Environmental protection expenditure accounts

Statistics Explained

Data extracted in July 2023.
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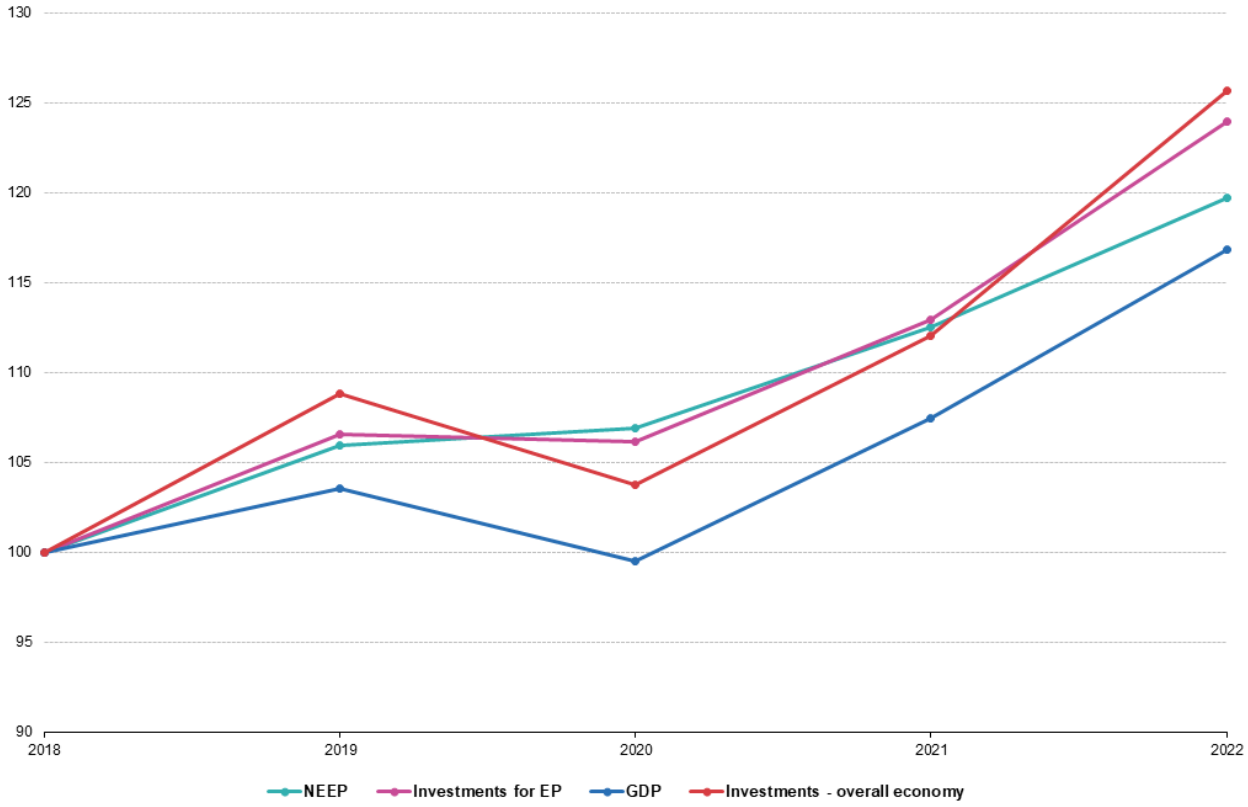
" € 69 billion spent by EU countries into assets essential to provide environmental protection (EP) services: the largest amount for wastewater and waste management services, with a share of 44% and 26% respectively "

This article provides an overview of the most recent data on environmental investments and environmental protection expenditure in the European Union (EU) as defined in the Environmental Protection Expenditure Accounts (EPEA). EPEA measure the economic resources devoted to prevention, reduction, and elimination of pollution and any other degradation of the environment. They cover the spending by resident units of a country (i.e. by its households, corporations and government) on environmental protection (EP) services, e.g. pollution abatement (air, water, soil and noise), waste and wastewater management, protection of biodiversity as well as related research and development, education and training activities. The environmental protection services are produced by both corporations and government and EPEA data are available broken down by institutional sector; data on production of environmental protection services by environmental domain (according to the classification of environmental protection activities (CEPA 2000) , are also collected within EPEA and are available on the Eurostat database (env_ac_pepsgg1) , (env_ac_pepssp1) and (env_ac_pepsnsp1) . Starting from 2022 data collection the full coverage in terms of CEPA domains has been introduced for all institutional sectors. More detailed information on EPEA data collection are reported in section 2.5. All activities undertaken for the purpose of resource management, such as production of energy from renewable sources, energy efficiency, forest management, fall outside the scope of EPEA, and related expenditure is not included in National expenditure on environmental protection ('NEEP'). For information on gross value added (GVA) and employment in the whole of the environmental goods and services sector (EGSS), see the articles on environmental economy — employment and growth .

Key indicators for environmental protection

Key environmental protection and economic indicators EU, 2018–2022
(2018=100)



Notes: EU data on NEEP and investments for EP are estimated by Eurostat.
Investments - overall economy index: based on gross fixed capital formation data (National Accounts).
GDP index: based on gross domestic product at current prices (National Accounts)
NEEP: national expenditure on environmental protection; EP: environmental protection
Source: Eurostat (online data codes: env_ac_epneis1, env_ac_epite1 and nama_10_gdp)

eurostat

Figure 1: Key environmental protection and economic indicators, EU, 2018–2022 (2018=100) Source: Eurostat (env_ac_epneis1), (env_ac_epite1) and (nama_10_gdp)

National expenditure on environmental protection (NEEP) measures the resources used by resident units in a given period for protecting the natural environment. It is calculated as a sum of current expenditure on environmental protection (EP) activities and investments for EP activities, including net transfers to the rest of the world. According to Eurostat's estimates, EU expenditure on environmental protection, measured by the NEEP aggregate, increased by 20 % from 2018 to 2022; as a percentage of gross domestic product (GDP) (see Figure 1) NEEP remained relatively stable in the whole period, around 2 %.

