# Economy-Wide Material Flow Accounts (EW-MFA)

11-15 November 2024 | Quito, Ecuador

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# What’s Economy-Wide Material Flow Accounts (EW-MFA)?

EW-MFA represents a framework for measuring the natural resources extraction, the natural resources trade and the flows of waste and emissions to the environment.

EW-MFA deliver a comprehensive overview of the interaction of a domestic economy with the natural environment and the economy of the rest of the world in terms of flows of materials, waste and emissions.

EW-MFA summarize the situation of natural resources in terms of extraction, trade and final destination.

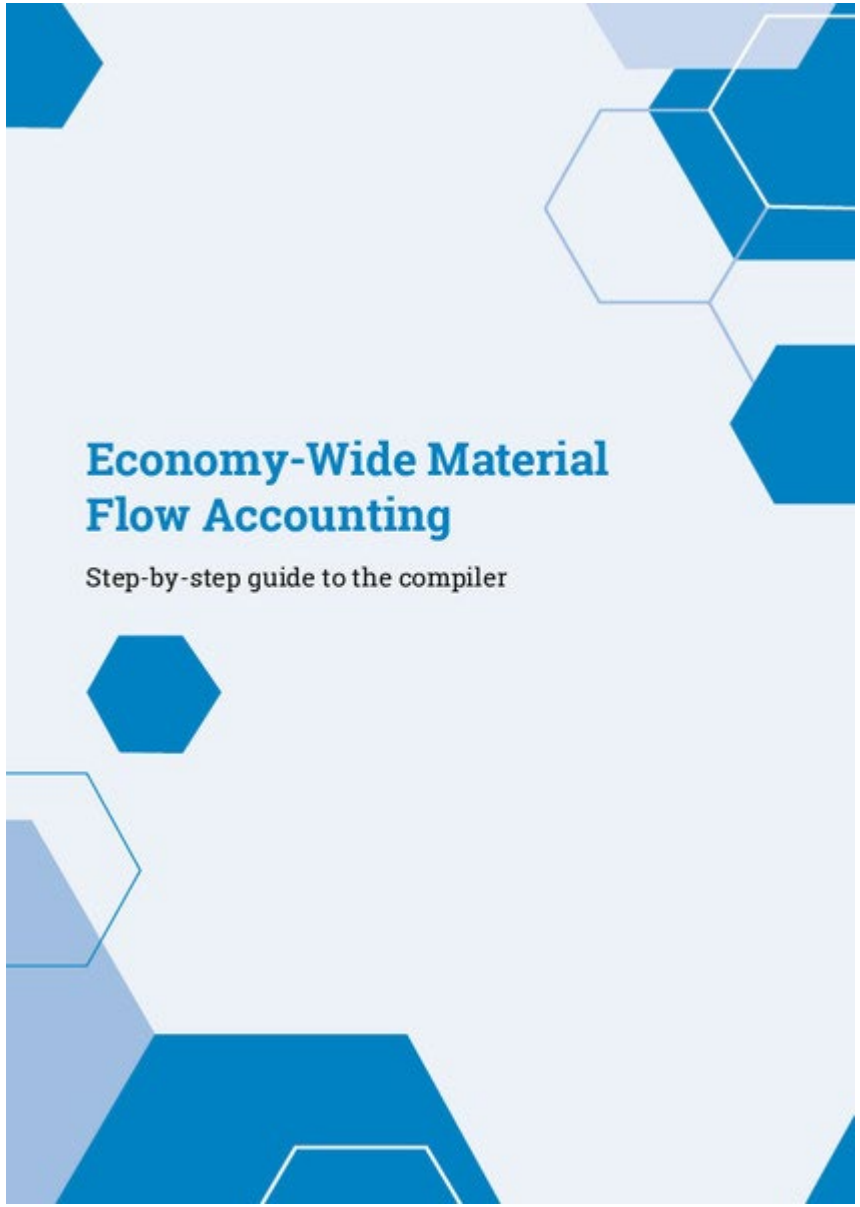
EW-MFA data sets are basic for calculating SDG indicators related to resource productivity (SDG 8.4) and sustainable use of natural resources (SDG 12.2).


