National Reference Metadata in Single Integrated Metadata Structure (SIMS)
Country: Greece
Material Flow Accounts (MFA) 2019

ELSTAT metadata

Reference metadata

1. Contact

1.1. Contact organisation	Hellenic Statistical Authority (ELSTAT)
1.2. Contact organisation unit	Energy & Environment Statistics Section Agriculture, Livestock, Fishery and Environmental Statistics Division
1.5. Contact mail address	46 Pireos St. & Eponiton St. 185 10, Piraeus, Greece

2. Metadata update

2.1. Metadata last certified	31/12/2021
2.2. Metadata last posted	31/12/2021
2.3. Metadata last update	31/12/2021

3. Statistical presentation

3.1. Data description

Economy-wide material flow accounts (EW-MFA) provide an aggregate overview, in thousand tonnes per year, of the material flows into and out of an economy. EW-MFA cover solid, gaseous, and liquid materials, except for bulk flows of water and air. Like the system of national accounts, EW-MFA constitute a multi-purpose information system. The detailed material flows provide a rich empirical database for numerous analytical purposes. Further, EW-MFA are used to derive various material flow indicators.

The National Statistical Institute (NSI) sent to Eurostat on yearly basis the EW-MFA. The accounts comprise the following reporting tables:

- Table A 'Domestic extraction (DE)': records material flows from the environment into the economy in a detailed breakdown by type of material
- Table B 'Imports - total imports (intra- and extra-EU) and Table D 'Exports – total exports (intra- and extra-EU)': These physical trade tables record the imports and exports of products in thousand tonnes and grouped by materials.
- Table F 'Domestic processed output (DPO)': records material flows from the economy to the domestic environment (e.g. emissions to air, water and soil)
- Table G 'Balancing items': reports some memorandum items which are necessary to have the full material balance related to a national economy
- Table H 'Indicators': presents the EW-MFA derived indicators which are automatically calculated from Table A to G

Table I 'Material flow accounts in raw material equivalents (RME)': records material flow accounts in raw material equivalents (MFA-RME). Some items are calculated automatically based on data reported in Table A and Table I.

3.2. Classification system

MFA record physical flows of materials broken down by type of flow and by type of material.

The type of flow dimension corresponds to the EW-MFA questionnaire reporting tables and derived indicators, namely:

- domestic extraction (Table A)
- physical imports (Table B)
- physical exports (Table D)
- domestic processed output (Table F)
- balancing items (Table G)
- direct material input (indicator)
- domestic material consumption (indicator)
- physical trade balance (indicator)

The breakdown by type of material employs a classification of materials. This EW-MFA classification of materials is hierarchical with main material flow categories (1-digit level). Each main category is further broken down, maximal down to 4-digit-level:

1-digit: material category;

2-digit: material class;

3-digit: material group;

4-digit: material sub-group.

3.3. Coverage - sector

The data refer to national economies as defined in the system of national accounts.

3.4. Statistical concepts and definitions

Conceptually, material flow accounts (MFA) belong to the international system of environmental economic accounting (SEEA-Central Framework). Furthermore, MFA is one of several physical modules of Eurostat's programme on European environmental economic accounts. It is covered by Regulation (EU) No. 691/2011 on European environmental economic accounts.

MFA are closely related to concepts and definitions of national accounts. Most notably they follow the residence principle, i.e. they record material flows related to resident unit's activities, regardless of where those occur geographically.

Further methodological guidelines are provided in various publications by Eurostat (see Eurostat website > Environment > Methodology, heading: 'Material flows and resource productivity').

For more detailed information please see also 3.1.

3.5. Statistical unit

The data used for the compilation of Material Flow Accounts refer to the extraction of materials by all the institutional units of the economy.

3.6. Statistical population

All materials within the scope of the Regulation (EU) No 691/2011.

MFA refer to the entire national economy of the reporting country (see also 3.3 'Coverage - sector').

MFA include all materials (excluding water and air) crossing the system boundary (between the environment and the economy) on the input side or on the output side. The economy is demarcated by the conventions of the national accounting system (resident units).

Material inputs to the economy cover extractions of natural resources (excluding water and air) from the natural environment and imports of material products (goods) from the rest of the world economy (ROW).