Over the same period (2018-2022), investments for environmental protection increased by 24 %. In 2020, the COVID crisis seems to have reduced the investments in the overall economy more severely than the environmental protection investments. The latter, however, in 2021 and in 2022 increased by 6 % and 9 %, compared to a percentage of 9 % and 12 % of total investments.

National expenditure on environmental protection

In 2022, EU national expenditure on environmental protection amounted to € 340 billion , according to Eurostat's estimates (see Figure 2, left-hand scale).

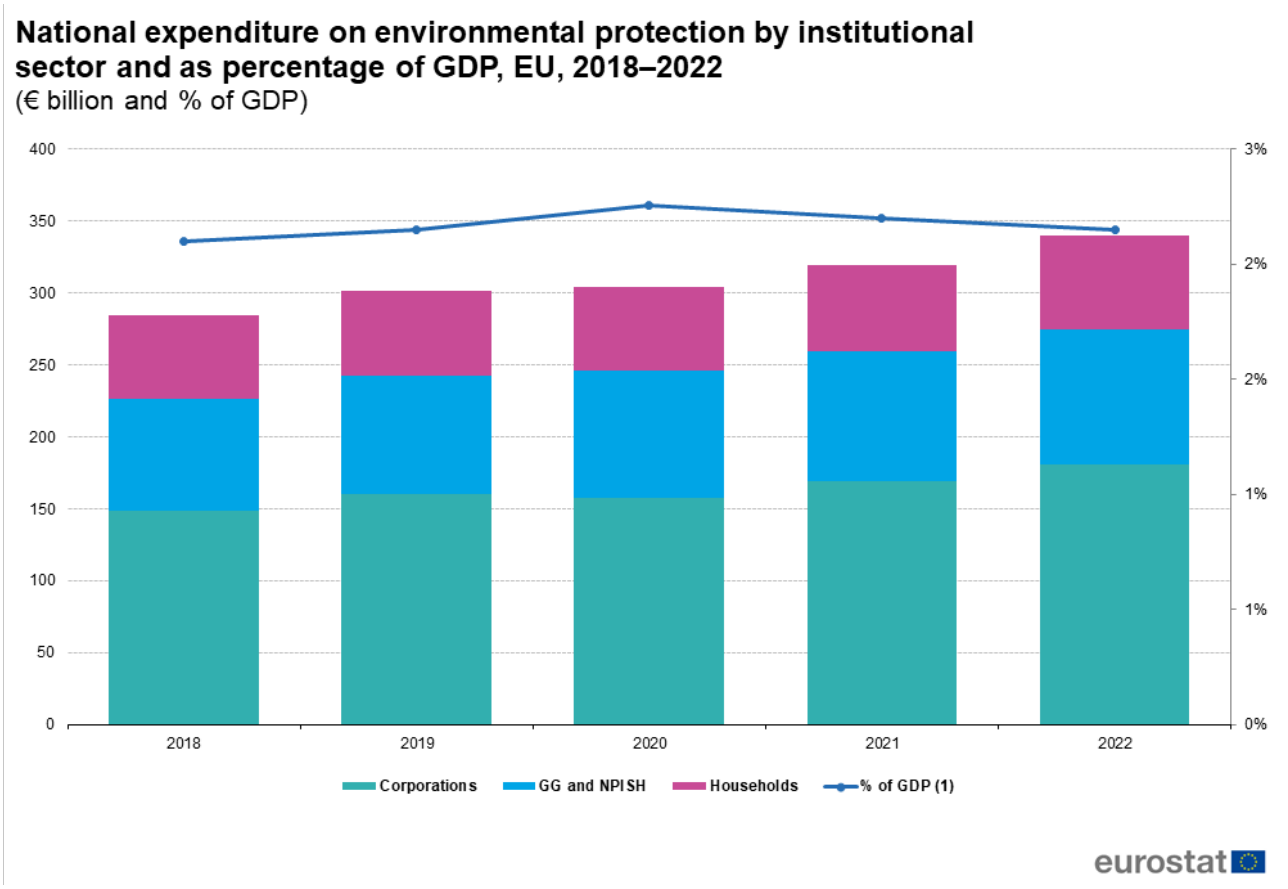


Figure 2: National expenditure on environmental protection by institutional sector and as percentage of GDP, EU, 2018–2022 (€ billion and % of GDP) Source: Eurostat (env_ac_epneis1) and (nama_10_gdp)

NEEP's evolution closely follows the trend of GDP. Therefore, the EU's NEEP-to-GDP ratio has remained relatively stable for the previous five years, at approximately 2.0 % (see Figure 2, right-hand scale).

Estimates by institutional sector point to the largest contribution to NEEP from the corporations sector (accounting for 53 % of total NEEP in 2022; see Figure 2). Expenditure on environmental protection of corporations includes current and capital expenditure of both specialist producers, i.e. of corporations that offer environmental protection services (e.g. waste or wastewater management) on the market, and of ancillary producers, i.e. those corporations that do not sell environmental services on the market but which undertake environmental protection activities in-house and for own use, in order to limit the negative environmental effects of their main production activity (e.g. a refinery or a water supply company that treats its exhaust gases or effluents). From 2018 to 2022, environmental protection expenditure of corporations increased by 22 %.

