

# Material Flow Accounts

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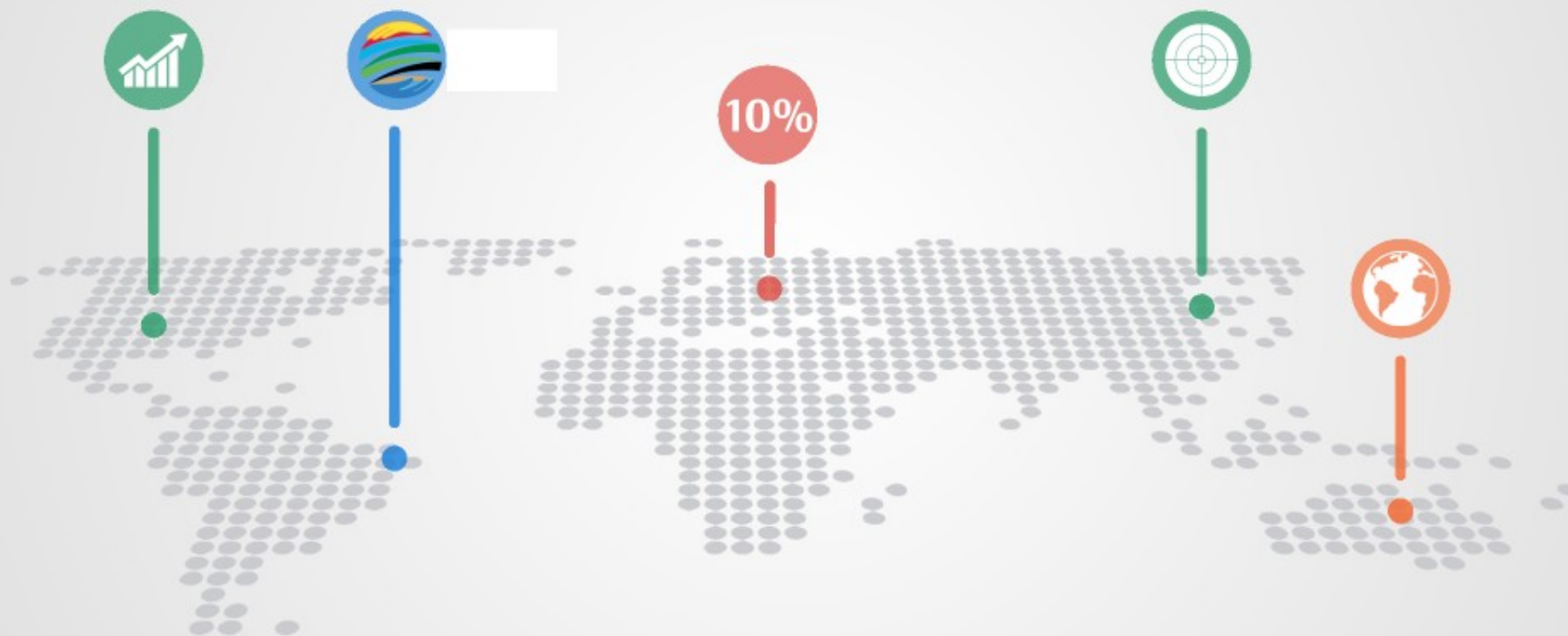
Measure extraction, imports and exports of physical material, including biomass, fossil fuels, metal ore and non-metallic minerals

# Material flows global database

- Material flow accounts are a key metric in analyzing sustainable consumption and production
- This was recognized in the newly adopted Sustainable Development Goal (SDG) framework with 4 SDG indicators related to material flows:
  - 8.4.1 Material Footprint, material footprint per capita, and material footprint per GDP
  - 8.4.2 Domestic material consumption (DMC) and DMC per capita, per GDP
  - 12.2.1 Material Footprint, material footprint per capita, and material footprint per GDP
  - 12.2.2 Domestic material consumption (DMC) and DMC per capita, per GDP

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## But...

Although UN Environment maintains a global material flows database which feeds into the SDG and International Resource Panel, the data is only based on national level material flow accounts for European Union countries and Japan. For other countries, the data is based on other data sources

**BRS and  
USGS**

# BRS and USGS

Data on mineral extraction and mining mainly comes from the BRS and USGS, and although these are both high quality data sources the reporting unit is metal content whereas the reporting unit in the material flows methodology is gross ore