# International Methodology

Global manual on EW-MFA:

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

- First published in 2021
- Revised in 2023




# Methodological support

Step by step guide for compilers

UNEP (2024). Economy-Wide Material Flow Accounting. Step-by-step guide to the compiler

- Published in 2024

# Data collection tool for national use

**United Nations Environment Programme**

**QUESTIONNAIRE ON ECONOMY-WIDE MATERIAL FLOW ACCOUNTS for the SDG indicators 8.4.1/12.2.1 and 8.4.2/12.2.2**

(EW-MFA Questionnaire for SDGs)

*Country:*

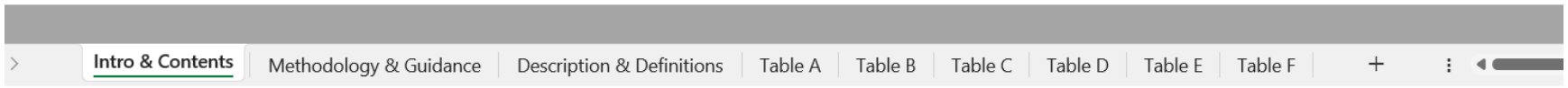
*Deadline for returning the EW-MFA Questionnaire for SDGs:*

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

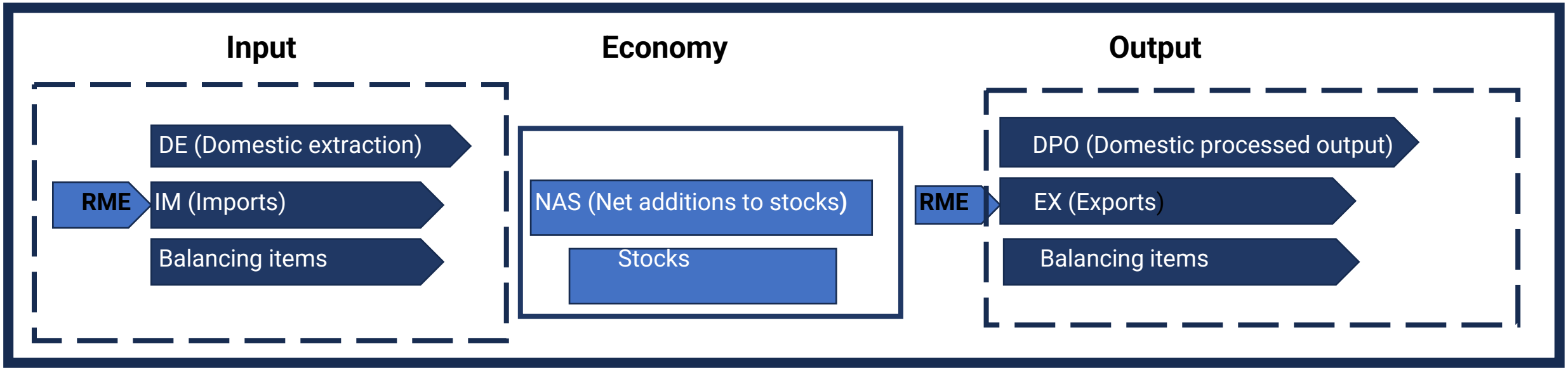
**TABLE OF CONTENTS**

| Sheet | Title | Status |
|---|---|---|
| Intro & Contents | Introduction and table of contents | *for information* |
| Methodology & Guidance | Methodological sources and guidance for working with this Questionnaire | *for information* |
| Description & Definitions | Description of tables and definitions | *for information* |
| **Table A** | **Domestic extraction** | ***to review / re-fill in*** |
| **Table B** | **Imports of materials** | ***to review / re-fill in*** |
| **Table C** | **Exports of materials** | ***to review / re-fill in*** |
| Table D | Headline indicators | *filled automatically* |
| **Table E** | **Material flow accounts in raw material equivalents** | ***to review / re-fill in*** |
| **Table F** | **Supplementary information from the country** | ***to fill in*** |

