

# Business related environmental indicators

Ole Olsen (olo@dst.dk)  
Business Statistics



# Outline for the presentation

- Which indicators are developed in the work in UNCEBTS? The connection to the SDG's
- Selected indicators for in depth discussions today (energy and water use efficiency, respectively)
- The handbook and the technical sheets – what are the recommendations?
- Discussion about data and data availability



# Indicators proposed (1)

- Proportion of women in managerial positions
- Annual growth rate of real total gross value added per employed person (productivity indicator)
- Average hourly earnings for employees in businesses by sex
- Unemployment rate, by sex, age and persons with disabilities
- **Gross value added of businesses** per employed person (growth indicator)
- Sector employment as a proportion of total employment



## Indicators proposed (2)

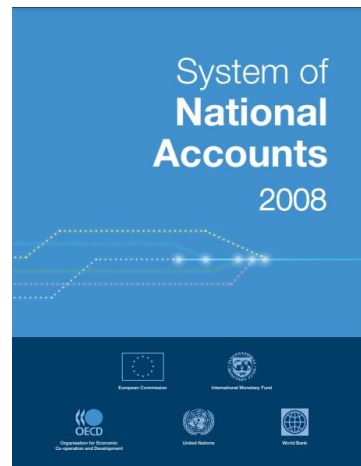
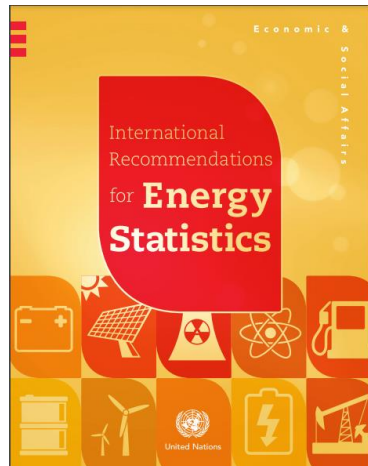
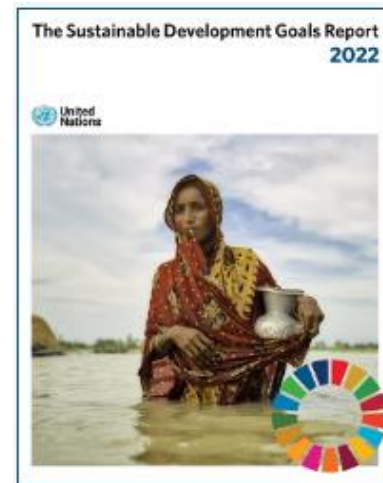
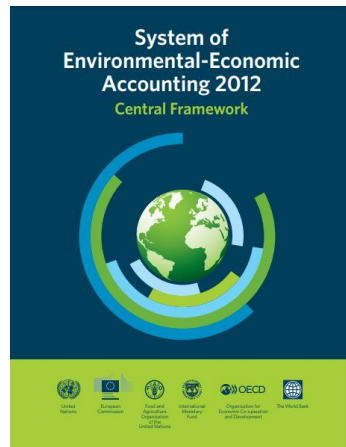
- Water-use efficiency in businesses (per unit of value added) SDG-indicator 6.4.1
- Level of water stress attributable to businesses SDG-indicator 6.4.2
- Share of renewable energy consumption in businesses SDG-indicator 7.2.1
- Energy efficiency in businesses (per unit of value added) SDG-indicator 7.3.1
- Green investment by businesses (SDG-goal 9)
- Greenhouse gas emissions generated by businesses (per unit of value added) SDG-indicator 9.4.1



## Indicators proposed (3)

- Research and development expenditure as a proportion of gross value added **SDG-indicator 9.5.1**
- Researchers (in full-time equivalent) per million inhabitants **SDG-indicator 9.5.2**
- Number of companies publishing sustainability reports **SDG-indicator 12.6.1**
- Openings (vacancies) in businesses
- Taxes and other payments of businesses to the Government
- Total taxes paid by businesses as a proportion of total government tax revenues

# The indicators are within the context of existing relevant international standards!



...and others

## Importance of an integrated information system

# The technical sheets on energy efficiency 1

<b>Name of indicator</b>	<b>Energy efficiency in businesses</b>
<b>Definition of the indicator</b>	Gross value added at factor cost per unit of energy consumed by businesses. Gross value added at factor is as compiled for structural business statistics, <i>not</i> value added as used in national accounts. <i>See Glossary.</i>
<b>Objective of the indicator</b>	Improved energy efficiency is of high importance in lowering the use of fossil energy and emission of greenhouse gases. Therefore, it is also relevant to measure the development in energy efficiency in the business sector.
<b>Contribution and usefulness of the indicator</b>	Compiling the indicator will be of benefit for decisions on policies aimed at business and environmental sustainability. Further, for the business sector, more energy-efficient production is also about cost-efficiency. Enterprises can use the indicator and changes over time for benchmarking.

