UN environment programme

23-24 July 2025, Windhoek, Namibia

Economy-Wide Material Flow Accounts to inform policies on responsible consumption and production and support reporting on the 2030 Agenda for Sustainable Development

Session 2: Introduction of the Economy-Wide Material Flow Accounts (EW-MFA) to support reporting on the 2030 Agenda for Sustainable Development

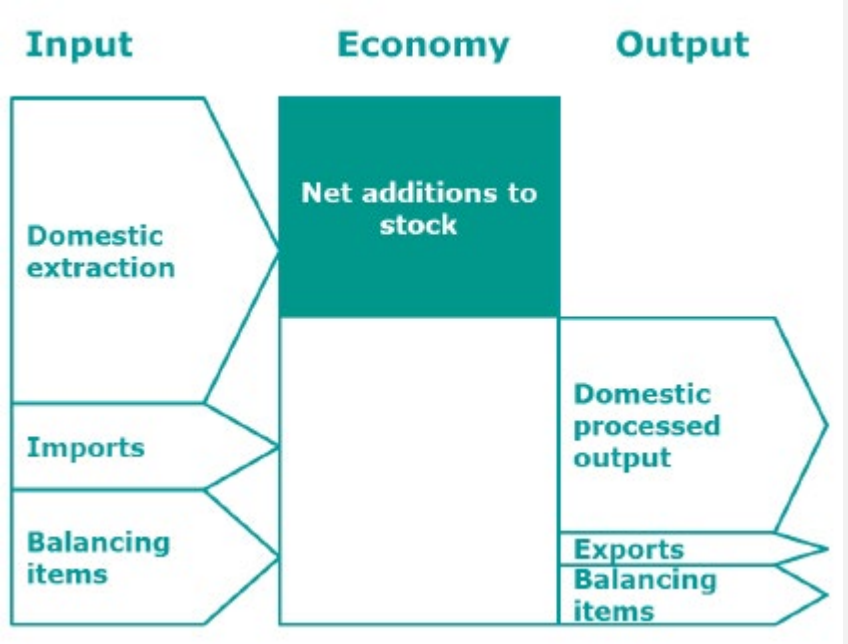
National workshop for Namibia on the Economy-Wide Material Flow Accounts (EW-MFA) to inform the 2030 Agenda for Sustainable Development

Ekaterina Poleshchuk

What is EW-MFA?

The purpose of **Economy-Wide Material Flow Accounts (EW-MFA)** is:

> to provide an aggregate overview, in tonnes, of the material inputs and outputs of an economy, including inputs from the environment and outputs to the environment at the national territory, as well as the physical amounts of imports and exports.



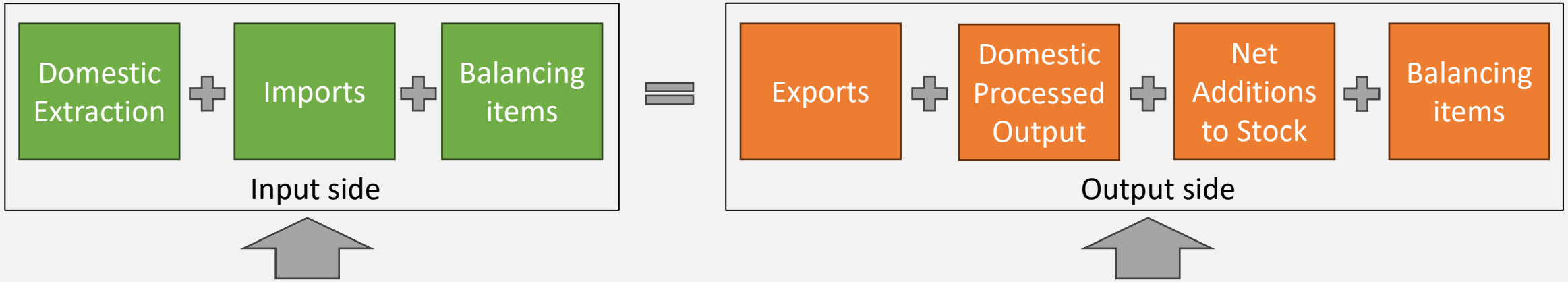
Economy-wide material flow accounts Handbook. 2018 edition. Eurostat

To build EW-MFA, all materials, involved into the economy, is proposed to be aggregated by four material categories:

1. Biomass
2. Metal ores
3. Non-metallic minerals
4. Fossil fuels

Flows of water and air are not covered in the EW-MFA.

How to build EW-MFA?