Material outputs are disposals of materials to the natural environment and exports of material products and waste to the ROW. Information on natural resources extracted and traded products is provided by different statistical units.

3.7. Reference area

Data on materials refer to Greece total.

3.8. Coverage – Time

See relevant table in 3.8.1.

3.8.1. Coverage – Time: by questionnaire table

Questionnaire table	From (YEAR)	To (YEAR)	Comments
Domestic extraction (Table A)	2008	2019	
Imports – Total trade (Table B)	2008	2019	
Exports – Total trade (Table D)	2008	2019	
Domestic processed output (Table F)	2008	2019	
Balancing items (Table G)			
Material flow accounts in raw material equivalents (RME) (Table I)			

3.9. Base period

Not applicable because MFA are not reported as indices.

4. Unit of measure

The unit of measure is thousand tonnes.

5. Reference Period

The data refer to calendar years. Last reported reference period is 2019.

6. Institutional Mandate

6.1. Institutional Mandate - legal acts and other agreements

Material Flow Accounts (MFA) are legally covered by [Regulation (EU) 691/2011](#) on European Environmental Economic Accounts.

6.2. Institutional Mandate - data sharing

Not applicable in national level. This information is required at European level only.

7. Confidentiality

7.1. Confidentiality - policy

The issues concerning the observance of statistical confidentiality by the Hellenic Statistical Authority (ELSTAT) are arranged by articles 7, 8 and 9 of the Law 3832/2010 as in force, by Articles 8, 10 and 11(2) of the Regulation on Statistical Obligations of the agencies of the Hellenic Statistical System and by Articles 10 and 15 of the Regulation on the Operation and Administration of ELSTAT.

Furthermore, ELSTAT disseminates the statistics in compliance with the statistical principles of the European Statistics Code of Practice and in particular with the principle of statistical confidentiality.

https://www.statistics.gr/en/statistical-confidentiality

7.2. Confidentiality - data treatment

ELSTAT protects and does not disseminate data it has obtained, or it has access to, which enable the direct or indirect identification of the statistical units that have provided them by the disclosure of individual information directly received for statistical purposes or indirectly supplied from administrative or other sources. ELSTAT takes all appropriate preventive measures so as to render impossible the identification of individual statistical units by technical or other means that might reasonably be used by a third party. Statistical data that could potentially enable the identification of the statistical unit are disseminated by ELSTAT if and only if:

a) these data have been treated, as it is specifically set out in the Regulation on Statistical Obligations of the agencies of the Hellenic Statistical System (ELSS), in such a way that their dissemination does not prejudice statistical confidentiality or

b) the statistical unit has given its consent, without any reservations, for the disclosure of data.

The confidential data that are transmitted by ELSS agencies to ELSTAT are used exclusively for statistical purposes and the only persons who have the right to have access to these data are the personnel engaged in this task and appointed by an act of the President of ELSTAT.

ELSTAT may grant researchers conducting statistical analyses for scientific purposes access to data that enable the indirect identification of the statistical units concerned. The access is granted provided the following conditions are satisfied:

a) an appropriate request together with a detailed research proposal in conformity with current scientific standards have been submitted

b) the research proposal indicates in sufficient detail the set of data to be accessed, the methods of analyzing them, and the time needed for the research

c) a contract specifying the conditions for access, the obligations of the researchers, the measures for respecting the confidentiality of statistical data and the sanctions in case of breach of these obligations has been signed by the individual researcher, by his/her institution, or by the organization commissioning the research, as the case may be, and by ELSTAT.

Issues referring to the observance of statistical confidentiality are examined by the Statistical Confidentiality Committee (SCC) operating in ELSTAT. The responsibilities of this Committee are to make recommendations to the President of ELSTAT on:

- the level of detail at which statistical data can be disseminated, so as the identification, either directly or indirectly, of the surveyed statistical unit is not possible

- the anonymization criteria for the microdata provided to users

- the granting to researchers to access confidential data for scientific purposes.

The staff of ELSTAT, under any employment status, as well as the temporary survey workers who are employed for the collection of statistical data in statistical surveys conducted by ELSTAT, who acquire access by any means to confidential data, are bound by the principle of confidentiality and must use these data exclusively for the statistical purposes of ELSTAT. After the termination of their term of office, they are not allowed to use these data for any purpose.