# The technical sheets on energy efficiency 2

<b>Classification</b>	ISIC Rev. 4
<b>Industrial Coverage</b>	At a minimum, it is recommended to cover ISIC Rev. 4 B-N, P-R, 95-96.
<b>Breakdown</b>	<p>It is useful to have a breakdown by 2-digit ISIC division, at least for ISIC 01-33 and for ISIC 49-53.</p> <p>A more detailed breakdown may be relevant in very energy-intensive industries, e.g., cement production, metallurgic processes, production of artificial fertilizers, etc.</p> <p>Depending on data availability, it is useful to have a breakdown by enterprise size</p> <p>The enterprise size is defined as follows: Micro: 0-9 employees; Small: 10-49 employees; Medium: 50-249 employees; Large: 250+ employees.</p> <p>Additional breakdowns, such as a regional/local breakdown, may be desirable depending on localisation of energy resources.</p>



# The technical sheets on energy efficiency 3

<b>Algorithm</b>	<p><b>Gross Value Added at factor cost in constant prices divided by Energy use (in gigajoules (GJ)).</b></p> <p>When calculating the breakdowns, the numerator will be businesses' gross value added at factor cost in, for example, a specific ISIC 2-digit sector XX and the denominator will be the energy use of businesses within the same ISIC 2-digit sector XX.</p>
<b>Description of the calculation of the indicator</b>	<p>The final consumption of energy by type of industry, compiled into gigajoules (GJ), must be compiled using the net consumption approach.</p> <p>It is recommended to use “Gross Value Added at factor cost”, compiled in the Business Statistics, as calculations can then be made for any relevant breakdown. <i>It must be compiled in constant prices (using 2010 as the base year).</i></p> <p>Energy use can also be broken down by energy type. See indicator on share of renewable energy consumption for types of energy breakdowns.</p>

# The technical sheets on energy efficiency 4

<b>Unit of measure</b>	National currency; Amount of energy in gigajoules
<b>Statistical unit</b>	Enterprises (and in case of lack thereof, establishments)
<b>Reference period</b>	The basic reference period is the year.
<b>Frequency (periodicity) of data collection and dissemination</b>	Annual
<b>Dissemination format</b>	Publications, such as, key figures/pocketbooks; statistical books; statistics in focus; new releases and Online Datasets
<b>Timeliness</b>	For annual data, data should be published within one calendar year of the end of the reference year.
<b>Source data type</b>	<p>A sample survey on energy use covering a substantial part of the business sector.</p> <p>Data from the energy providers or energy supply sector can also be used in the calculations.</p>

# The technical sheets on energy efficiency 5

## Reference documents

[1] Sustainable Development Goal (SDG) Indicator 7.3.1 (UN Global indicator framework adopted by the General Assembly (A/RES/71/313), annual refinements contained in E/CN.3/2018/2 (Annex II), E/CN.3/2019/2 (Annex II), and 2020 Comprehensive Review changes (Annex II) and annual refinements (Annex III) contained in E/CN.3/2020/2).

[https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202020%20review\\_Eng.pdf](https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202020%20review_Eng.pdf)

[2] UN SDG metadata. <https://unstats.un.org/sdgs/metadata>

[3] UN (2019). SEEA Energy at System of Environmental Economic Accounting.

[https://seea.un.org/sites/seea.un.org/files/documents/seea-energy\\_final\\_web.pdf](https://seea.un.org/sites/seea.un.org/files/documents/seea-energy_final_web.pdf)

[4] Energy Balances and Statistics

<https://unstats.un.org/unsd/energystats/pubs/balance/>  
<http://www.iea.org/statistics/>

[5] UN (2016). International Recommendations on Energy Statistics.