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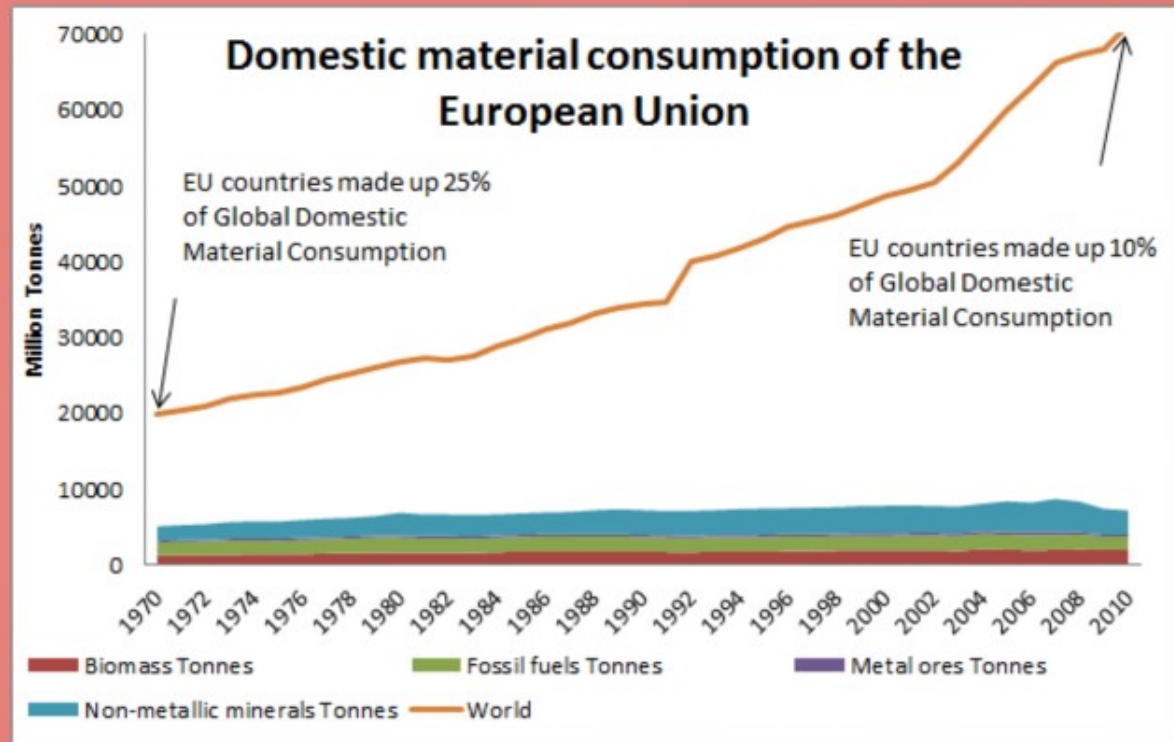


# 10%

The Domestic Material Consumption of European Union countries made up 10% of Global Domestic Material Consumption in 2010

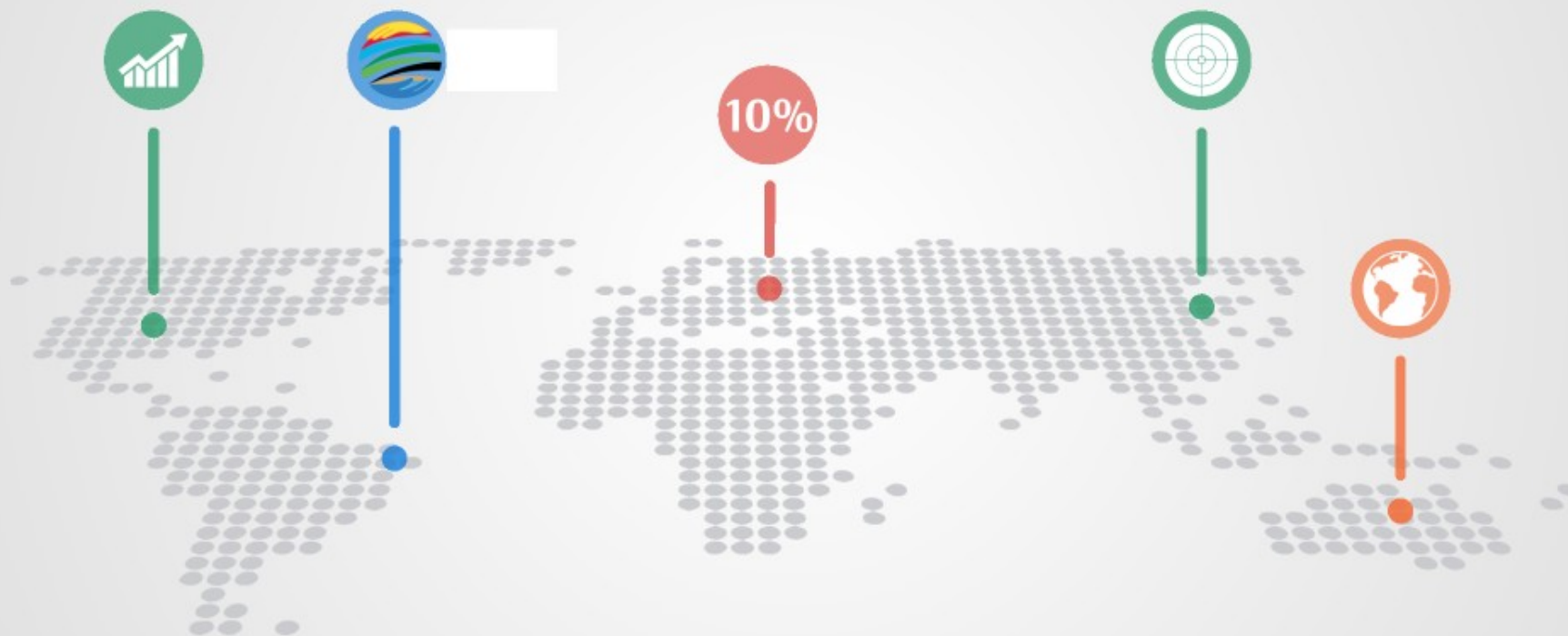
# Domestic Material Consumption in the EU

