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Material intensity - a key indicator of sustainable industrialization

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Industrial production:

a) … in traditional economic accounting context

- Input
- Processing
- Products

Manufacturing value added
Share in GDP and per capita

b) … in environmental economic accounting context

- Natural and produced input
  - Materials
  - Energy
  - Water
  - Services

- Processing
- Products

Material use per unit of value added
Energy use per unit of value added

CO\textsubscript{2} emission per unit of value added
Residuals for reuse
Solid waste, waste water, emission to air…
Approach to indicators

• Material intensity as ratio of material used to the amount of production:

  At the level of whole economy
  Material intensity = DMC/GDP
  Material used per unit of GDP

  At the manufacturing sector level
  Material used in kg per unit of MVA

• Value based indicators

  Material intensity = cost of material input/VA
  Cost of material per unit of value added or ratio of material cost to value added

Ratio at product levels

• Quantity of water used per unit of a beverage
• Amount of coal used to generate 1 kwh electricity
• Metal used per unit of a passenger car
Data sources and monitoring mechanism

• Data on materials consumed by industry are collected by industrial surveys (IRIS-2008)

• UNIDO collects industrial statistics data (B,C,D and E of ISIC rev 4) using its General Industrial Statistics Questionnaire in cooperation with OECD

• Currently, input data are not the part of the international data collection programme, but data exist in national statistical databases

• By adding input item(s) to UNIDO questionnaire data could be obtained internationally through existing mechanism

• For developing countries, UNIDO will enhance its existing technical assistance programme taking the new data demands into account.
Thank you!

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