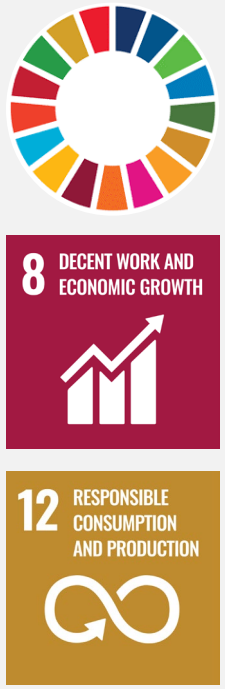
Agriculture, forestry, fisheries, mining, energy, imports statistics

Exports, waste, emission to air and water statistics

Indicators based on EW-MFA

INDICATOR	DESCRIPTION
Domestic Extraction (DE)	DE Biomass + DE Metal ores + DE Non-metallic minerals + DE Fossil fuels
Direct Material Input	DE+IMP
Domestic Material Consumption (DMC)	DE+IMP–EXP
Physical Trade Balance	IMP–EXP
Domestic Processed Output	Emissions to air + Waste landfilled (uncontrolled) + Emission to water + Dissipative use of products + Dissipative losses
Material Productivity (or Resource Efficiency)	GDP/DMC
Material Intensity	DMC/GDP
Material Footprint	DE+IMP(RME)–EXP(RME)

To inform SDGs



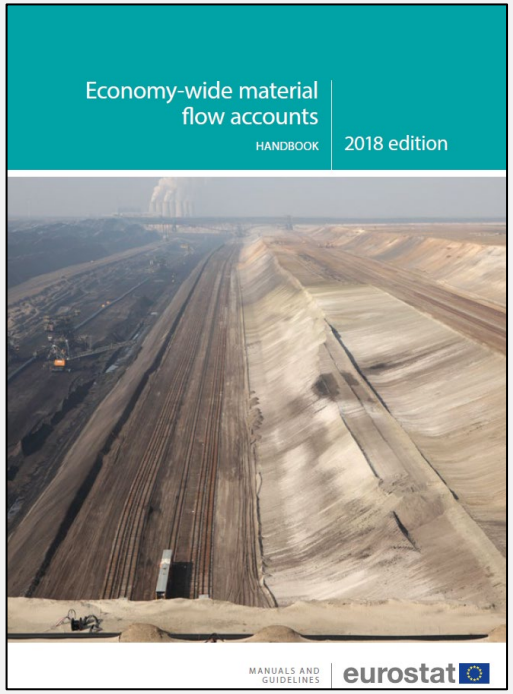
In 2015, the United Nations Sustainable Development Summit adopted an international framework to guide development efforts, entitled 'Transforming our world: **the 2030 Agenda for Sustainable Development'.**

The SDG framework has a total of 17 goals, 169 targets and 251 indicators — 92 of which are environment related, including:

- **SDG Indicators 8.4.1/12.2.1 Material footprint**, material footprint per capita, and material footprint per GDP
- **SDG Indicators 8.4.2/12.2.2 Domestic material consumption**, domestic material consumption per capita, and domestic material consumption per GDP

Methodological support:

Eurostat



Eurostat (2018). Economy-wide material flow accounts. Handbook. 2018 edition

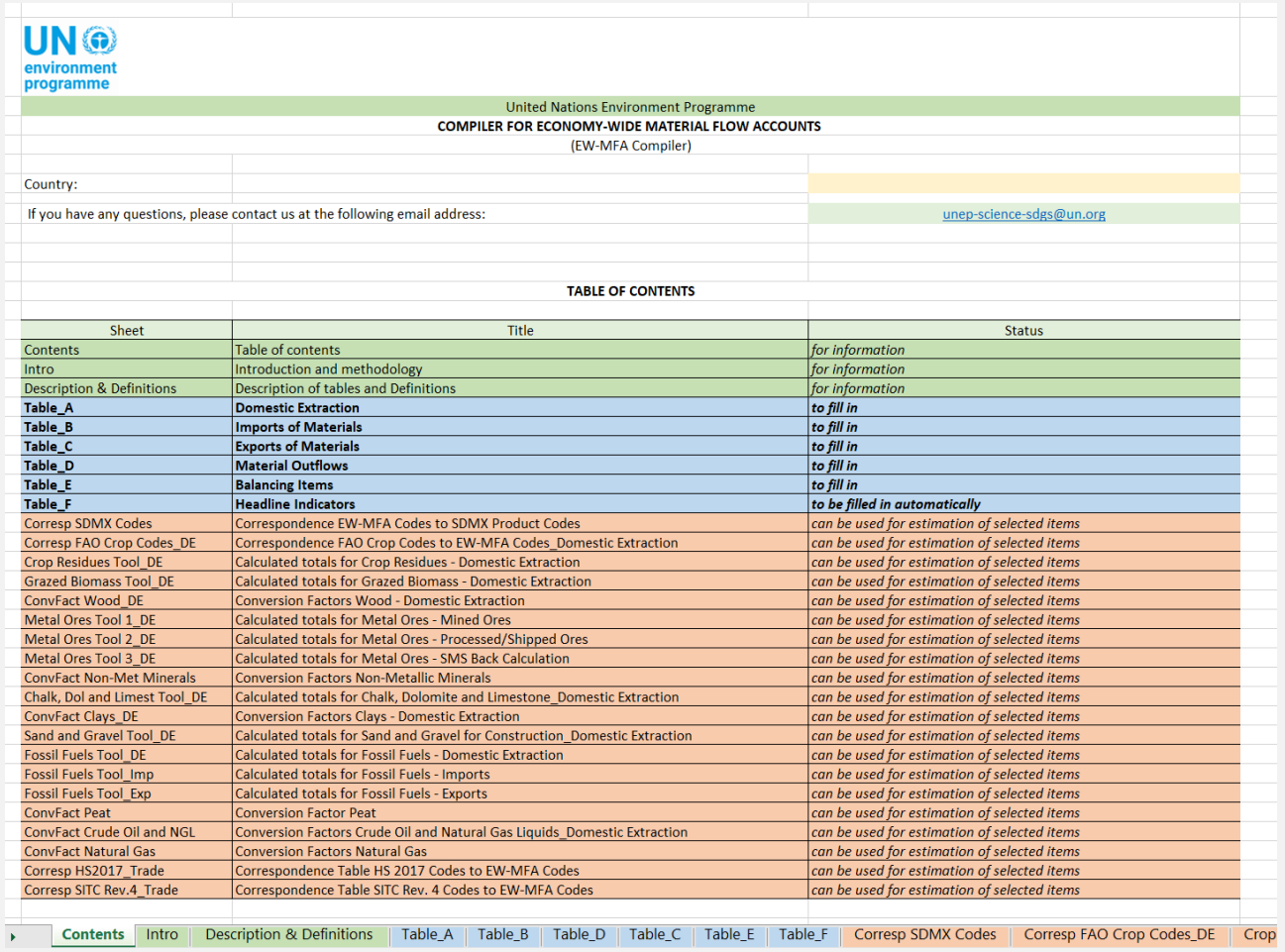
UNEP

UNEP (2023). The use of natural resources in the economy: A Global Manual on Economy-Wide Material Flow Accounting

Methodological support:

EW-MFA Compiler

- Provides the basic structure required for these accounts, as well as several simple tools for calculating some categories of materials
- Aligned with the EW-MFA global manual
- Published here
- Translated into Arabic, French, Russian, Spanish



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COMPILER FOR ECONOMY-WIDE MATERIAL FLOW ACCOUNTS

(EW-MFA Compiler)

Country:

If you have any questions, please contact us at the following email address: unep-science-sdgs@un.org