- Domestic material consumption (DMC) measures the total amount of materials directly used by an economy (extraction, plus imports minus exports)
- Much of DMC is from 'mining': metal ores, non-metallic minerals and fossil fuels (including coal)
- The contribution of the EU to global domestic material consumption has been decreasing



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# The Methodology

There is not a global methodology for measuring material flow accounts and there are some limitations related to using the Eurostat MFA Compilation Guide in other places

**Metal  
Ore**

**Sand and  
gravel**

**Coal**

# Metal Ore

Currently for most countries gross metal ore is calculated using a table of coefficients for each type of metal ore. This does not take into account the life cycle of a mine or the difference in run of the mine in different places.

# Sand and gravel

Data on sand and gravel is weak in many places and often the estimation of sand and gravel is based on cement construction - but for many countries this data does not exist and thus it is often estimate based on the population (1 ton per capita for least developed countries, 2-3 for developing countries and 7-8 for industrialized countries)

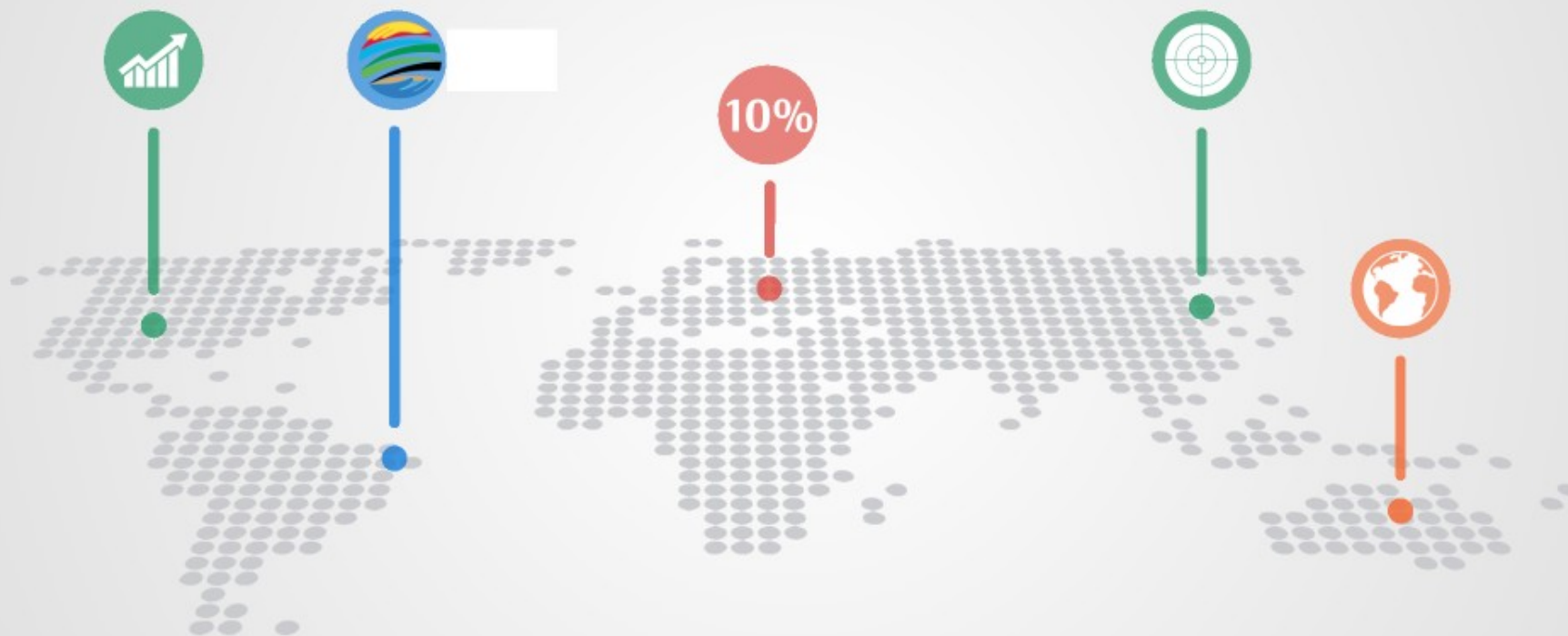


# Coal

In the case of coal mining, measuring the overburden (i.e. the material that lies above the coal seam) can be particularly difficult to estimate. Some countries have an estimate of overburden, but for countries which do not then a standard factor is used

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# Next steps

## **Two pronged approach:**

- 1.) Continue to update the Material Flows Global database using the current estimation procedures in the medium term. A revision of the database which goes from 1970 to 2015 will be available within the next month or so.
- 2.) Global manual on material flow accounts and initiate collection of material flows data from countries. Material footprint which is based on global input output tables will continue to be estimated at the global level.

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