The expenditure of **general government (GG)** and non-profit institutions serving households (NPISH) (considered for the purposes of EPEA as one sector) and of households accounted in 2022 for 28 % and 19 % of total NEEP, respectively. From 2018 to 2022, environmental protection expenditure of GG and NPISH increased by 21 %; in turn environmental protection expenditure of households, including mainly payments to local government or specialised enterprises for the collection and treatment of waste or wastewater, increased by 13 %.

As highlighted in Figure 3, NEEP-to-GDP ratio varies significantly across EU countries. In 2020 (the most recent year for the mandatory EPEA data reporting), national expenditure on environmental protection in % of GDP across EU Member States ranged from 0.6 % in Ireland and to 3.5 % in Belgium. Ten EU member states are above the EU share of 2.3 % of GDP: Belgium, Austria, Romania, Poland, Czechia, Italy, Slovenia, Germany, Estonia and Malta.

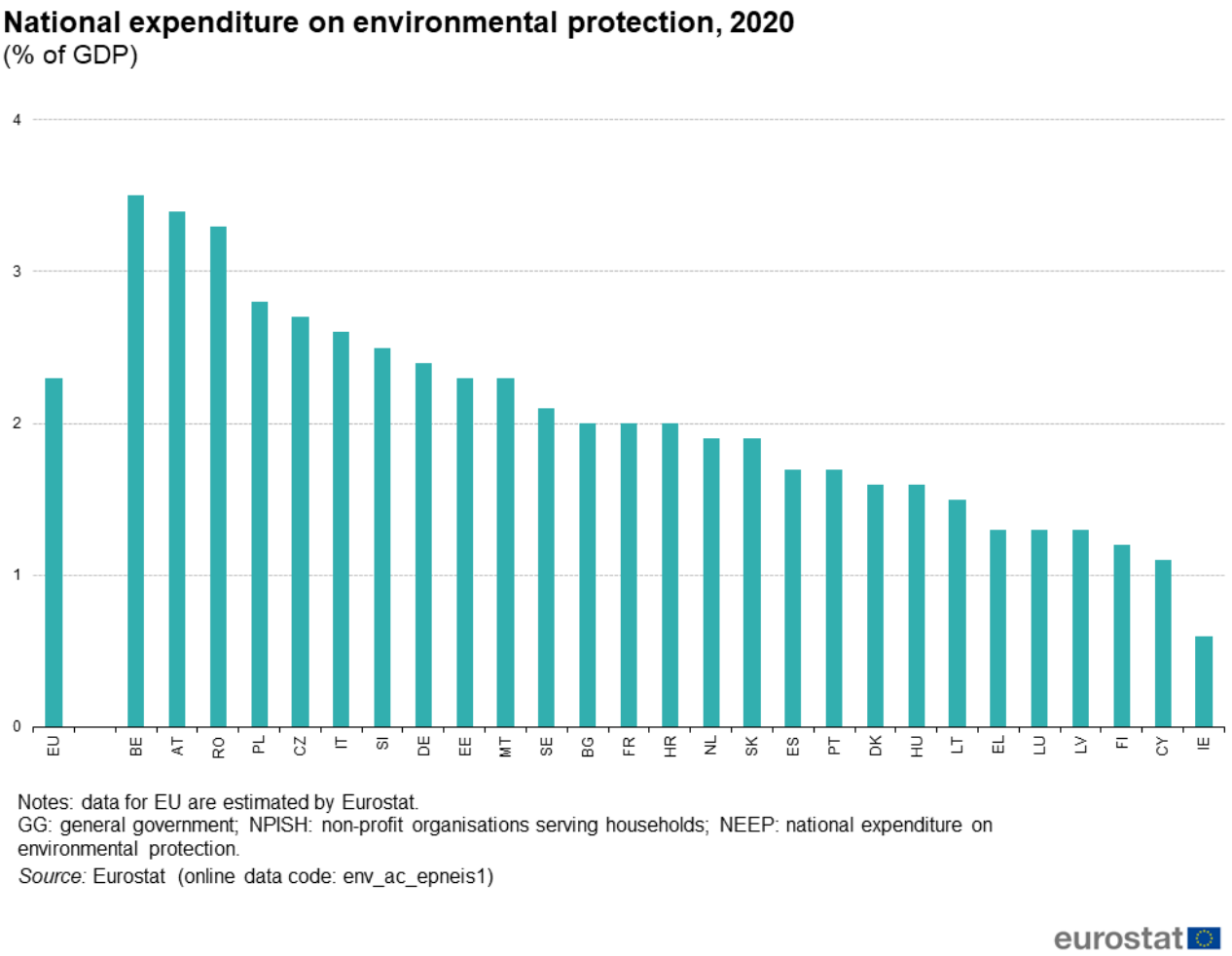


Figure 3: National expenditure on environmental protection, 2020 (% of GDP) Source: Eurostat (env_ac_epneis1)

Environmental protection investments

The European Green Deal points to investment as one of the key levers for implementation of the EU's climate and environment-related policies. EPEA provides information on a portion of the investments essential to maintain and expand society's capacity to protect natural assets (e.g. air, soil, water) as well as to prevent, contain and clean-up pollution related to them (e.g. waste and waste management).

In 2022, EU invested € 69 billion into assets essential to provide environmental protection services (e.g. wastewater treatment plants, vehicles to transport waste, acquisitions of land to create a natural reserve, or cleaner equipment for producing with fewer polluting emissions).