TABLE OF CONTENTS

Sheet	Title	Status
Contents	Table of contents	*for information*
Intro	Introduction and methodology	*for information*
Description & Definitions	Description of tables and Definitions	*for information*
Table_A	**Domestic Extraction**	***to fill in***
Table_B	**Imports of Materials**	***to fill in***
Table_C	**Exports of Materials**	***to fill in***
Table_D	**Material Outflows**	***to fill in***
Table_E	**Balancing Items**	***to fill in***
Table_F	**Headline Indicators**	***to be filled in automatically***
Corresp SDMX Codes	Correspondence EW-MFA Codes to SDMX Product Codes	*can be used for estimation of selected items*
Corresp FAO Crop Codes_DE	Correspondence FAO Crop Codes to EW-MFA Codes_Domestic Extraction	*can be used for estimation of selected items*
Crop Residues Tool_DE	Calculated totals for Crop Residues - Domestic Extraction	*can be used for estimation of selected items*
Grazed Biomass Tool_DE	Calculated totals for Grazed Biomass - Domestic Extraction	*can be used for estimation of selected items*
ConvFact Wood_DE	Conversion Factors Wood - Domestic Extraction	*can be used for estimation of selected items*
Metal Ores Tool 1_DE	Calculated totals for Metal Ores - Mined Ores	*can be used for estimation of selected items*
Metal Ores Tool 2_DE	Calculated totals for Metal Ores - Processed/Shipped Ores	*can be used for estimation of selected items*
Metal Ores Tool 3_DE	Calculated totals for Metal Ores - SMS Back Calculation	*can be used for estimation of selected items*
ConvFact Non-Met Minerals	Conversion Factors Non-Metallic Minerals	*can be used for estimation of selected items*
Chalk, Dol and Limest Tool_DE	Calculated totals for Chalk, Dolomite and Limestone_Domestic Extraction	*can be used for estimation of selected items*
ConvFact Clays_DE	Conversion Factors Clays - Domestic Extraction	*can be used for estimation of selected items*
Sand and Gravel Tool_DE	Calculated totals for Sand and Gravel for Construction_Domestic Extraction	*can be used for estimation of selected items*
Fossil Fuels Tool_DE	Calculated totals for Fossil Fuels - Domestic Extraction	*can be used for estimation of selected items*
Fossil Fuels Tool_Imp	Calculated totals for Fossil Fuels - Imports	*can be used for estimation of selected items*
Fossil Fuels Tool_Exp	Calculated totals for Fossil Fuels - Exports	*can be used for estimation of selected items*
ConvFact Peat	Conversion Factor Peat	*can be used for estimation of selected items*
ConvFact Crude Oil and NGL	Conversion Factors Crude Oil and Natural Gas Liquids_Domestic Extraction	*can be used for estimation of selected items*
ConvFact Natural Gas	Conversion Factors Natural Gas	*can be used for estimation of selected items*
Corresp HS2017_Trade	Correspondence Table HS 2017 Codes to EW-MFA Codes	*can be used for estimation of selected items*
Corresp SITC Rev.4_Trade	Correspondence Table SITC Rev. 4 Codes to EW-MFA Codes	*can be used for estimation of selected items*

Contents | Intro | Description & Definitions | Table_A | Table_B | Table_D | Table_C | Table_E | Table_F | Corresp SDMX Codes | Corresp FAO Crop Codes_DE | Crop

Global Footprint Tool:
To calculate footprint indicators

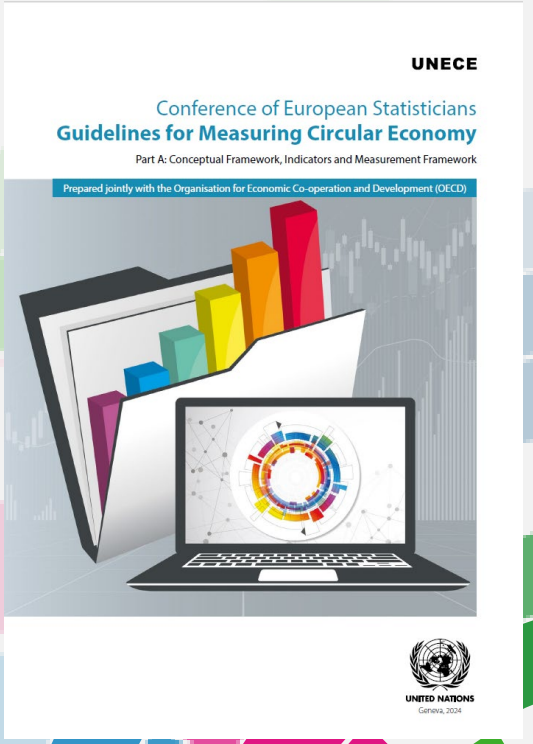
- Overview
- Metadata
  - Carbon
  - Energy
  - Land
  - Material
  - Water
- Guidelines
- Footprint Calculator
- GLORIA MRIO
- Contact Us

- Sign in
- Login
  - •Download templates
  - •Upload national data
  - •Calculate Footprint
- Logout

