



## MATERIAL FLOW ACCOUNTS: year 2022

The Hellenic Statistical Authority (ELSTAT) announces data on Material Flow Accounts, for the year 2022.

Economy-wide material flow accounts (EW-MFA) describe the physical interaction between the natural environment and the economy in terms of flows of materials and resources.

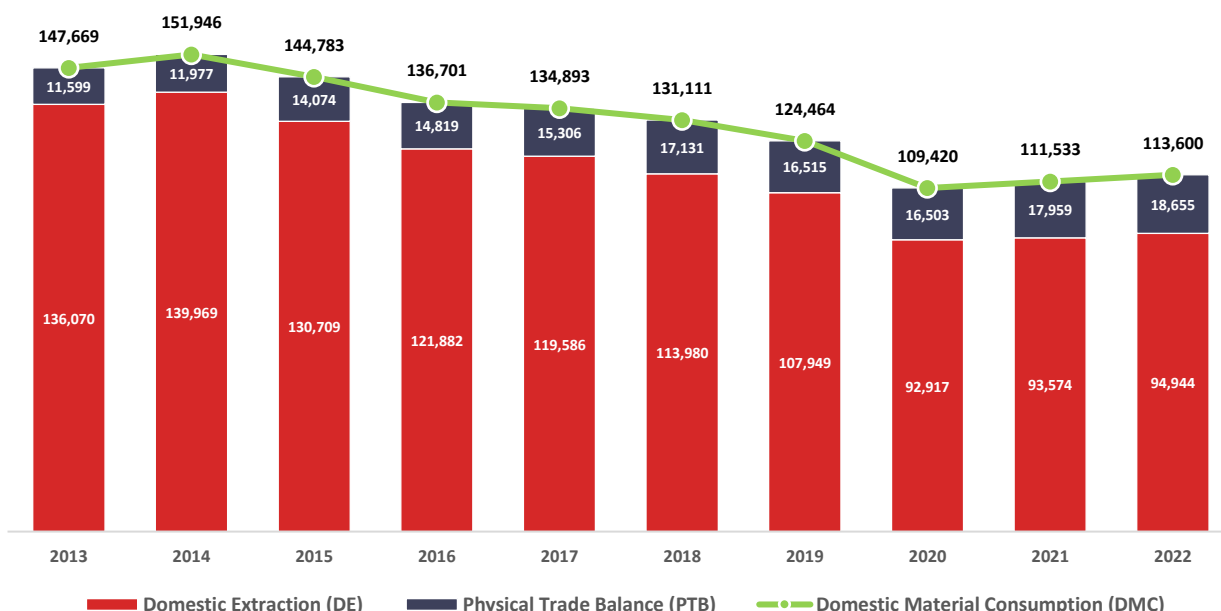
The data presented in the announcement, refer to:

- ▶ Domestic material consumption (DMC), in thousand tonnes
- ▶ Domestic extraction (DE), in thousand tonnes
- ▶ Physical trade balance (PTB), in thousand tonnes
- ▶ Resource productivity (RP), in euros per tonne
- ▶ Material import dependency (MID), percentage (%)

### Domestic Material Consumption (DMC)

Domestic Material Consumption amounted to 113,600 thousand tonnes in 2022, 1.9% higher compared to 2021 (111,533 thousand tonnes). Domestic Extraction (DE) accounts for 83.6% of Domestic Material Consumption with 94,944 thousand tonnes and the Physical Trade Balance (PTB) accounts for 16.4% with 18,655 thousand tonnes (Tables 1-2, Graph 1).

**Graph 1. Domestic Material Consumption (DMC) and components in thousand tonnes, 2013 – 2022**



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### **Domestic Extraction (DE)**

Domestic extraction amounted to 94,944 thousand tonnes in 2022, 1.5% higher compared to 2021 (93,574 thousand tonnes). Extraction of non-metallic minerals accounted for 53,641 thousand tonnes (56.5% of total DE), followed by biomass with 25,197 thousand tonnes (26.5%) and fossil energy materials with 14,251 thousand tonnes (15.0%). Finally, metal ores extraction amounted to 1,856 thousand tonnes with a share of 2.0% of total DE (Tables 1-3, Graphs 1-2).