*Last update: June 1, 2024*



# Simplified structure of EW-MFA




Unused extraction (not included)

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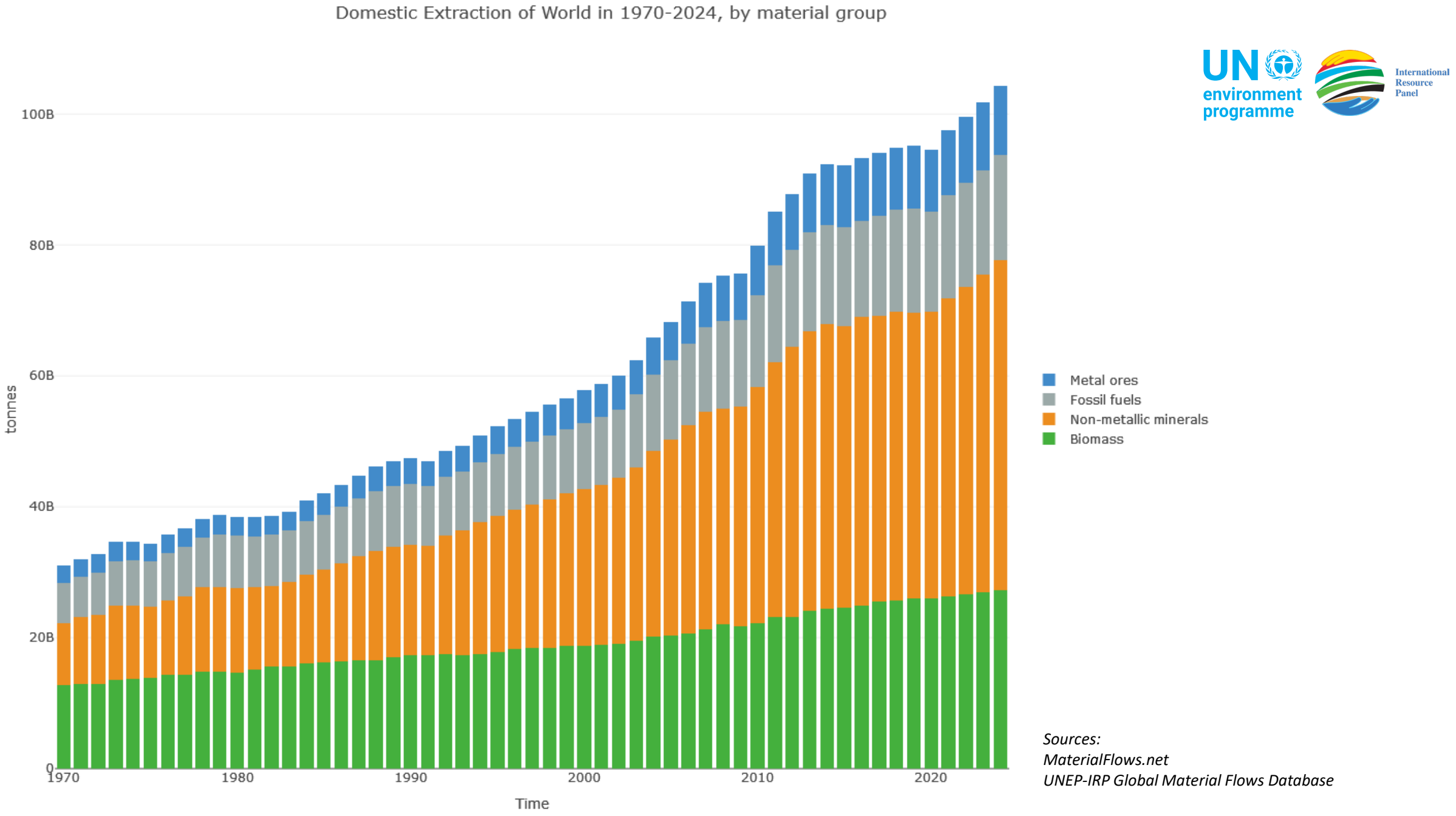
# Indicators based on EW-MFA

