

**Standard Report**  
**on**  
**Methods and Quality**  
**for**  
**Environmental Accounts,**  
**Material Flow Accounts**

This documentation applies to the reporting period:

**2016**

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CENTRAL STATISTICS OFFICE

Skehard Road, Cork

021 453 5000

[www.cso.ie](http://www.cso.ie)

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## 1 Overview

The general purpose of Economy-Wide Material Flow Accounts (MFA) is to describe the interaction of the domestic economy with the natural environment and the rest of the world economy in terms of flows of materials. Only flows crossing the system boundary, as inputs from the environment into the economy or as outputs from the economy into the environment, are counted. Material flows within the economy are not taken into account.

Figures are reported in tonnes rather than euros.

Reporting of Material Flow Accounts is required under EU Regulation 691/2011.

## 2 General Information

### 2.1 Statistical Category

The main statistics reported in the Material Flow Accounts are domestic extraction of resources from the environment, (excluding water and air), physical trade with other countries, emissions to the environment (including emissions to air, land and water) and input and output balancing items.

### 2.2 Area of Activity

Environmental-economic accounts.

### 2.3 Organisational Unit Responsible, Persons to Contact

The Environment and Climate division of the CSO is responsible for compiling and publishing Material Flow Accounts.

Reamonn McKeever	01-498 4212
Berna Lawlor	01-498 4210

[environment@csso.ie](mailto:environment@csso.ie)

### 2.4 Objectives and Purpose; History

Material Flow Accounts provide a basis on which to analyse the environmental implications of economic activity over time.

### 2.5 Periodicity

Material Flow Accounts are reported on an annual basis.

### 2.6 Client

Eurostat.

### 2.7 Users

National users of Material Flow Accounts include the environment sector, the government, the media, educational institutions and the public. International users include Eurostat, the European Environment Agency and the OECD<sup>1</sup>.

### 2.8 Legal basis

Reporting of Material Flow Accounts is a legal requirement under EU regulation 691/2011.

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<sup>1</sup> Organisation for Economic Co-operation and Development.

## **3 Statistical Concepts, Methods**

### **3.1 Subject of the Statistics**

Material Flow Accounts record the domestic extraction of resources from the environment (broken down between biomass, metallic minerals, non-metallic minerals and fossil fuels); physical trade; the release of materials back to the environment after being used in the domestic economy (emissions to air, landfill waste, emissions to water, dissipative use of products and dissipative losses); and input and output balancing items.

### **3.2 Units of Observation/Collection Units/Units of Presentation**

Million Tonnes.

### **3.3 Data Sources**

Data sources include other divisions in the CSO; the Environmental Protection Agency; the Sustainable Energy Authority of Ireland; the Department of Agriculture, Food and the Marine; the Department of Communications, Climate Action and the Environment; Bord na Mona; Transport Infrastructure Ireland; Bord Iascaigh Mhara; the Sea Fisheries Protection Authority; the Irish Concrete Federation; The British Geological Survey; external consultants; and individual enterprises.

### **3.4 Reporting Unit/Respondents**

Tonnes

### **3.5 Type of Survey/Process**

Administrative data was collected from the organisations mentioned in item 3.3 above. Survey Data was not used.

### **3.6 Characteristics of the Sample/Process**

The estimation process is based on the methodology set out in the 2016 “Economy-Wide Material Flows Accounts Manual on DPO and Balancing Items”, the Eurostat publication, “Economy-Wide Material Flow Accounts Compilation Guide 2013” and earlier Eurostat Manuals.

### **3.7 Survey Technique/Data Transfer**

Not applicable.

### **3.8 Questionnaire (including explanations)**

Not applicable.

### **3.9 Participation in the Survey**

Not applicable.

### **3.10 Characteristics of the Survey/Process and its Results**

The estimation process is based on the methodology set out in the 2016 “Economy-Wide Material Flows Accounts Manual on DPO and Balancing Items”, the Eurostat publication, “Economy-Wide Material Flow Accounts Compilation Guide 2013” and earlier Eurostat Manuals.

### **3.11 Classifications used**

The Combined Nomenclature is used in the compilation of trade statistics used in Material Flow Accounts and the PRODCOM classification is used in the compilation of data on the domestic extraction of metals and non-metallic minerals.

### **3.12 Regional Breakdown of Results**

Material Flow Accounts are reported for Ireland as a single regional unit.

## **4 Production of the Statistics, Data Processing, Quality Assurance**

### **4.1 Data Capture**

Not applicable.

### **4.2 Coding**

Not applicable.

### **4.3 Data Editing**

Not applicable.

### **4.4 Imputation (for Non-Response or Incomplete Data Sets)**

Imputation is based on carrying forward the latest available data.

### **4.5 Grossing and Weighting**

Not applicable.