### **Physical Trade Balance (PTB)**

Physical trade balance exhibited a positive value of 18,655 thousand tonnes in 2022. Imports amounted to 63,479 thousand tonnes and exports to 44,824 thousand tonnes. Compared to 2021, PTB was increased by 3.9% (Tables 1-2, Graph 3).

The category of fossil energy materials was the main component of imports in 2022 with 42,586 thousand tonnes and a share of 67.1% of total imports. Biomass and metal ores contributed with 9,123 and 5,874 thousand tonnes and respective shares 14.4% and 9.3% (Table 3, Graph 4).

Regarding exports in 2022, fossil energy materials amounted to 22,925 thousand tonnes (51.1% of total exports) followed by non-metallic minerals and biomass with 8,968 (20.0%) and 6,425 (14.3%) thousand tonnes respectively (Table 3, Graph 4).

### **Resource Productivity (RP)**

Resource productivity reached the value of 1,678 euros per tonne in 2022, compared with 1,619 euros per tonne in 2021, increased by 3.6% (Table 4, Graph 5).

### **Material Import Dependency (MID)**

The overall material import dependency was 40.1% in 2022, decreased by 0.5 percentage points compared to 2021 (40.6%).

Metal ores exhibited the highest import dependency (76.0%) followed by fossil energy materials (74.9%). MID of Biomass was 26.6% while the less import-dependent material type was the category of non-metallic minerals with a MID of 5.7% (Table 5, Graph 6).

**Table 1. Components of the Domestic Material Consumption in thousand tonnes and percentage (%) of total, 2013 – 2022**

Thousand tonnes	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Domestic Material Consumption (DMC)</b>	<b>147,669</b>	<b>151,946</b>	<b>144,783</b>	<b>136,701</b>	<b>134,893</b>	<b>131,111</b>	<b>124,464</b>	<b>109,420</b>	<b>111,533</b>	<b>113,600</b>
Domestic Extraction (DE)	136,070	139,969	130,709	121,882	119,586	113,980	107,949	92,917	93,574	94,944
Physical Trade Balance (PTB)	11,599	11,977	14,074	14,819	15,306	17,131	16,515	16,503	17,959	18,655
Imports (IMP)	48,286	49,886	54,698	58,690	61,116	62,762	61,485	59,785	63,863	63,479
Exports (EXP)	36,687	37,910	40,624	43,871	45,809	45,631	44,970	43,282	45,903	44,824
Share (%)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Domestic Extraction (DE)	92.1%	92.1%	90.3%	89.2%	88.7%	86.9%	86.7%	84.9%	83.9%	83.6%
Physical Trade Balance (PTB)	7.9%	7.9%	9.7%	10.8%	11.3%	13.1%	13.3%	15.1%	16.1%	16.4%

**Table 2. Annual change of the components of the Domestic Material Consumption (DMC), 2013 – 2022**

Annual change (%)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Domestic Material Consumption (DMC)</b>	-	<b>2.9%</b>	<b>-4.7%</b>	<b>-5.6%</b>	<b>-1.3%</b>	<b>-2.8%</b>	<b>-5.1%</b>	<b>-12.1%</b>	<b>1.9%</b>	<b>1.9%</b>
Domestic Extraction (DE)	-	2.9%	-6.6%	-6.8%	-1.9%	-4.7%	-5.3%	-13.9%	0.7%	1.5%
Physical Trade Balance (PTB)	-	3.3%	17.5%	5.3%	3.3%	11.9%	-3.6%	-0.1%	8.8%	3.9%
Imports (IMP)	-	3.3%	9.6%	7.3%	4.1%	2.7%	-2.0%	-2.8%	6.8%	-0.6%
Exports (EXP)	-	3.3%	7.2%	8.0%	4.4%	-0.4%	-1.4%	-3.8%	6.1%	-2.4%

**Table 3. Components of the Domestic Material Consumption (DMC) by type of material in thousand tonnes and percentage (%) of total, 2022**