To inform the Circular Economy

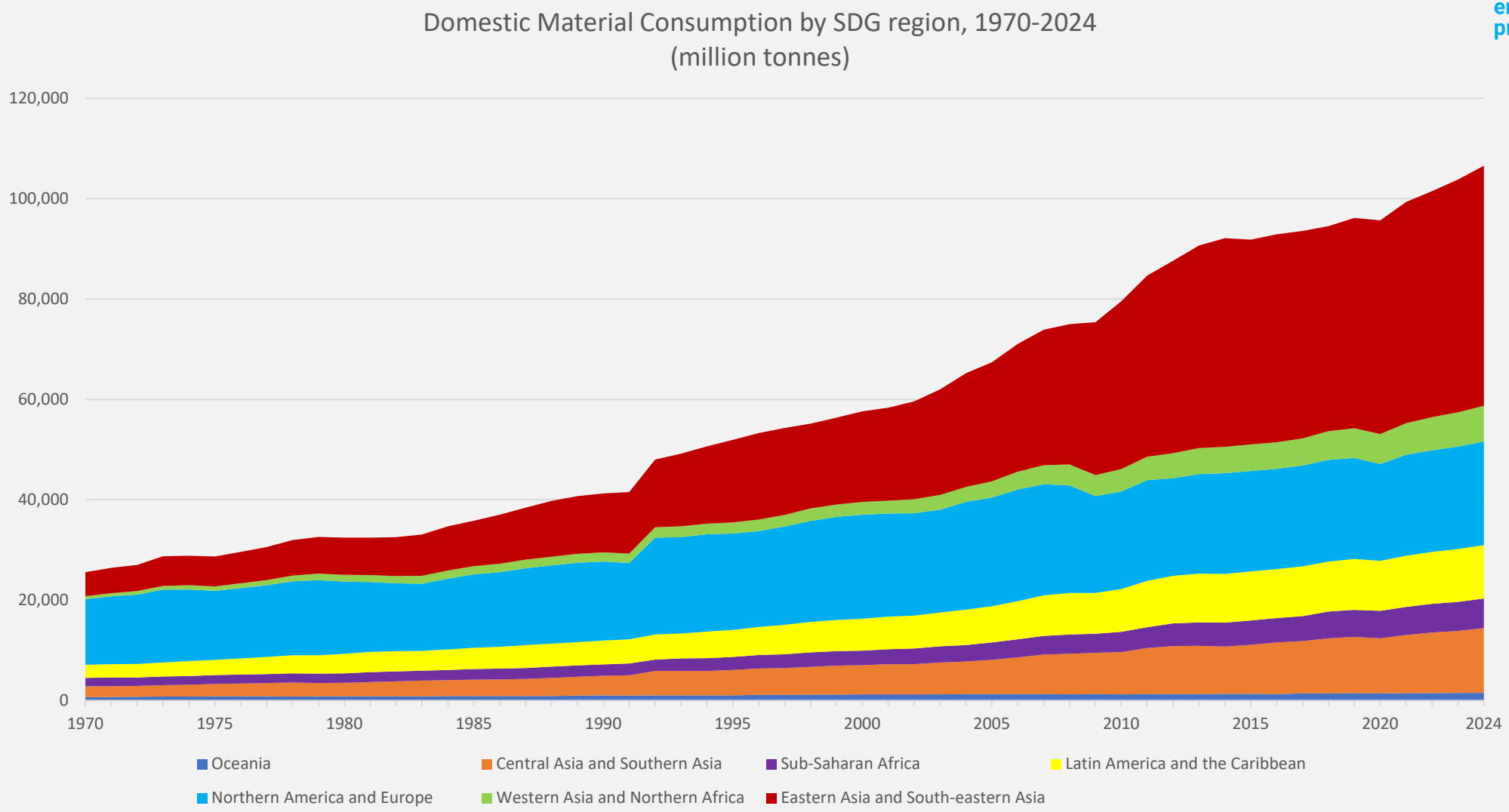
In 2023, the Conference of European Statisticians (CES) endorsed "CES Guidelines for Measuring Circular Economy, Part A: Conceptual Framework, Indicators and Measurement Framework", including:

- Production-based domestic material consumption (DMC)
- Demand-based raw material consumption (RMC) (material footprint)
- Production-based material productivity (GDP/DMC)
- Demand-based raw material productivity (net disposable income/RMC)