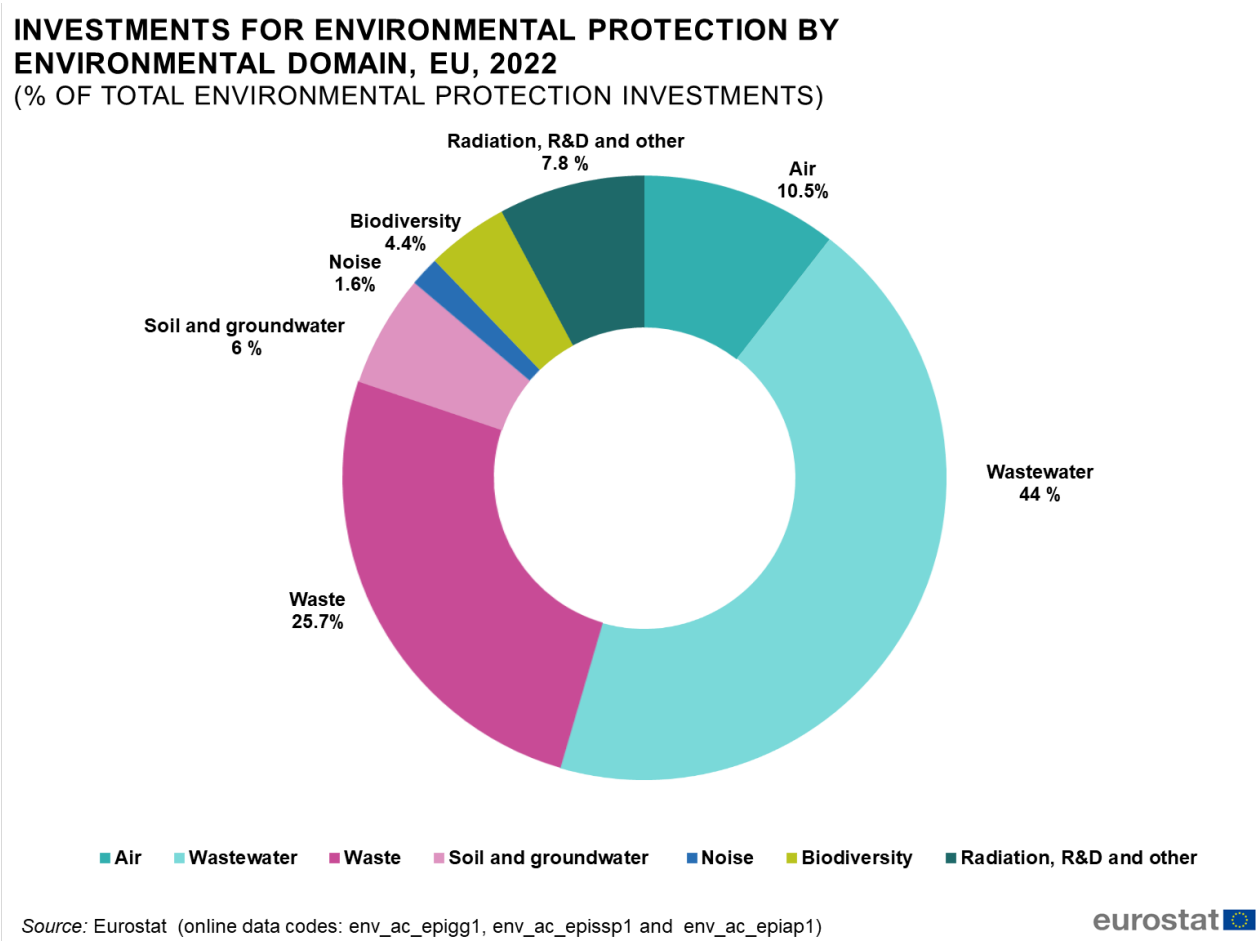


Figure 4: Investments for environmental protection by environmental domains, EU, 2022 (% of total environmental protection investments) Source: Eurostat (env_ac_epigg1), (env_ac_epissp1), (env_ac_epiap1)

As highlighted in Figure 4, the largest amount of investments was related to wastewater and waste management services. In 2022, they accounted for 44 % and 25.7 % of the total investments for environmental protection, respectively, while 10.5 % went to air protection, 7.8 % to protection against radiation, to environmental R&D and other environmental protection activities, including general environmental administration and education, 6% to soil and groundwater protection, 4.4 % to biodiversity and landscape protection, and the remaining 1.6 % to noise reduction.