[https://unstats.un.org/unsd/energystats/methodology/documents/IRE\\_S-web.pdf](https://unstats.un.org/unsd/energystats/methodology/documents/IRE_S-web.pdf)

# Indicator on renewable energy 1

<b>Name of indicator</b>	Share of renewable energy consumption in businesses
<b>Definition of the indicator</b>	Share of energy use attributable to renewable energy sources.
<b>Objective of the indicator</b>	Use of fossil energy sources are the main contributor to emission of greenhouse gases. Therefore, it is relevant to follow the desired shift to renewable sources in the business sector, as the enterprises' demand for different sources may have a significant impact.
<b>Contribution and usefulness of the indicator</b>	Compilation of the indicator will be of benefit for decision-makers on overall energy policies. Further, for the business sector sustainable production methods may be of high importance for future business opportunities. Enterprises can use the indicators and changes over time for benchmarking.
<b>Algorithm</b>	Energy use from renewable sources divided by total energy use. When calculating the breakdowns, the numerator will be the energy use of businesses in, for example, a specific ISIC 2-digit sector XX, and the denominator will be the total energy use of businesses within the same ISIC 2-digit sector XX.

# Indicator on renewable energy 2

<b>Description of the calculation of the indicator – by industry group</b>	<p>The final use of energy by type of industry, compiled into gigajoules (GJ), broken down by energy types, is to be collected/compiled.</p> <p>The use of primary energy types (used directly at the location) must be broken down into at least:</p> <ul style="list-style-type: none"><li>* Energy from fossil sources (coal, oil, natural gas etc.)</li><li>* Energy from renewable biomass sources (wood, biofuels, waste etc.)</li><li>* Possibly from other non-fuel sources (e.g., windmills, solar panels, hydropower)</li></ul> <p>The use of converted energy (electricity and district heating delivered by energy supplier) must be split into the renewable and non-renewable sources for the production (using information from the supplier/supply sector) into:</p> <ul style="list-style-type: none"><li>* Energy from fossil sources</li><li>* Energy from renewable biomass sources</li><li>* Energy from non-fuel sources (windmills, solar panels, hydropower)</li></ul>
--	--

# How to get started

- Generally data are collected/compiled as part of energy statistics – but maybe in another agency
- Available data on production of energy?
- Information on sales of energy products?
- Data on energy use collected for important sectors?
- Plans for future data collection?
  
- Value added data in corresponding business groups?
- Compiling in constant (2010) prices?



# The technical sheets on water efficiency 1

<b>Name of indicator</b>	Water-use efficiency in businesses
<b>Definition of the indicator</b>	Gross value added at factor cost per unit of water used in production.
<b>Objective of the indicator</b>	Water is a limited resource; therefore, it is relevant to focus on the water use in the business sector, as well the amount of water used compared to the economic activity and the total use by type of business sector.
<b>Classification</b>	ISIC Rev. 4
<b>Algorithm</b>	Gross value added at factor cost (in constant prices) divided by amount of total freshwater water used (in thousands of cubic meters).

# The technical sheets on water efficiency 2

<b>Description of the calculation of the indicator</b>	<p><b>GVA at factor cost in constant prices in National currency over the amount of water used (in thousands of cubic meters).</b></p> <p>The amount of water includes deliveries by other industries, directly abstracted water and stored rainwater. Immediate use of rainwater, reuse of (waste) water, and water loss during transport is considered neutral in the compilation.</p> <p>It is recommended to use “Gross Value Added at factor cost”, as compiled in Business Statistics, as calculations can then be made by any relevant breakdown. It must be calculated in constant prices.</p> <p>If the coverage corresponds to the National Accounts, the Gross Value Added from National accounts or GDP may be used.</p> <p>To the extent possible, the compilation of the indicator should follow the same methodology as that of the System of Environmental Economic Accounting (SEEA). [3][4][5]</p>
--	--



# How to get started

- Available data on use of fresh water – maybe in another agency?
  - Available data on use of fresh water?
  - Already reporting to UNSD and/or FAO?
  - Information on sales of water to business?
  - Information on licenses to extract water?
  - Plans for future data collection?
- 
- Value added data in corresponding business groups?
  - Compiling in constant (2010) prices?



THANK YOU!