2022	Biomass		Metal ores		Non-metallic minerals		Fossil energy materials		Other products and waste		Total materials	
	Thousand tonnes	Share (%)	Thousand tonnes	Share (%)	Thousand tonnes	Share (%)	Thousand tonnes	Share (%)	Thousand tonnes	Share (%)	Thousand tonnes	Share (%)
<b>Domestic Material Consumption (DMC)</b>	<b>27,895</b>	<b>24.6%</b>	<b>3,972</b>	<b>3.5%</b>	<b>47,914</b>	<b>42.2%</b>	<b>33,912</b>	<b>29.9%</b>	<b>-93</b>	<b>-0.1%</b>	<b>113,600</b>	<b>100.0%</b>
Domestic Extraction (DE)	25,197	26.5%	1,856	2.0%	53,641	56.5%	14,251	15.0%	0	0.0%	94,944	100.0%
Imports (IMP)	9,123	14.4%	5,874	9.3%	3,241	5.1%	42,586	67.1%	2,655	4.2%	63,479	100.0%
Exports (EXP)	6,425	14.3%	3,758	8.4%	8,968	20.0%	22,925	51.1%	2,748	6.1%	44,824	100.0%

**Table 4. Resource Productivity (RP) in euros per tonne and annual changes, 2013 – 2022**

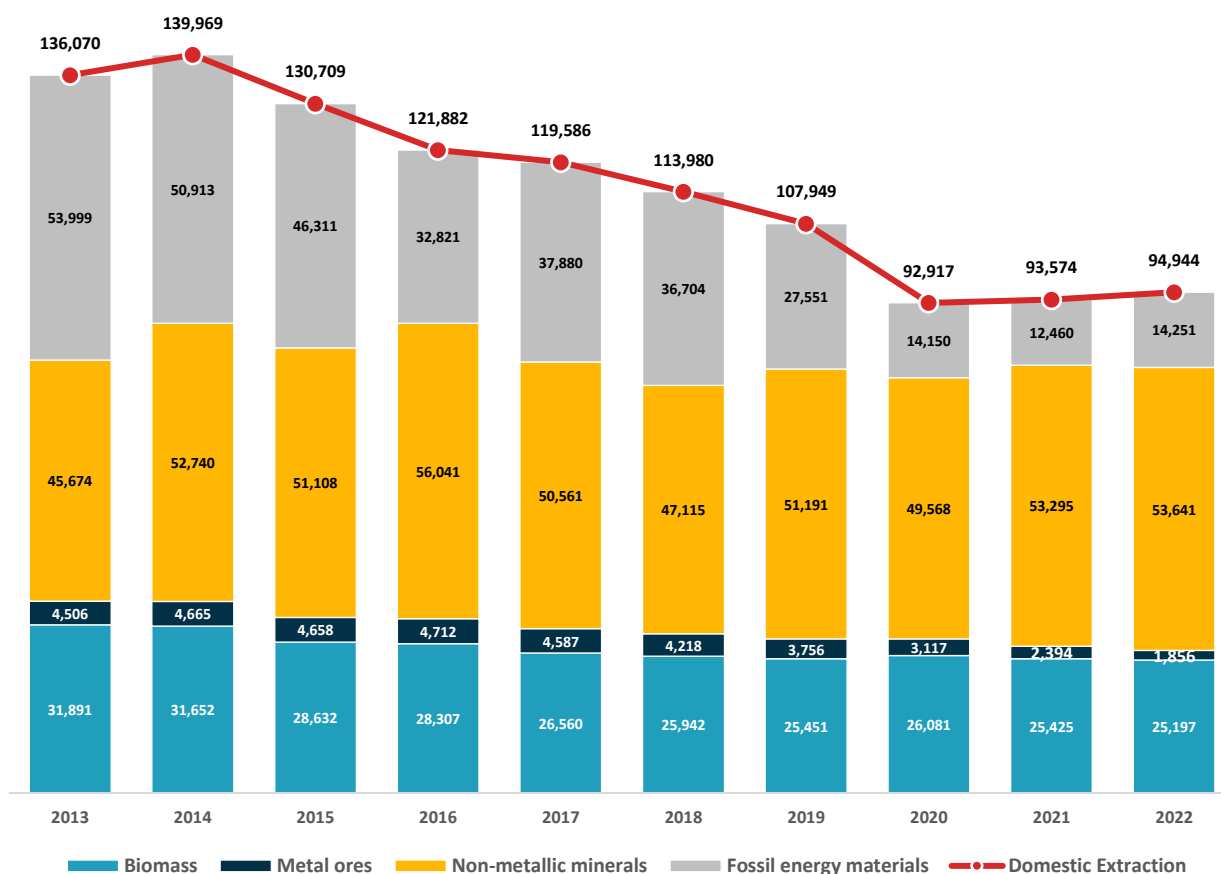
Resource Productivity	2013	2014	2015	2016	2017	2018	2019	2020	2021*	2022*
Euros per tonne	1,191	1,163	1,218	1,284	1,315	1,376	1,477	1,523	1,619	1,678
Annual change (%)	-	-2.4%	4.7%	5.4%	2.4%	4.6%	7.3%	3.2%	6.3%	3.6%

