Economy-wide Material Flow Accounts (EW-MFA)

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Let's recall the physical flows in the SEEA Central Framework

Physical flows of natural inputs, products and residuals





EW-MFA methodology







What and why?

What?

EW-MFA: framework for describing the interaction of a domestic economy with the natural environment and other economies by measuring flows of:

- * materials
- * waste
- * Emissions

Why?

- * Enhance resource efficiency
- * Minimize material consumption and waste generation
- * Transition to circular economy
- * SDGs Goals 8 and 12



Structure of Material Flow Accounts



Source: UNEP (2021). The use of natural resources in the economy: A Global Manual on Economy Wide Material Flow Accounting. Nairobi, Kenya.



Some details on Domestic Extraction

4 broad categories included in domestic extraction:

* Biomass

- * Includes: biomass of vegetable origin extracted by humans and livestock, capture of wild fish, biomass of hunted animals
- * Excludes: biomass of livestock and livestock products

* Metal ores

- * Includes: only portion of excavation which is to be processed
- * Excludes: mining overburden (unused extractions)
- * Non-metallic minerals
 - * Majority used for construction (e.g. sand, gravel)
 - * Often need to be "back calculated" based on output

* Fossil fuels

Focus should be on most important categories (and items therein)



Data sources

Domestic extractions (highest level of aggregation)

- * Biomass
 - * Agricultural data
 - * FAOStat
- * Metal Ores and Non-metallic minerals
 - * Relevant surveys
 - * Administrative data
 - * Proxy data from tax offices
- * Fossil Fuels
 - * National data provider to IEA
 - * Administrative data of agency responsible for managing fossil fuels

Imports and export

- * Trade data
- * UNComTrade

Recall: Focus on big items first (by weight!)



MFAs and SDGs



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



Ensure sustainable consumption and production patterns



MFAs and SDGs



Target **8.4**

Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead



Target **12.2**

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

Indicators 🔺

12.2.1

Material footprint, material footprint per capita, and material footprint per GDP

12.2.2

Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP



Overview of indicators





Some details on Domestic Material Consumption

- * *Domestic Extraction (DE):* amount of used material inputs from the environment to the economy.
 - * Simply put: DE = Biomass + Metal Ores + Non-metallic minerals+ Fossil Fuels
- * *Direct material input (DMI)* measures the direct input of materials for use in an economy
 - * DMI = DE + imports
- * *Domestic material consumption (DMC)* measures the total amount of materials that are directly/actually used in a national economy (resident units)
 - * DMC = DMI exports
 - * DMC = DE + imports exports



Indicators

Indicator

- * Total
- * Per population
- * Per GDP



Some details on Material Footprint

- * Sometimes referred to as Raw Material Consumption (RMC)
- * We start again with Domestic Extraction (DE)
 - * Simply put: DE = Biomass + Metal Ores + Non-metallic minerals+ Fossil Fuels

* Add imports and subtract exports, both in Raw Material Equivalents (RME)

* RMC = DE + imports(RME) - exports (RME)





Thank You!

