b>	
Air	Open burning
Soil	Soil erosion
Water	Availability of water
Biodiversity	Conservation measures
Ecosystem Services	Access to ecosystem services






## Data gathering





- Processing company or plantation (P)
- Government (G)
- Community (C)
- Non-Governmental Organisation (N)
- Worker (W)
- Level: National, regional, local
- Qualitative and quantitative

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No	Indicator	Measurement/ Monitoring Process/ Unit	Guidance	Data access
1.1	Name and location	Name and geographical location of the operation	Location map	P
1.2	Land area under cultivation	The total area of land cultivated by the operation (ha)	Breakdown of land under different feedstocks and under different tenure (own land, rented land, smallholders, outgrowers)	P
1.3	Expansion of land area	Additional land area under production (ha/year)	Additional land under feedstock production within the last 5 years. Previous land use of the land area.	P, G
1.4	Average yield	Average yield of the feedstock (t/ha/yr)	Annual average yields of the feedstock within the last 5 years	P
1.5	Annual production	Annual production of feedstock and subsequent products (t)	Annual production of the feedstock and the subsequent products and byproducts within the last 5 years	P
1.6	Certification	Is the operation certified? If so, which certification(s)?	Type of certificate	P, N
1.7	Sectorial associations	Is the operation involved in sectorial associations, if so which association(s)?	Registered membership of associations	P, N

No	Indicator	Measurement/ Monitoring Process/ Unit	Guidance	Data access
<b>Contribution to local economy</b>				
2.5	Involvement of smallholders or small suppliers	Percentage of feedstock that originates from associated smallholders and outgrowers	Percentage of feedstock that originates from associated smallholders outgrowers within a 5-year period. Number of associated smallholders or outgrowers.	P, C, W
2.6	Amount paid to smallholders and suppliers of feedstock	Annual amount paid to smallholders and suppliers of feedstock (EUR)	Annual value paid to associated smallholders and outgrowers per unit of product within a 5 year period.	P, C, W
2.7	Employment	Total number of employees and person days of employment per year	Total number of people employed each year and total number of person days per year within a 5 year period. (management/office/processor /field labour, male/female, contract/no contract)	P, W


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No	Indicator	Measurement/ Monitoring Process/ Unit	Guidance	Data access
<b>Contribution to local economy</b>				
2.1 1	Community investment  →	Amount invested in community investment projects (e.g. CSR) (% of annual revenue) and qualitative description of investments including any projects specific for women	Annual values should be given for a 5-year period. This should be calculated as percentage of annual revenue.	P, C

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No	Indicator	Measurement/ Monitoring Process/ Unit	Guidance	Data access
<b>Working conditions and rights</b>				
2.12	Employee income	Average income of employees by category of employment (EUR)	Annual average income per employment category for a five-year period	P, W
2.13	Employment benefits	Employment benefits (e.g. housing, health care, holidays) provided by operation (description of benefits per employee per year)	Breakdown of average benefits given per employment category. Distinction should be made between the benefits that are mandated by law and those that are not.	P, W
2.14	Income spent in basic needs 	Percentage of worker disposable income (by category of employment) spent on fulfilling basic needs (food, accommodation and transport)	To be estimated based on average salary per employment category, amount spent in food per day, accommodation per month and transport per day	W, C
<b>Health and safety</b>				
<b>Gender</b>				
2.20	Benefits created for women	Employment benefits that are specific for women	List any employment benefits that are specific for women (i.e. maternity leave, others)	P, W





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No	Indicator	Measurement/ Monitoring Process/ Unit	Guidance	Data access
<b>Food security</b>				
2.24	Land that is converted from staple crops	Land that has been converted from staple crops (ha)	Hectares of land that has been converted from staple crops to the feedstock production (assessor should define staple crops for the country) within the last five years	P, (G, N)
2.25	Edible feedstock diverted from food chain to bioenergy	Amount of edible raw material diverted into bioenergy production (t)	Annual amount of edible feedstock that was used in bioenergy production (5-year period)	P
2.26	Availability of food	Perceived change in availability of food after the beginning of bioenergy operations	Check (survey) at community level about perceived change	C, W
2.27	Time spent in subsistence agriculture	Change in time spent in subsistence agriculture in the household	Check (survey) at community level about perceived change	C, W



No	Indicator	Measurement/ Monitoring Process/ Unit	Guidance	Data access
<b>Air</b>				
3.1	Open burning on company level	Days open burning used in operations/year	Annual days open burning used in operations, 5-year period	P
3.2	Open burning area	Percentage of surface under open burning regime	% surface under open burning regime	P
<b>Soil</b>				
<b>Water</b>				
<b>Biodiversity</b>				
3.17	Impacts on fisheries/other aquatic fauna	Local perceptions on impacts on fisheries/other aquatic fauna	Questions addressed to local community representatives, NGO or local authority	C, N, G
3.18	Impacts on local fauna/flora perceived by community	Local perceptions on impacts on local fauna and flora	Questions addressed to local community, NGO or local authority	C, N, G

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Ecosystem services				
3.20		Reduction in local communities' access to hunting, fishing	Qualitative questions to local community representatives, and NGO(s)	C, N
3.21	Access to ecosystem services	Reduction in local communities' access to non-timber forest products	Qualitative questions to local community representatives, and NGO(s)	C, N
3.22		Reduction in local communities' access to cultural ecosystem services such as sacred and recreational sites	Qualitative questions to local community representatives, and NGO(s)	C, N

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## Conclusions

- Set is balanced and includes the main topics of impacts selected
- Topics reflect the main identified socio-economic and environmental areas
- To be able to indicate the state of the impact and to be able to monitor it over time
- To promote the benefits if a sustainable production is in place
- Useful for different users from project developers, government and standards.
- Mixed responsibility for effective monitoring
- Community involvement

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## Special criteria



- Working conditions (government/companies)
- Land use and rights (government/companies)
- Ecosystem services (beyond CSR)

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## Thank you



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