### **4.6 Computation of Outputs Estimation Methods Used**

Most output data are simple to compute, but the following estimation methods have been applied to produce key outputs:

**Straw:** Cereal figures are supplied by the CSO's Agriculture Division. These data are then transformed into Straw figures by the application of Eurostat Harvest Factors and Recovery Rates;

**Other Crop Residues:** Sugar Beet, Fodder Beet and Oilseed Rape are supplied by the CSO's Agriculture Division. These data are then transformed into Straw figures by the application of Eurostat Harvest Factors and Recovery Rates;

**Fodder Crop figures** are supplied by the CSO's Agriculture Division and are transformed using national conversion factors to convert area size figures into dry weight volumes;

**Grazed Biomass:** Eurostat's Supply Side Approach is used. Silage, Hay, Pasture and Rough Grazing data are supplied by the CSO's Agriculture Division. These data are then transformed using national yield factors to produce Grazed Biomass figures;

**Metals:** Data are supplied by the Department of Communication, Climate Action and Environment. Lead and Zinc are mined together in Ireland as "coupled production". Gross ores are allocated to the two metals using relative value weights as recommended by the Eurostat MFA Compilation Guidelines.

**Limestone and Gypsum:** figures are taken from the CSO's PRODCOM statistics. Crushed Rock figures are compiled using CSO's PRODCOM and Road Freight Survey Transport data.

**Sand and Gravel:** Figures are compiled using CSO's PRODCOM statistics supplemented by Road Freight Survey Transport data.

**Peat for combustion figures** are supplied by the Sustainable Energy Authority of Ireland. Peat for horticultural use is provided by individual enterprises and an industry representative organisation.

**Emissions to Air:** greenhouse gases and air pollutants are calculated using the inventory data submitted by the Environmental Protection Agency to the UNFCCC (United Nations Framework Convention on Climate Change) and the CLR-TAP (The Convention on Long-Range Transboundary Air Pollution. These figures are therefore based on the application of the Territorial Principle rather than the Residence Principle.

The calculation of Balancing Items on the Input and Output Sides make use of a series of coefficient factors provided by Eurostat in its Compilation Guidelines, for example the oxygen demand for respiration or the water vapour and carbon dioxide produced by respiration of humans and livestock.

#### **4.7 Other Quality Assurance Techniques Used**

Excel data is checked against output data generated by SAS programs; nation specific conversion factors are checked against European conversion factors taken from the Eurostat Manuals; missing data is imputed; proxy variables are examined; and relevant reports are consulted to consider the plausibility of our figures.

### **5 Quality**

#### **5.1 Relevance**

Reporting of Material Flow Accounts is a legal requirement under EU regulation 691/2011. National users of Material Flow Accounts statistics include the environment sector, the government, the media, educational institutions and the general public, while international users include Eurostat, the European Environment Agency and the OECD.

#### **5.2 Accuracy and Reliability**

Some data are available only as rough estimates (e.g. Crushed Rock in Table 2 Non-Metallic Minerals. Other data, such as Straw, and Other Crop Residues (in Table 2) and Balancing Items Input Side and Output side (in Table 1) are based on general European conversion factors which may not accurately reflect national circumstances in Ireland. There is also a data quality problem with Fodder Crop figures. The yield data on grass silage and hay are constant over time and do not vary year by year.

#### **5.3 Timeliness and Punctuality**

The Material Flow Accounts are due to be submitted to Eurostat within 24 months of the end of the year to which the figures relate. The 2016 Material Flow Accounts were submitted to Eurostat on December 17<sup>th</sup>, 2018 and were published on the CSO website on December 19<sup>th</sup>, 2018.

#### **5.4 Coherence**

Material Flow Accounts data are compiled according to methodological guidelines specified by Eurostat and are checked against other available data sources and compared over time to ensure that the data are coherent.

#### **5.5 Comparability**

The accounts are compiled in line with Eurostat guidelines in so far as this is possible. They can therefore be considered methodologically sound, and as they are compiled annually in a consistent manner, they are comparable over time. A limitation with regard to comparability between countries is that some of the data received from the EPA refers to emissions produced in Ireland (territorial emissions), whereas a record of residential emissions is requested by Eurostat.

#### **5.6 Accessibility and Clarity**

##### **5.6.1 Assistance to Users, Special Analyses**

Background notes are provided with each release on the CSO website. (See <https://www.cso.ie/en/methods/surveybackgroundnotes/materialflowaccounts/> for details.)

##### **5.6.2 Revisions**

Revisions are made annually.

##### **5.6.3 Publications**

The results are published on the following page of the CSO website:

<https://www.cso.ie/en/statistics/environmentaccounts/materialflowaccounts/>

#### **5.6.4 Confidentiality**

All confidential data are treated in accordance with Part V of the Statistics Act 1993.

### **6 Additional Documentation and Publications**

The Eurostat publication “Economy-Wide Material Flow Accounts Manual 2016 on DPO and Balancing Items” is available at:

<https://ec.europa.eu/eurostat/documents/1798247/6191533/2013-EW-MFA-Guide-10Sep2013.pdf/54087dfb-1fb0-40f2-b1e4-64ed22ae3f4c>

The Eurostat publication “Economy-Wide Material Flow Accounts Compilation Guide 2013” is available at:

<https://ec.europa.eu/eurostat/documents/1798247/6191533/2013-EW-MFA-Guide-10Sep2013.pdf/54087dfb-1fb0-40f2-b1e4-64ed22ae3f4c>