\* Provisional data

**Table 5. Material Import Dependency (MID), percentage (%) by type of material, 2013 – 2022**

Percentage (%)	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Total materials</b>	<b>26.2%</b>	<b>26.3%</b>	<b>29.5%</b>	<b>32.5%</b>	<b>33.8%</b>	<b>35.5%</b>	<b>36.3%</b>	<b>39.2%</b>	<b>40.6%</b>	<b>40.1%</b>
Biomass	18.4%	18.7%	22.0%	23.8%	25.7%	25.0%	25.9%	23.9%	25.9%	26.6%
Metal ores	40.3%	43.0%	45.2%	49.7%	51.3%	54.9%	57.3%	61.3%	70.6%	76.0%
Non-metallic minerals	4.9%	4.4%	5.3%	5.0%	5.7%	5.7%	5.3%	5.3%	5.2%	5.7%
Fossil energy materials	38.8%	40.8%	45.1%	55.0%	52.5%	54.5%	60.7%	74.7%	77.9%	74.9%

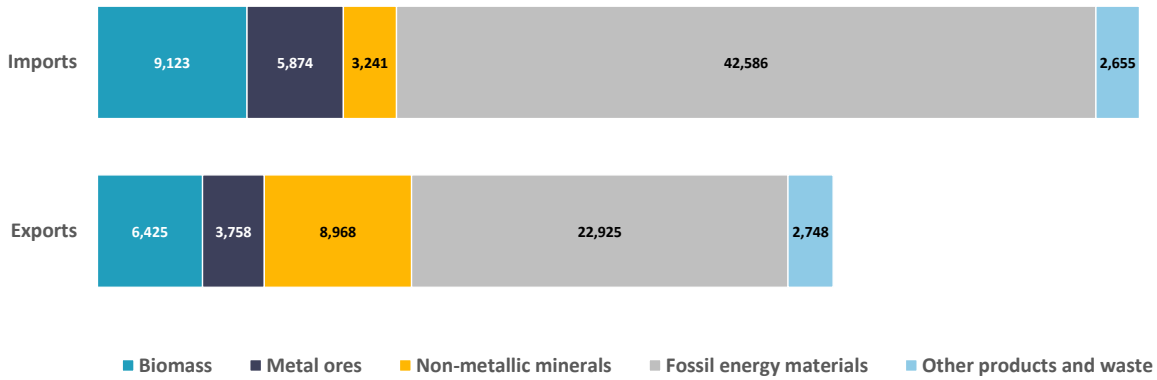
**Graph 2. Domestic Extraction (DE) by type of material in thousand tonnes, 2013 – 2022**