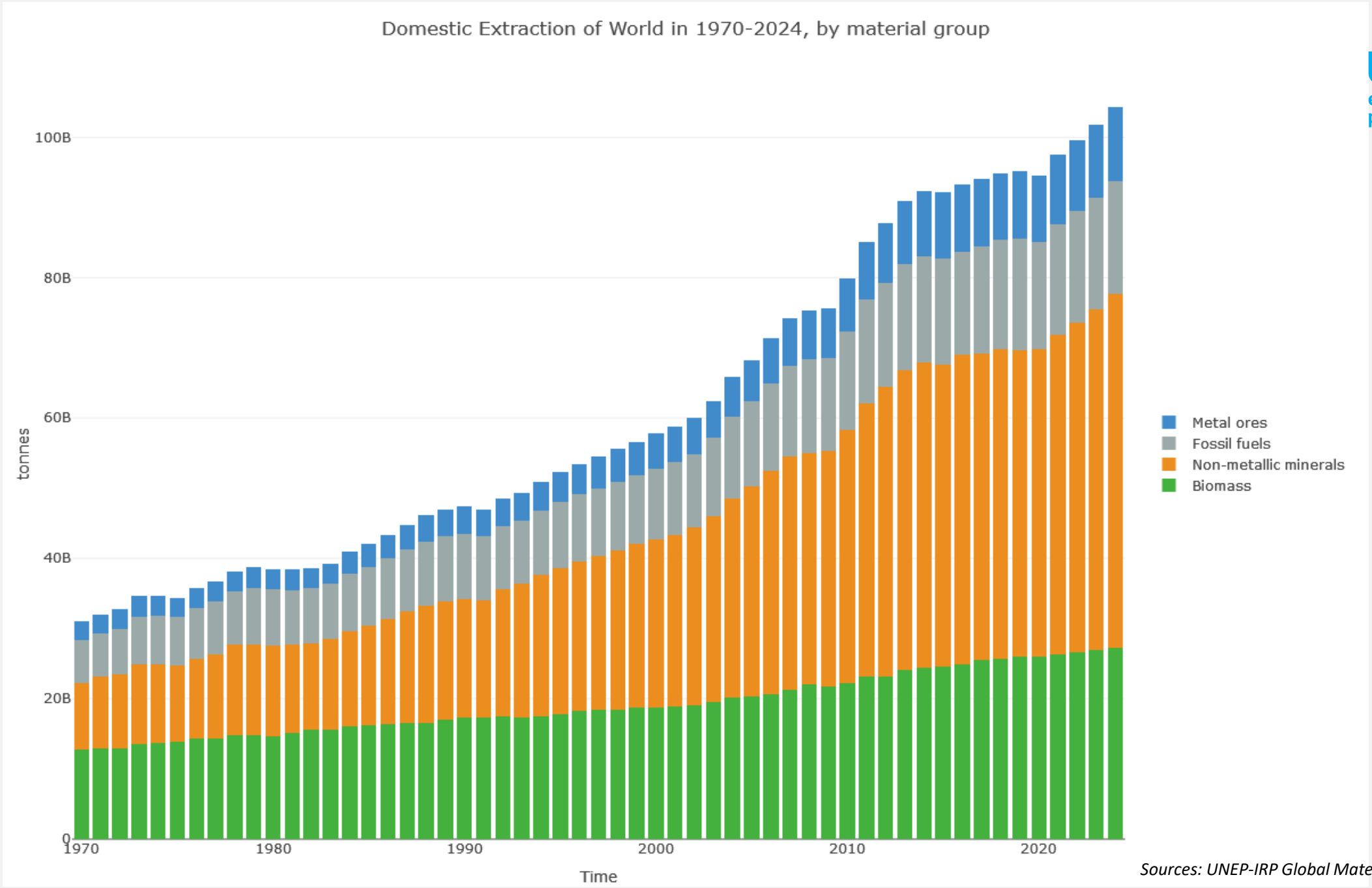


Here

- Coverage: 217 countries/territories
- Period: 1970 – 2024
- Aligned with the SEEA Central Framework
- Provides indicators on extraction and direct trade of raw materials, as well as indirect trade flows (including material footprints)
- Material categories: biomass, fossil fuels, metals, non-metallic minerals (disaggregated into 13 sub-categories)
- Main data sources: FAO, UNSD, UN COMTRADE, IEA, US EIA, World Mining Data, British Geological Survey, US Geological Survey