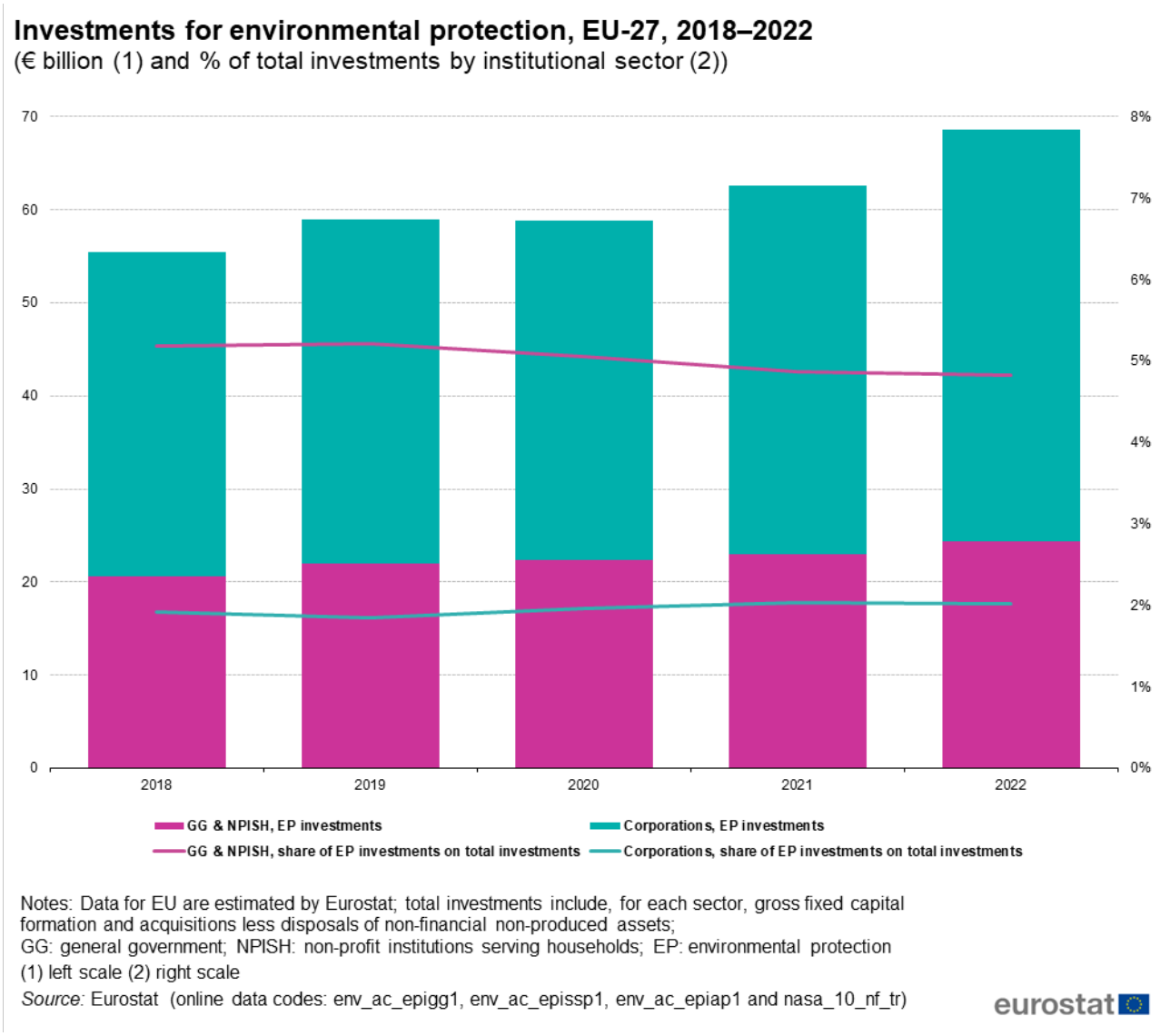
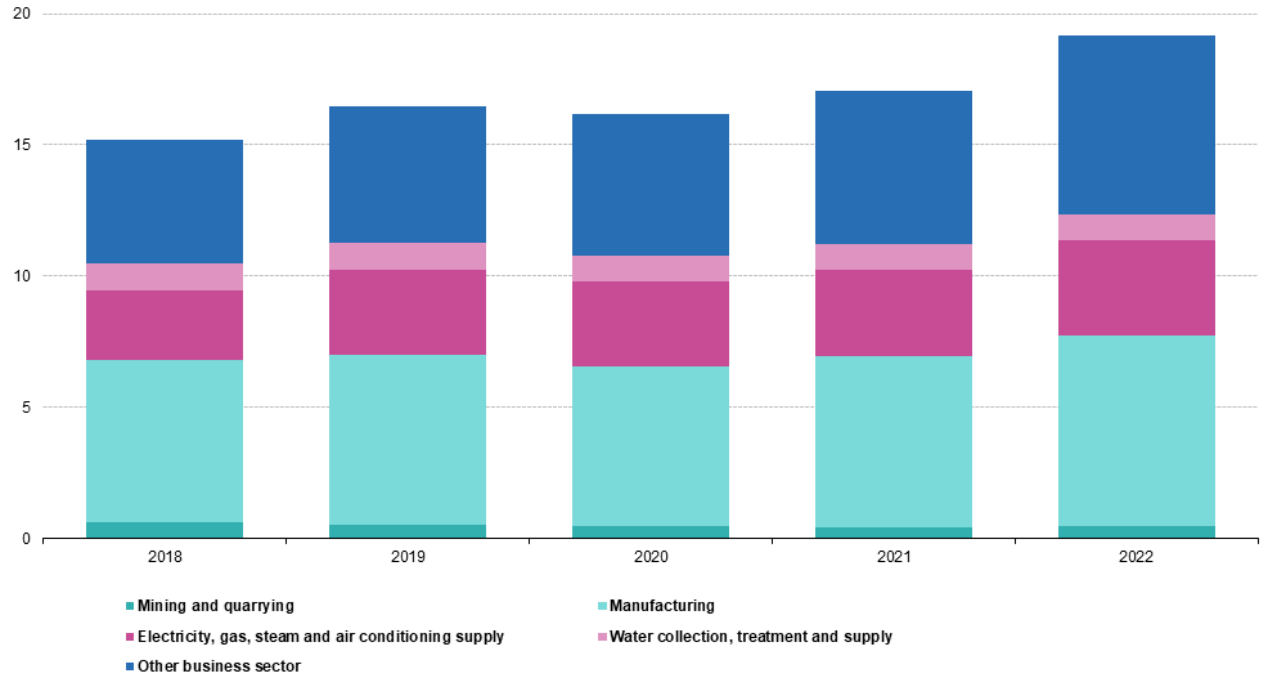