Violation of data confidentiality and/or statistical confidentiality by any civil servant or employee of ELSTAT constitutes the disciplinary offence of violation of duty and may be punished with the penalty of final dismissal.

ELSTAT, by its decision, may impose a penalty amounting from ten thousand (10,000) up to two hundred thousand (200,000) euros to anyone who violates the confidentiality of data and/or statistical confidentiality. The penalty is always imposed after the hearing of the defense of the person liable for the breach, depending on the gravity and the repercussions of the violation. Any relapse constitutes an aggravating factor for the assessment of the administrative sanction.

8. Release policy

8.1. Release calendar

Data on MFA and derived indicators are disseminated on ELSTAT's web site.

8.2. Release calendar access

The release calendar is available on ELSTAT's website.
https://www.statistics.gr/en/calendar#122021

8.3. Release policy - user access

In compliance with Community legislation and the European Statistics Code of Practice, ELSTAT releases all national statistical data on its web site, fully observing professional independence and with a view to ensuring the simultaneous, equal and timely access of all users to statistical data. Neither users nor any government bodies have access to data before their official release.

9. Frequency of dissemination

Data are disseminated annually.

10. Accessibility and clarity

10.1. Dissemination format - News release	
At present time, a press release for the dissemination of MFA data is not published.	
10.2. Dissemination format – Publications	
Data on MFA and derived indicators are disseminated on ELSTAT's web site.	
10.3. Dissemination format - online database	
MFA data files are available on ELSTAT's website (https://www.statistics.gr/en/statistics/-/publication/SOP09/-).	
10.3.1. Data tables - consultations	
Not applicable.	
10.4. Dissemination format - microdata access	
Microdata are made available to users after their submitting a request to the: Division of Statistical Information and Publications 46, Peiraios and Eponiton Str., 18510 Piraeus Tel: +30 213 135 2173 Fax: +30 213 135 2022 e-mail: data.dissem@statistics.gr	
10.5. Dissemination format - other	
Data can be provided to users (given the fact that statistical confidentiality is always observed) usually by e-mail, by submitting a relevant data request. Users have to submit their request, describing in detail the requested data, to the Division of Statistical Information and Publications. The requests must be submitted electronically to the following e-mail address: data.dissem@statistics.gr and data.dissem@statistics.gr	
10.5.1. Metadata - consultations	
This information is not currently available.	
10.6. Documentation on methodology	
No additional methodological document is currently disseminated.	
10.6.1. Metadata completeness - rate	
Will be calculated and provided by Eurostat.	
10.7. Quality management - documentation	
Currently, there is no available documentation on quality management practices.	

11. Quality management

11.1. Quality assurance	
Compilation of data on Material Flow Accounts refers mostly to the cumulative synthesis of data on material (raw material) that are collected from several competent official national agencies and relevant Ministries that contribute to delivering the necessary data.	
11.2. Quality management - assessment	
Quality assessment is characterized by a series of logical checks, comparability over time and internal and cross domain coherence as described below in subject 15.	

12. Relevance

12.1. Relevance - User Needs

At a national level, the potential users for the economy-wide material flow accounts could be:

The Ministry of Rural Development & Food, the Ministry of Environment and Energy, regional and local authorities, the Technical University of Athens and other academic institutions, researchers, businesses and non-profit institutions, the press and the media.

There are also foreign institutional users (Eurostat, OECD, United Nations, etc.).

12.2. Relevance - User Satisfaction

The Statistical Information Dissemination Section of ELSTAT conducts a survey on user satisfaction, the results of which are available at the link:

http://www.statistics.gr/en/user-satisfaction-survey.

12.3. Completeness

The requirements of the Regulation 691/2011 are fully met.

12.3.1. Data completeness - rate

Will be calculated and provided by EUROSTAT.

13. Accuracy

13.1. Accuracy - overall

Only Tables A, B, D and F have been compiled. For these tables, no deficiencies or lower quality data have been noticed.

13.2. Sampling error

Not applicable because data are not based on a sample survey.

13.2.1. Sampling error - indicators

Not applicable because data are not based on a sample survey.

13.3. Non-sampling error

Not applicable.

13.3.1. Coverage error

Not applicable.

13.3.1.1. Over-coverage - rate

Not applicable.

13.3.1.2. Common units - proportion

Not applicable.

