Climate change statistics and indicators - Luxembourg experience

9th meeting of the Expert Group on Environment Statistics

Dr Olivier Thunus
Key milestones

**International initiatives**
- UNECE Expert Forum on Climate change related statistics
  - Task Force => *ECE List of climate change related indicators and the Implementation guidelines*
- UNSD EGES => *Global set of climate change statistics and indicators*
- OECD IPAC Technical Expert Group => *Dashboard*

**at national level**
- First national list published in October 2019
- Review exercise in 2022
Review exercise

**Aim:** *complete the national list, if necessary, based on an analysis of the “Global set”*

**Results:**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Relevant for LU</th>
<th>Relevance unknown</th>
<th>Data availability</th>
<th>Data availability unknown</th>
<th>New data/indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicators</strong></td>
<td>158</td>
<td>108</td>
<td>2</td>
<td>82</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Statistics</strong></td>
<td>190</td>
<td>126</td>
<td>5</td>
<td>114</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

![Graph showing indicators and relevant data](image1)

![Graph showing relevant indicators](image2)
## New indicators

<table>
<thead>
<tr>
<th>List of new indicators</th>
<th>Domain</th>
<th>Tier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon footprint</td>
<td>Drivers</td>
<td>2</td>
</tr>
<tr>
<td>Amount of fossil-fuel subsidies (production and consumption) per unit of gross domestic product</td>
<td>Drivers</td>
<td>2</td>
</tr>
<tr>
<td>Greenhouse gas emissions in gross fixed capital formation of direct investment</td>
<td>Drivers</td>
<td>3</td>
</tr>
<tr>
<td>Reduction in the extent of natural and semi-natural ecosystems</td>
<td>Impacts</td>
<td>2</td>
</tr>
<tr>
<td>Ecosystem carbon stocks</td>
<td>Vulnerability</td>
<td>2</td>
</tr>
</tbody>
</table>
Ecosystem carbon stocks

Total carbon stock in biomass
58 Mt CO$_2$eq (2020)

Total carbon stock in soil
82 Mt CO$_2$eq (2020)

Grassland
- Soil carbon: ~83 tC/ha
- ~6 tC/ha

Forest
- Soil carbon: ~112 tC/ha
- ~160 tC/ha

Cropland
- Soil carbon: ~67 tC/ha
- ~5 tC/ha

Settlements
- Soil carbon: ~57 tC/ha
- ~8 tC/a

Source: Environment Agency
Reduction in the extent of natural and semi-natural ecosystems

<table>
<thead>
<tr>
<th>Area in ha</th>
<th>Urban ecosystems</th>
<th>Croplands</th>
<th>Grasslands</th>
<th>Forests and woodlands</th>
<th>Heathlands</th>
<th>Sparsely vegetated ecosystems</th>
<th>Inland wetlands</th>
<th>Rivers and canals</th>
<th>Lakes and reservoirs</th>
<th>Totals 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>29 153,5</td>
<td>5,0</td>
<td>58,0</td>
<td>2,3</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>3,8</td>
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<tr>
<td>2018</td>
<td>29 816,8</td>
<td>59 759,0</td>
<td>74 490,3</td>
<td>93 146,3</td>
<td>24,3</td>
<td>213,3</td>
<td>776,8</td>
<td>352,8</td>
<td>349,3</td>
<td>258 598,8</td>
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<tr>
<td>Gain</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
<td>597,8</td>
</tr>
</tbody>
</table>
Conclusions

Helpful exercise at national level:

- to verify consistency of national indicators
- to identify gaps
- to give priorities on indicators development

Request to international institutions:

- missing information in metadata: possible disaggregation (importance of the narrative)
- missing methodology: Share of government adaptation expenditure in relation to gross domestic product
- missing domains: climate risk, climate finance
Thank you! / Merci !

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