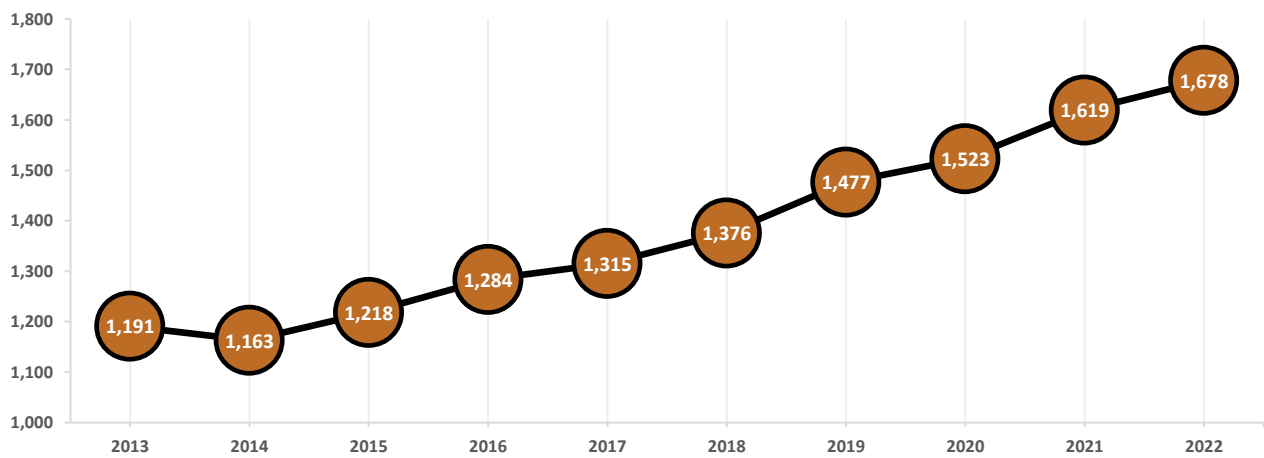
**Graph 3. International trade (imports, exports and physical trade balance) of materials in thousand tonnes, 2013 – 2022**



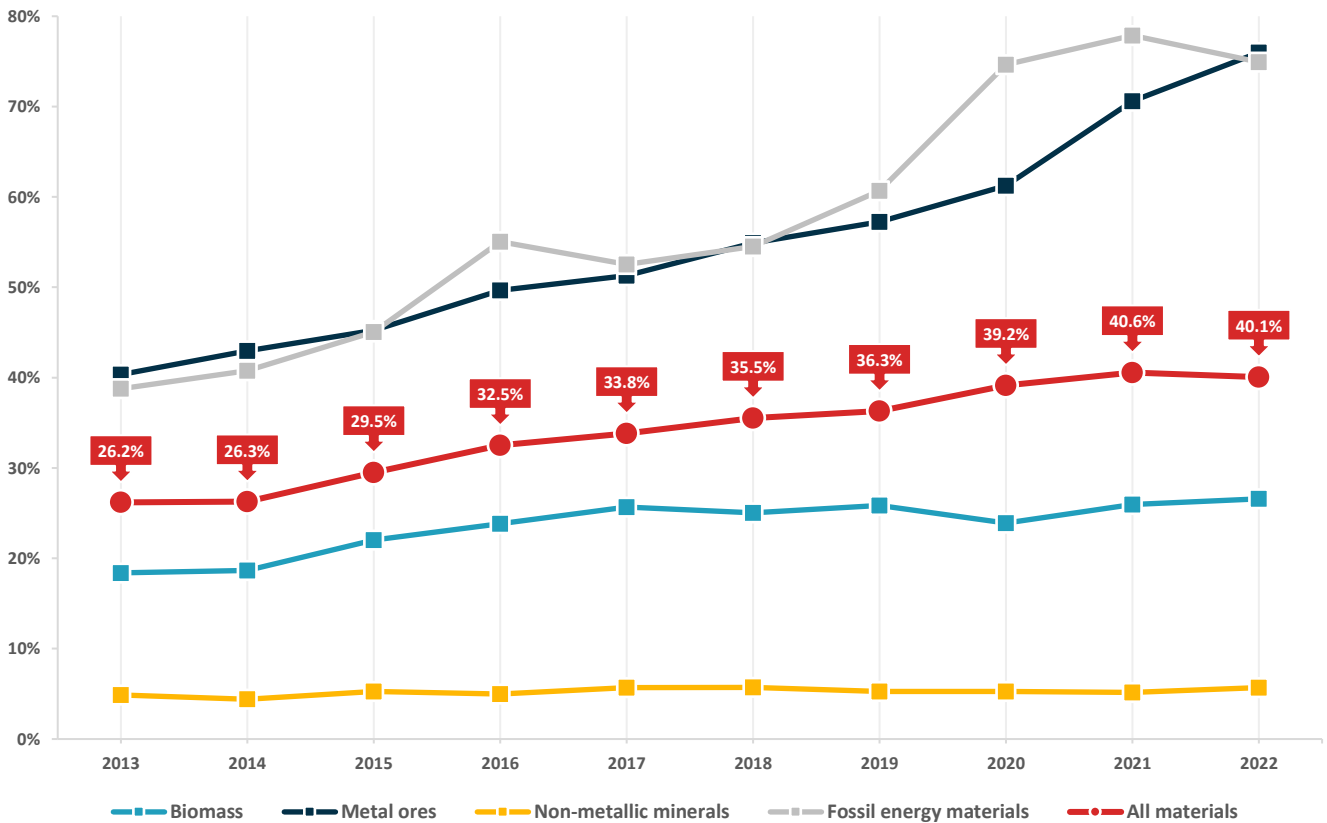
**Graph 4. Imports and exports by type of material in thousand tonnes, 2022**