13.3.2. Measurement error

Not applicable.

13.3.3. Non response error

Not applicable.

13.3.3.1. Unit non-response - rate

Not applicable.

13.3.3.2. Item non-response - rate

Not applicable.

13.3.4. Processing error

Not applicable.

13.3.5. Model assumption error

Not applicable.

14. Timeliness and punctuality

14.1. Timeliness

The data are submitted to Eurostat 24 months after the end of the reference year.

14.1.1. Time lag - first result

Not applicable.

14.1.2. Time lag - final result

Not applicable.

14.2. Punctuality

MFA are transmitted within the deadlines set out by the European Regulation.

14.2.1. Punctuality - delivery and publication

Will be calculated and provided by EUROSTAT.

15. Coherence and comparability

15.1. Comparability - geographical

Data on MFA are compiled according to harmonized guidelines provided by EUROSTAT and hence are comparable with data from all European countries that report MFA data to EUROSTAT.

15.1.1. Asymmetry for mirror flow statistics - coefficient

Not applicable because physical imports and exports as recorded in MFA are not specified by origin and/or destination.

15.2. Comparability - over time

Please see the Table in 15.2.1.1.

15.2.1. Length of comparable time series

Will be calculated and provided by Eurostat.

15.2.1.1. Comparability - over time detailed

Please use below table for explaining b)-flags (breaks in time series):

Year (of the break in series)	Questionnaire table(s)	MF-code(s)	Reason for' break in time series'
All years	All tables		No breaks are currently reported for the period 2008 - 2019.

15.3. Coherence - cross domain

The accounting framework of MFA is consistent with the System of Environmental-Economic Accounting (SEEA-CF) adopted by the United Nations Statistical Commission as a world-level statistical standard in March 2012.

MFA is also consistent with the European System of Accounts (ESA) and hence coherent with national accounts.

15.3.1. Coherence - sub annual and annual statistics

Not applicable. Reported MFA data are annual.

15.3.2. Coherence - National Accounts

MFA is consistent with the European system of accounts (ESA) and hence coherent with national accounts.

15.4. Coherence - internal

Internal coherence is established with the use of applicable methods and data sources as described in the "Economy-wide material flow accounts HANDBOOK" (Eurostat, 2018).

16. Cost and Burden

Primary data are derived either by other Government bodies (Ministry of Environment and Energy, Ministry of Rural Development and Food etc.) or by ELSTAT, therefore there is no burden for ELSTAT in terms of data collection.

Full time equivalents (FTE) for this data transmission are estimated approximately at 0.5.

17. Data revision

17.1. Data revision - policy

In 2011 a change of base year has been made in Material Flow Accounts. The new year of reference is 2008.

When estimating the values of the reporting year, data from previous years are cross-checked and revised if necessary.

17.2. Data revision - practice

In present transmission, we have revised the following items:

- **MF.1.1 Crops (excluding fodder crops)** of TABLE A, years 2008-2018. Values of relevant items have been revised. We have adopted the methodology that is extensively described in EUROSTAT's EW-MFA Handbook, 2018 Edition, in conjunction with Annex 1 of EW-MFA Questionnaire.
- **MF.1.2 Crop residues (used), fodder crops and grazed biomass** of TABLE A, years 2008-2018. Using the methodology described in EUROSTAT's EW-MFA Handbook, 2018 Edition, all values have been revised backwards. For **MF.1.2.1 Crop residues (used)** the calculation tool 'Crop residues v1' has been implemented using the embedded harvest factors and recovery rates. For **MF.1.2.2.2 Grazed biomass**, the calculation tool 'Grazed biomass v1' has been implemented using the embedded factors for annual feed intake.
- **MF.2.2.6 Gold, Silver, platinum and other precious metals** of TABLE A, year 2017. We have revised and recalculated the value that was previously assigned as 'Eurostat estimate'.
- **MF.2.2.9 Other non-ferrous metals** of TABLE A, year 2017. We have revised and recalculated the value that was previously assigned as 'Eurostat estimate'.
- **MF.3 Non-metallic minerals** of TABLE A, years 2008-2018 except **MF.3.8 Sand and gravel**. We have revised and recalculated the items for the whole time series using PRODCOM as the main source data. Correspondence between EW-MFA classification and PRODCOM is derived from Annex 3 (auxiliary Annexes 1-7 of EW-MFA questionnaire) for non-metallic minerals.

