SDG Goal 12 Responsible consumption and production

SDG Target 12.2 By 2030, achieve the sustainable management and efficient use of natural resources

SDG Indicator 12.2.1 **Material footprint, material footprint per capita, and material footprint per GDP**

Time series **Raw material consumption (RMC)**

1. General information on the time series

- Date of national metadata: 21 October 2021
- National data: http://sdg-indikatoren.de/en/12-2-1/
- Definition: The time series measures the amount of raw material used globally for the production of goods for domestic consumption, gross fixed capital formation, changes in inventories and acquisitions less disposals of valuables. The time series is also available in relation to the domestic population and real Gross Domestic Product (GDP).
- Disaggregation: Not available.

2. Comparison with global metadata

- Date of global metadata: February 2021
- Global metadata: https://unstats.un.org/sdgs/metadata/files/Metadata-08-04-01.pdf
- The time series is not compliant with the global metadata, but provides additional information. The RMC calculation is based on a hybrid model using domestic input-output-tables, life cycle information and other data sources. In the global metadata, a multi-regional input-output (MRIO) framework is mentioned. Further methodological differences may exist e.g. due to deviations in the treatment of secondary raw materials.

3. Data description

- Data on raw material consumption is generated based on a hybrid estimation model combining physical and monetary information from official and other data sources. These calculations are project work run by the Environmental-Economic Accounts unit of the Federal Statistical Office.

  Data on population are the results of the latest population census (currently: 2011 Census) rolled forward in a breakdown by sex, age, marital status and citizenship, using both statistics of population change (migration, births, deaths, entering into marriages or registered same-sex partnerships) and information on changes in citizenship and the dissolution of marriages or registered same-sex partnerships. For the years before 2011 the results for population were calculated backwards using the census 2011 and migration, birth and death statistics. For the calculation of RMC per capita, the average population of the respective year is used.

  The data on GDP is calculated by the Federal Statistical Office's National Accounts as a secondary statistic. GDP is adjusted based on a price base changing every year (previous year's price base). After several revisions due to new data input, final results are available four years after thefirst preliminary release.

4. Accessibility of source data

- Raw materials, material flows, water -supply and use in raw material equivalents (RMC) (only available in German):
  https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Umwelt/UGR/rohstoffe-materialfluesse-wasser/_inhalt.html
- Intercensal population updates as annual average – GENESIS online 12411-0040:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=12411-0040&bypass=true&language=en
- National accounts - Gross value added, gross domestic product (nominal/price-adjusted) – GENESIS online 81000-0001:
  https://www-genesis.destatis.de/genesis//online?operation=table&code=81000-0001&bypass=true&language=en

5. Metadata on source data

- A methodological description for the calculation of raw material consumption including an English summary part is given in the project report:
  https://www.umweltbundesamt.de/publikationen/rohstoffe-fuer-deutschland
- Quality Report - Microcensus 2020 (only available in German):
  https://www.destatis.de/DE/Methoden/Qualitaet/Qualitaetsberichte/Bevoelkerung/mikrozensus-2020.pdf

6. Timeliness and frequency

- Timeliness: Irregular
- Frequency: Annual

7. Calculation method

- Unit of measurement: 2015 = 100; Million tonnes; Tonnes per capita
- Calculation method:

RMC : calculation by based on a hybrid model

$$\textbf{RMC [Mn t]} = \frac{\text{RMC [metric t]}}{1{,}000{,}000}$$

$$\textbf{RMC [t per capita]} = \frac{\text{RMC [metric t]}}{\text{Average population [number]}}$$

$$\textbf{RMC [per real GDP (2015 = 100)]} = \frac{\frac{\text{RMC [metric t]}_{t1} \cdot 100}{\text{RMC [metric t]}_{t0}}}{\text{Real GDP [2015 = 100]}} \cdot 100$$

t1 = current year; t0 = base year (2015)