**Graph 5. Resource Productivity (RP) in euros per tonne, 2013 – 2022**



**Graph 6. Material Import Dependency in % by type of material, 2013 – 2022**



## EXPLANATORY NOTES

- Legal framework:** The Material Flow Accounts are compiled pursuant to Regulation 691/2011 of the European Parliament and of the Council (Section 1) which provides for and lays down the methodological frame for the compilation of Material Flow Accounts.
- Methodology:** The main sources of primary data for the compilation of Material Flow Accounts are (a) data from administrative sources e.g. the Ministry of Rural Development and Food, the Ministry of Environment and Energy etc. (b) surveys of official ELSTAT statistics such as "Production and Sales of Manufacturing Products". "International Trade Statistics" etc. and (c) statistical estimations procedures.  
Data are presented by type of flow and type of material. Flows refer to "Domestic Extraction", "Imports" and "Exports" while materials are classified to four main categories i.e. "Biomass", "Metal ores", "Non-metallic minerals" and "Fossil energy materials/carriers". An additional category of materials is added to the flows of Imports and Exports concerning "Other products and waste".  
Possible small deviations in sums are due to rounding.
- Concepts and Definitions:**
1. **Domestic Material Consumption (DMC):** corresponds to the total amount of materials used within an economy and is comprised of Domestic Extraction (DE) plus Physical Trade Balance (PTB) [ $DMC = DE + PTB$ ].
  2. **Domestic extraction (DE):** represents the amount of extracted natural materials that have been transferred from the environment to the economy.
  3. **Physical Trade Balance (PTB):** represents the difference between imports (IMP) and exports (EXP) of materials and products [ $PTB = IMP - EXP$ ].
  4. **Resource Productivity (RP):** it is defined as the ratio of Gross Domestic Product (GDP) over Domestic Material Consumption (DMC) in euros per tonne. It expresses the amount of GDP that is generated from the materials that are directly used in the national economy [ $RP = GDP / DMC$ ]. GDP refers to chain linked volumes 2015.
  5. **Material Import Dependency:** provides the ratio of imports (IMP) over the sum of imports and domestic extraction in percentage. It shows the extent to which an economy relies upon imports in order to meet its material needs [ $MID = IMP / (IMP + DE)$ ].
- Resident Principle:** Material Flow Accounts follow the resident principle for fuels bunkered (Imports: by resident units abroad and Export: by non-residents units domestically). In contrast with the territory principle, the residence adjustment is applied to record the amount of fuels purchased from a) resident units abroad (imports) and b) non-residents on the national territory (exports).
- References:** Complete datasets and metadata information are available in ELSTAT's portal ([www.statistics.gr](http://www.statistics.gr)), at the following link:  
<http://www.statistics.gr/en/statistics/-/publication/SOP09/>