Sources: UNEP-IRP Global Material Flows Database



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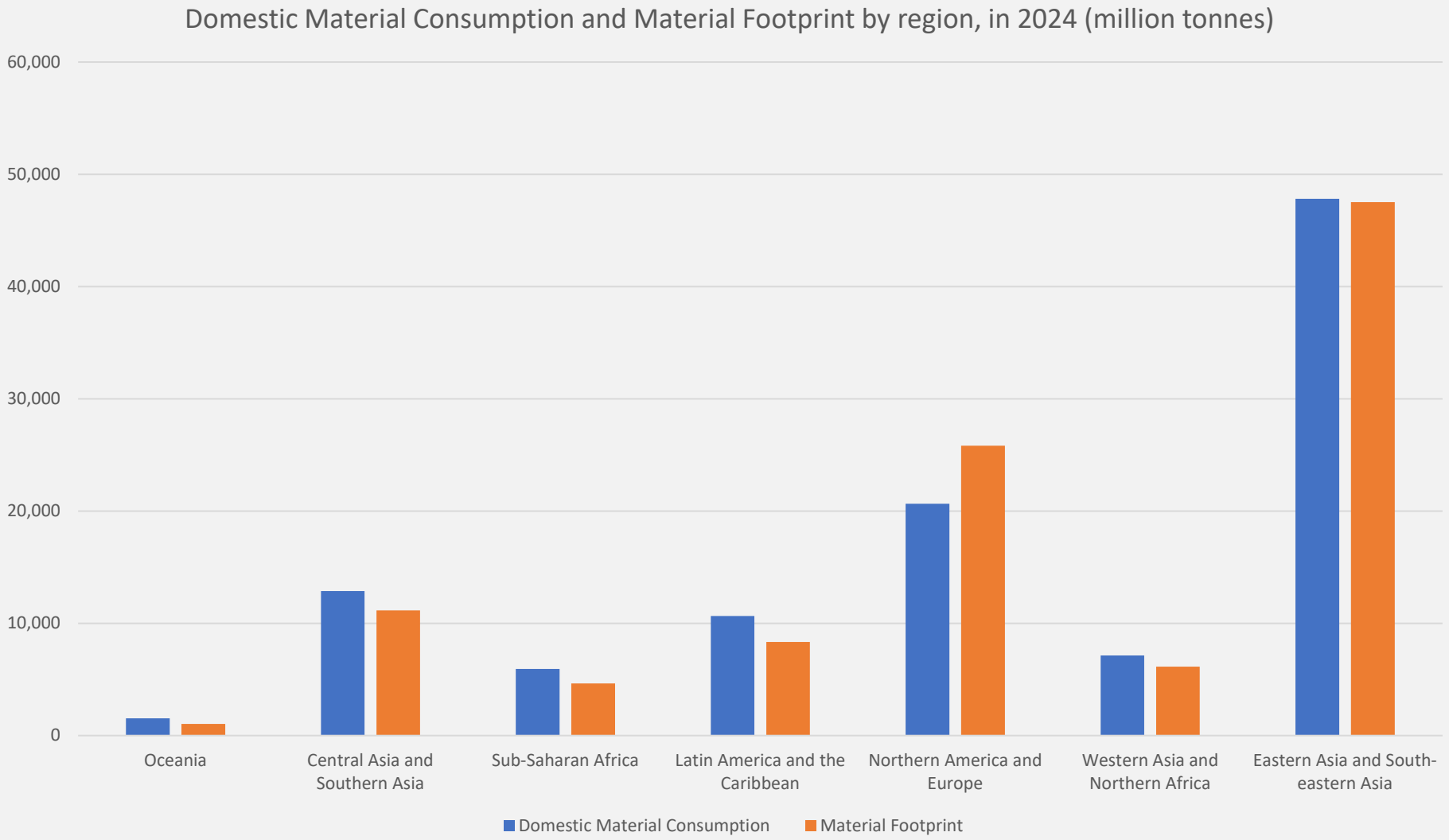
Sources: UNEP-IRP Global Material Flows Database