Figure 5: Investments for environmental protection, EU, 2018–2022 (€ billion and % of total investments by institutional sector) Source: Eurostat (env_ac_epigg1), (env_ac_epissp1), (env_ac_epiap1) and (nasa_10_nf_tr)

In 2022 about EUR 44 billion (65 % of total environmental protection investments) was spent by corporations. They include both the specialist providers of environmental protection services (e.g. private companies dealing with waste collection and processing and with sewerage) and corporations other than specialist producers, which purchase technologies and equipment reducing the environmental pressures arising from their production process (e.g. equipment reducing their air emissions). GG and NPISH accounted for the remaining share (35 %) of environmental protection investments with EUR 24 billion spent in 2022 (see Figure 5, left-hand scale).

The share of environmental protection investments in total investments of corporations is relatively low. In 2022, it is equivalent to 2.0 % and it is quite stable over the whole period. The equivalent share for general government is 4.8 % in 2022, having decreased by 0.4 percentage points since 2018 (see Figure 5, right-hand scale).

Environmental protection investments of corporations other than specialist producers by economic activity, EU, 2018-2022
(€ billion)



Note: Data for EU are estimated by Eurostat.
Source: Eurostat (online data code: env_ac_epiap1)

eurostat

Figure 6: Environmental protection investments by corporations other than specialist producers by economic activity, EU, 2018–2022 (€ billion) Source: Eurostat (env_ac_epiap1)

The manufacturing sector and other business sector with a share of 38 % and 36 % in 2022 respectively, accounted for the highest shares of the total EPEA investments of corporations other than specialist producers, to prevent and/or limit the environmental harm arising from existing production technologies. Investments of utility companies accounted for approximately 24 % of the total (with the contribution of electricity, gas, steam and air conditioning supply sector at 19 % of the total, and the contribution of water collection, treatment and supply sector at 5 %) and mining and quarrying accounted for 2 % (see Figure 6).

More detailed data by Member State reveal that for 2020 (the most recent year for the mandatory EPEA data reporting, as mentioned earlier), the share of environmental protection investments in total investments varied across countries, ranging from 0.1 % to 7.3 % of total investments (see Figure 7) .