- **MF.4 Fossil energy materials/carriers** of TABLE A, years 2008-2018. Minor revisions of reported values have been made using updated data from the Ministry of Environment and Energy. Reported quantities of natural gas are also in 1.000 tonnes.

17.2.1. Data revision - average size
Will be calculated and provided by Eurostat.

18. Statistical processing

18.1. Source data
Data sources used to produce economy-wide material flow accounts are described in the sub-concept 18.1.1 and Annex1-Data sources. Certain adjustments are reported in Annex2-Estimation methods.

18.1.1. Source data - Table A, B, D, F and G
Source data are reported in the attached Annexes. Annex1-Data sources https://ec.europa.eu/eurostat/cache/metadata/Annexes/env_ac_mfa_simsmf_el_an2.docx

18.1.2. Source data - Table I
No reported data for Table I.

18.2. Frequency of data collection
The frequency of data collection for MFA is annual.

18.3. Data collection
The primary data used for the submission of Material Flow Accounts are a combination of statistical data that have been collected, processed and published from various data sources as follows: - Regarding the agricultural products, the data have been collected from the Ministry of Rural Development and Food (YPAAT). The Ministry collects and transmits to Eurostat and to other international organizations the data on agricultural production. - Data on forestry products and especially on timber have been collected from the Special Secretariat for Forests of the Ministry of Environment and Energy. - Data on fishery products have been derived from Fishery Survey of the division of "Agriculture, Livestock, Fishery and Environment Statistics" of ELSTAT. - The hunting products have been collected from the Hunting Confederation of Greece, which in turn, collects the relative data from the local hunting associations. - Data on metal ores, non-metallic minerals and energy materials have been collected from: (i) the Ministry of Environment and Energy (ii) Mining and quarrying companies For the calculation of each metal's total gross ore, the protocol described in Eurostat's "MFA HANDBOOK 2018 edition" for coupled production has been followed. - Data on imports and exports of raw material, have been collected from "Business Statistics Division - International Transactions Statistics Section" of ELSTAT.

18.4. Data validation
The output values are cross-checked using multiple national data sources and databases. For instance, in most of the subcategories, output data from the PRODCOM database is comparable to the annual reports of several national sources e.g. the Ministry of Environment and Energy or the Ministry of Rural Development & Food.

Additionally, logical checks regarding growth rates for the whole time series are performed.

18.5. Data compilation
Material Flow data on corresponding sectors are compiled as follows: 1) The primary data are collected from several national official sources. 2) Conversions and adjustments are applied to compile the report according to the requested measurement unit and classification. 3) The output values are cross-checked using multiple available data sources. 4) After the aforementioned process is completed, relevant tables of Eurostat's Questionnaire of Material Flow are compiled.

18.5.1. Imputation - rate
Not applicable.

18.5.2. Estimation approaches for specific items
Most reported values have been derived from national data sources. For certain items (like mineral gross ores calculations), primary source data has been adjusted according to the procedures and methods described in "MFA HANDBOOK 2018 edition". EW-MFA_Annex_2 https://ec.europa.eu/eurostat/cache/metadata/Annexes/env_ac_mfa_simsmf_el_an1.docx

18.5.3. Adjustment used of correspondence table for Tables B and D
Traded goods are assigned to material categories using External Trade Statistics provided by ELSTAT's section of International Transaction Statistics. Correspondence between CN 2020 and EW-MFA classification is derived from Annexes 4 and 5 (auxiliary Annexes 1-7 of EW-MFA questionnaire) for imports and exports. No additional adjustments have been applied.

18.5.4. Adjustment used of conversion factors for Tables B and D
No conversion factors for Tables B and D have been applied.

18.5.5. Fuel trade, residence adjustment
Residence adjustment in fuel trade (Tables B and D) was calculated for years 2014-2019 using source data from Physical Energy Flow Accounts (PEFA). The applied methodology agrees with the compilation process described in EUROSTAT's EW-MFA Handbook, 2018 Edition.

18.5.6. Significant problems
No significant problems have been reported.

18.6. Adjustment
Not applicable.

18.6.1. Seasonal adjustment
Not applicable.

19. Comment