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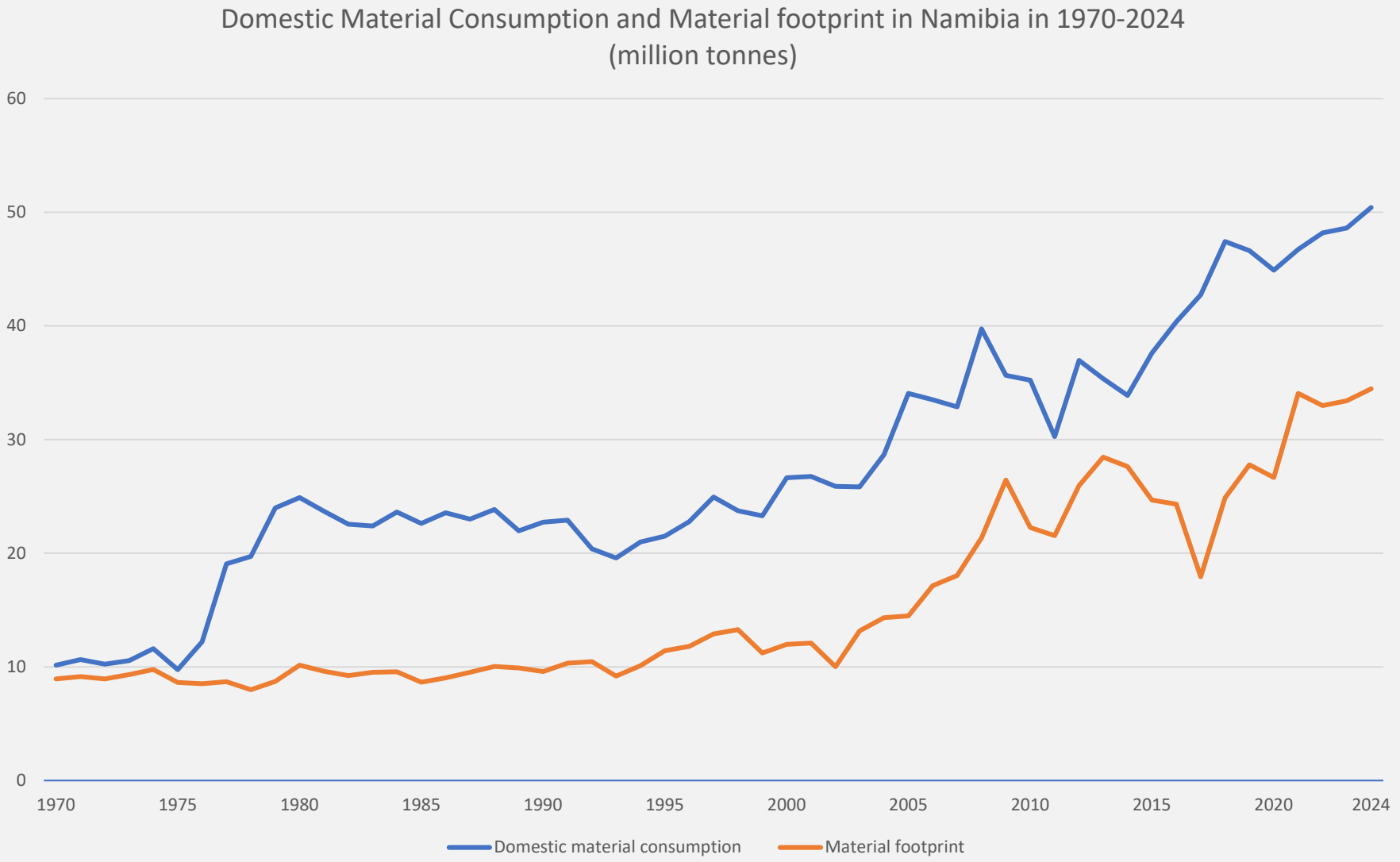
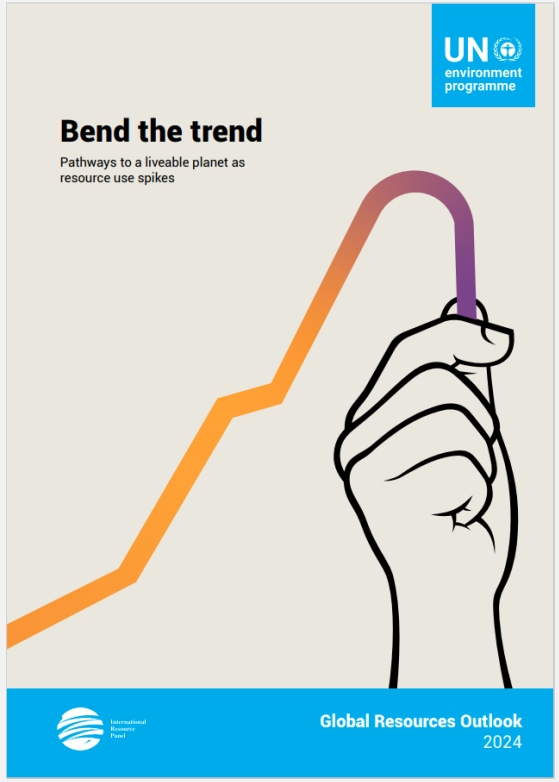


Sources: UNEP-IRP Global Material Flows Database

Afterword



Key message 1: Increasing resource use is the main driver of the triple planetary crisis: climate change, biodiversity loss, and pollution.

- Extraction and processing of material resources account for over 55% of greenhouse gas emissions and 40% of particulate matter health related impacts.
- If land use change is considered, climate impacts grow to more than 60%, with biomass contributing the most (28%) followed by fossil fuels (18%) and then non-metallic minerals and metals (together 17%).
- All environmental impacts are on the rise.

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Thank you

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