| |
|---|
| Domestic extraction (DE) |
| Imports (IM) |
| Exports (EX) |
| Direct material input (DMI) = DE + IM |
| Domestic material consumption (DMC) = DE + IM – EX |
| Physical trade balance (PTB) = IMP –EX |
| Domestic processed output (DPO) |
| Material productivity = PIB / DMC |
| Material intensity = DMC / PIB |


*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

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International Resource Panel

*Sources:*
*MaterialFlows.net*
*UNEP-IRP Global Material Flows Database*

# Vinculation with public policies

1. What is the amount of extracted natural resources?
2. What are the categories of extracted natural resources?
3. How does the economy depend on imports?
4. What are the materials exported?
5. What materials are consumed in the country?
6. What is the amount of waste going to the environment?

# Data sources – **DOMESTIC EXTRACTION**

**BIOMASS**

- Crops (cereals, roots, sugar crops, pulses, tobacco…)
- Crop residues (staw, grazed biomass…)
- Wood
- Wild harvest (wild fish catch, wild aquatic plant harvest…)

**METALLIC MINERALS**: Iron, Aluminium, other metal ores

**NON-METALLIC MINERALS**: Ornamental or building stone, salt, gypsum, clays…

**FOSSIL FUELS**

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# Data sources – **TRADE OF MATERIALS**

**IMPORTS**

**EXPORTS**

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# Data sources – **MATERIAL OUTFLOWS**

**EMISSIONS TO AIR**: CO2, CH4, N2O, NOx, HFCs, PFCs, SF6, CO…

**WASTE LANDFILLED (UNCONTROLLED)**: municipal waste (uncontrolled) and industrial waste (uncontrolled).

**EMISSIONS TO WATER**: N, P, heavy metals, organic materials and dumping of materials at sea

**DISSIPATIVE USE OF PRODUCTS**

**DISSIPATIVE LOSSES**

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# Data sources – **MATERIAL OUTFLOWS**

## DISSIPATIVE USE OF PRODUCTS

Organic fertilizer (manure)
Mineral fertilizer
Sewage sludge
Compost
Pesticides
Seeds
Salt and other thawing materials spread on roads
Solvents, laughing gas and other

# Data sources – **MATERIAL OUTFLOWS**

## DISSIPATIVE LOSSES

Abrasion from tyres and brakes

Losses of materials due to corrosion, abrasión and erosión of buildings

Losses of roducts during transportation (chemicals)

Gas pipeline transport losses

# EXCEL Tool for EW-MFA calculation

Table A- Domestic Extraction

Table B – Imports

Table C – Exports

Table D – Material outflows

Table E – Balancing items

Table F – Indicators

# IDENTIFICATION OF DATA SOURCES

| NEEDED DATA | INSTITUTION | AVAILABLE DATA | VALIDATED DATA |
|---|---|---|---|
| BIOMASS | | | |
| METALLIC MINERALS | | | |
| NON-METALLIC MINERALS | | | |
| FOSSIL FUELS | | | |
| IMPORTS | | | |
| EXPORTS | | | |
| AIR EMISSIONS | | | |
| WASTE LANDFILLED (UNCONTROLLED) | | | |
| EMISSIONS TO WATER | | | |
| DISSIPATIVE USE OF PRODUCTS | | | |
| DISSIPATIVE LOSSES | | | |

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# Thank you for your attention

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