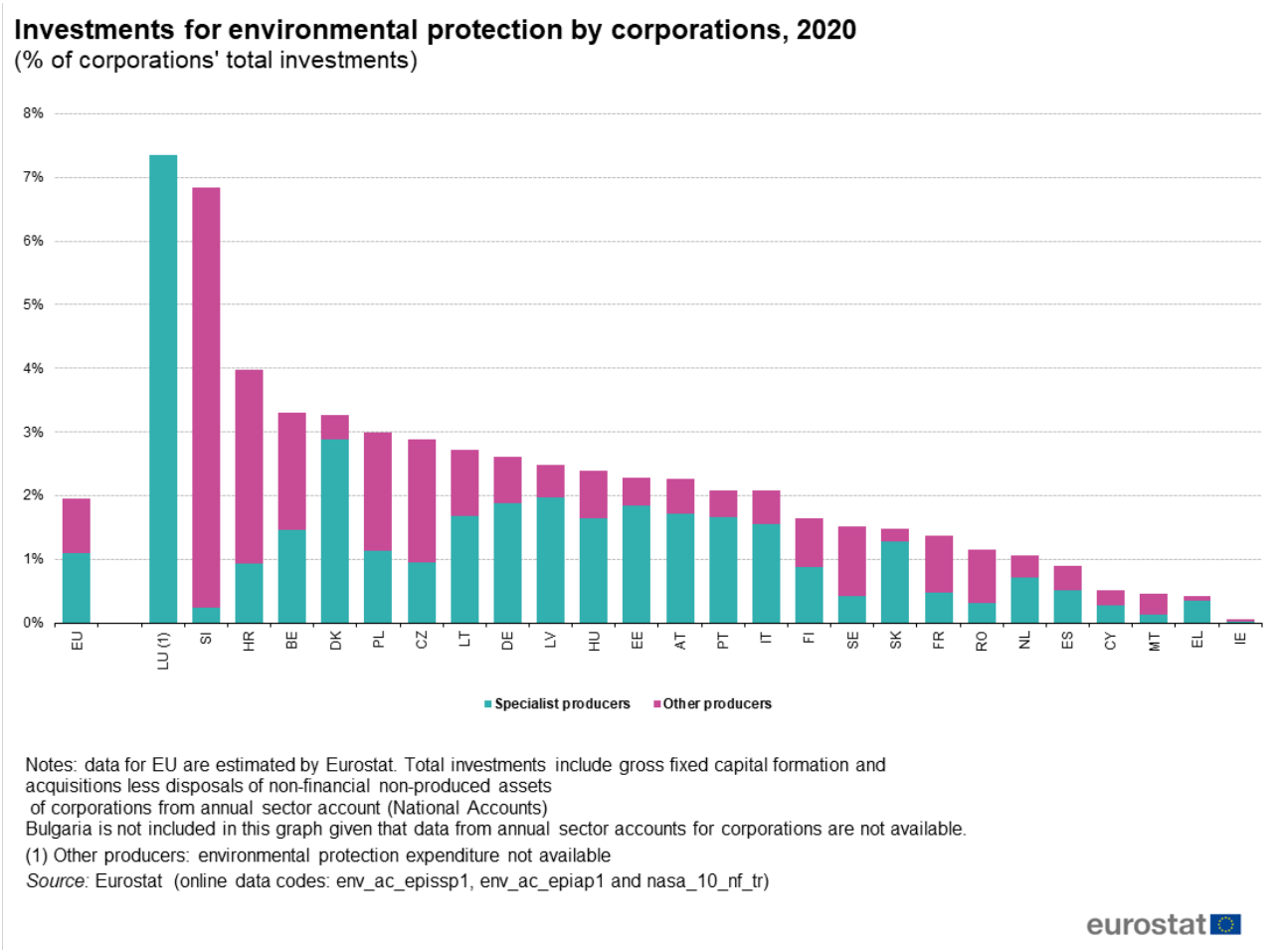


Figure 7: Investments for environmental protection by corporations, 2020 (% of corporations' total investments) Source: Eurostat (env_ac_epissp1), (env_ac_epiap1) and (nasa_10_nf_tr)

Even larger variations were observed for the general government and NPISH sector, with the equivalent shares ranging from 0.6 % to 8.6 % across the EU (see Figure 8). Given that a large amount of EP investments are related to waste and wastewater management services, the variations observed may be due to the different organisation of provision of such services across countries, i.e. some countries rely strongly on the government sector (e.g., public utility entities) to provide such services, while others tend to resort, at least partially, to market-based instruments, and e.g. leave it to the market to set prices of such services.

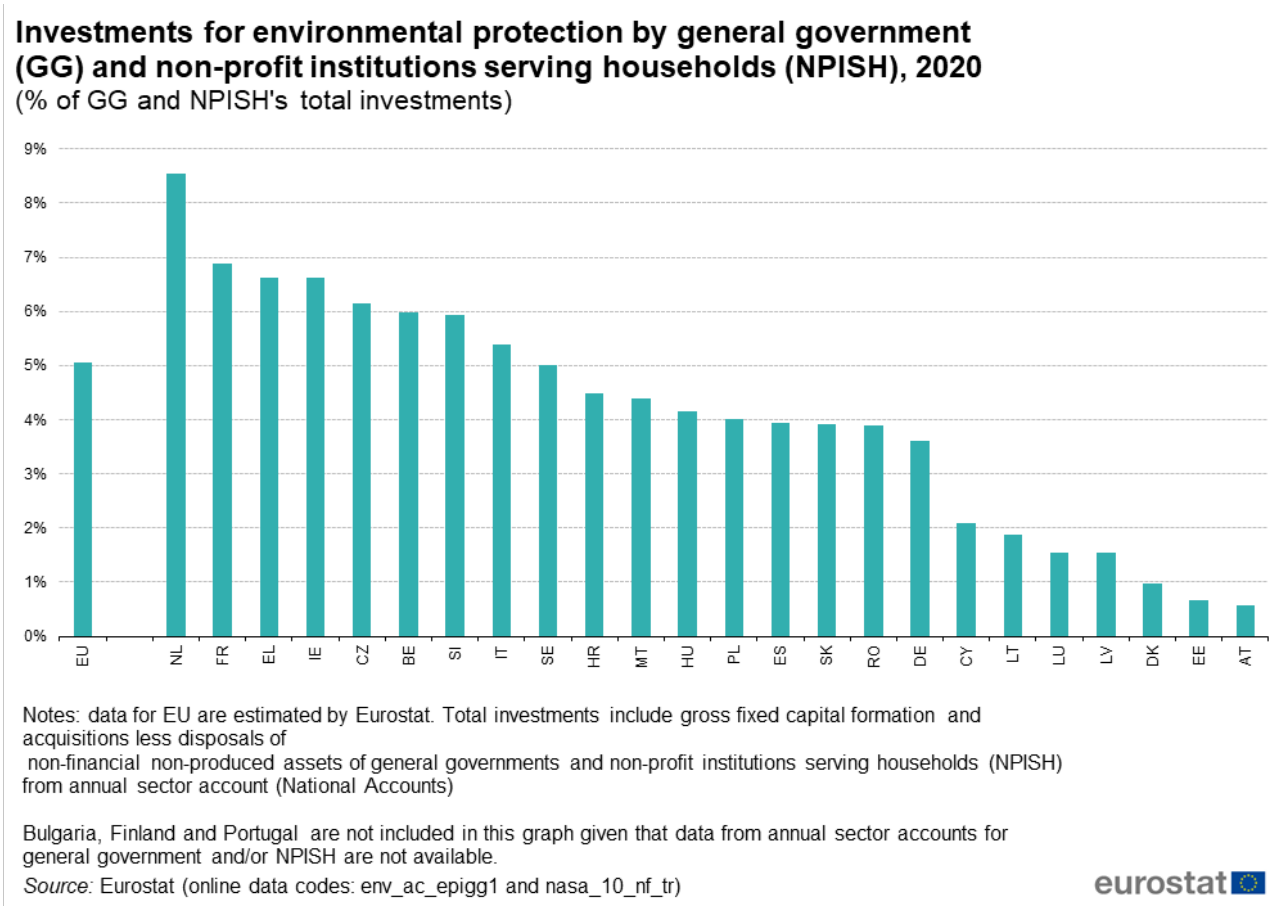


Figure 8: Investments for environmental protection by GG and non-profit institutions serving households (NPISH), 2020 (% of GG and NPISH's total investments) Source: Eurostat (env_ac_epigg1) and (nasa_10_nf_tr)

Source data for tables and graphs

- Environmental protection expenditure accounts: tables and figures

Data sources

EPEA are a module of the European environmental economic accounts set out under Regulation (EU) No 691/2011 on European environmental economic accounts , as amended by Commission Delegated Regulation 0125/2022 . EPEA follows the international standards of the System of Environmental-Economic Accounting 2012 Central Framework (SEEA CF 2012), and are broadly compatible with the international System of National Accounts (SNA 2008) and its European version, the European System of National and Regional Accounts (ESA 2010). According to Commission delegated regulation 2022/125, the first reference year is 2020. In each data transmission to the Commission, Member States shall provide annual data for the years n – 2, n – 1 and n, where n is the reference year. Data for the EU Member States have a legal obligation to report EPEA data. Data for EFTA countries, candidate countries and potential candidates are also collected and disseminated on Eurostat database.

Statistics on EPEA provide data on a wide range of important economic variables, such as gross fixed capital formation (investments), output, final and intermediate consumption, exports and imports, taxes less subsidies, compensation of employees, consumption of fixed capital, employment, current and capital transfers and earmarked taxes (for financing environmental protection measures). The data are broken down by environmental domain and institutional sector.

Missing statistical information from 2018 to 2020 (mandatory data reporting) is estimated by Eurostat through an ad hoc gap-filling procedure, based on different methods according to data availability. Data annually submitted by countries and validated by Eurostat are used in the gap-filling procedure. The main data sources for imputation of

missing data are data on General Government expenditure by function (COFOG - UNSD classification of functions of government, replicated in ESA201) and by type of transaction and national accounts data. Estimates for EU aggregates are also produced for two additional years, i.e. 2021 and 2022. EU aggregates estimates are produced by summing up the transmitted or imputed country data.

Eurostat estimates the EU aggregates for the following mandatory variables: - Output (market and non-market) of EP services by general government and NPISH; - Market output of EP services by specialist producers; - Ancillary EP output by corporations other than specialist producers; - Gross fixed capital formation plus net acquisition of non-produced non-financial assets - Final consumption of EP services by general government; - Final consumption of EP services by households; - Intermediate consumption of EP services; - Environmental protection transfers to / from Rest of the World.

Institutional sectors are defined in SEEA CF 2012 and ESA 2010. EPEA use the following groupings of sectors: - Corporations as specialist producers of environmental protection services; - Other corporations (as ancillary producers); - General government and non-profit institutions serving households (NPISH); - Households (as consumers of environmental protection services); - Rest of the world (as beneficiary or origin of transfers for environmental protection).

The corporation sector covers all units classified in national accounts to sectors S.11 and S.12. The most important providers of environmental services are specialist producers, i.e. the units of the corporation sector whose principal activity is waste collection, treatment and disposal, sewerage, remediation activities and other waste management services, which are classified under NACE Rev. 2 Divisions 37, 39 and under NACE Rev2 Groups 38.1 and 38.2. The secondary output of environmental protection services is also captured in EPEA and included in the output of specialist producers. The corporations other than specialist producers which undertake environmental protection expenditure to green the process of production of non-environmental goods and services are also covered in EPEA, but under a separate sector grouping (as 'other'/ancillary producers).

The scope of EPEA is defined according to the classification of environmental protection activities (CEPA). Data are collected and disseminated using the following breakdown:

- CEPA 1 — Protection of ambient air and climate
- CEPA 2 — Wastewater management
- CEPA 3 — Waste management
- CEPA 4 — Protection and remediation of soil, groundwater and surface water
- CEPA 5 — Noise and vibration abatement
- CEPA 6 — Protection of biodiversity and landscapes
- Sum of CEPA 7, CEPA 8 and CEPA 9 — Protection against radiation, Environmental research and development, and other environmental protection activities

Data for single CEPA 7, CEPA 8 and CEPA 9 are disseminated if reported by country on voluntary basis. CEPA is a recognized international standard included in the family of international economic and social classifications. It can be downloaded from the Ramon website.

Context

The increased awareness of the need to combat environmental pollution and preserve natural resources has led to an increase in the supply and demand of environmental goods and services, in other words, products to prevent, measure, control, limit, minimise or correct environmental damage and resource depletion.

Statistics on environmental protection expenditure enable to identify and measure society's response to environmental concerns and how it is financed. Environmental protection expenditure accounts (EPEA) quantify the resources devoted to environmental protection by resident economic units. They thus report the effort made by society towards implementing the 'polluter pays principle'. Environmental protection expenditure accounts are relevant for the European Green Deal implementation and EPEA data contribute directly to the EU's policy priorities on environmental protection, resource management and green growth by providing important information on the production and the use of environmental protection services.

Other articles

- All articles on environment
- Environmental economy – statistics on employment and growth
- Environmental economy – statistics by Member State

Database

- Environment (env)
- Environmental protection expenditure (env_epe) , see:

Environmental protection expenditure accounts (env_ac_epea)

National expenditure for environmental protection (env_ac_epneis1)

Environmental protection investments (env_epi)

Production of environmental protection services (env_peps)

Consumption of environmental protection services (env_ceps)

Environmental protection transfers by environmental protection activity and institutional sector (env_ac_eptrf1)

Dedicated section

- Environment

Methodology

- Methodological publications

- Environmental protection expenditure accounts - Handbook - Eurostat - 2017 edition
- ESMS metadata files

- Environmental protection expenditure accounts (ESMS metadata file — env_ac_epea_esms)

Legislation

Regulation (EU) No 691/2011 on European environmental economic accounts amended by Commission Delegated Regulation 0125/2022 .

- Summaries of EU legislation: European environmental economic accounts
- Commission Delegated Regulation 0125/2022

External links

- European Commission — Environment — Policies
- OECD Environment Directorate