

ENVIRONMENT AND ECONOMY: MAIN INDICATORS | YEARS 2018-2020

The crisis reduces pressures on the environment, expenditure on environmental protection is stable

In 2020, the main pressure indicators of the environmental accounts decreased, compared to 2019, to an extent close to the decrease in GDP (-9% in volume).

Net energy consumption is equal to 6.5 million terajoules (-8.8%), **Greenhouse gas emissions** to 392 million tons (Mt) of CO₂ equivalent (-10.2%) and **Domestic material consumption** to 459 Mt (-7.7%).

The reduction in the revenue from **environmental taxes** was more marked, falling to 50.4 billion euros (-13.5%).

In the same year, the value of **goods and services** produced by the economy for environmental purposes decreased, falling to 104 billion (-3.8%) while **Expenditure on environmental protection** remained stable at 43 billion.

-9.5%

Decrease in households' energy consumption compared to 2019

-21% households' energy consumption for transport.

-12.7%

Decrease in households' greenhouse gas emissions

-3.0%

Decrease in the value added of environmental goods and services

From 2.3% to 2.5% the overall GDP ratio.

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Effect of the pandemic crisis: reduction of environmental pressures and taxes

The effects of the 2020 pandemic crisis and the measures taken to deal with it can be read in terms of the dynamics of the relationship between the economy and the environment. These flows, described in the national accounts through "satellite" information systems, concern both the pressures of the economy on the environment and the responses of the economy to environmental problems.

In 2020, the main pressure indicators derived from environmental satellite accounts have decreased, compared to 2019, by a magnitude comparable to the contraction in productive activity (a 9% reduction in GDP volume).

The trend in Domestic energy use, down by 8.8%, mainly due to the reduction in consumption by production activities, was in line with the contraction in GDP. By contrast, the reduction of greenhouse gases released into the atmosphere by Italian production activities and households was higher (-10.2%). Domestic material consumption decreased to a lesser extent (about -7.7%) with the consequent increase in the intensity of material consumption per unit of GDP.

The dynamics of pressures for the economy as a whole, are accompanied by sectoral asymmetries (observable for energy and emissions).

The Services sector as a whole recorded the greatest decrease in terms of energy consumption (-13.2) and emissions (-16.5%). Nonetheless, this includes both activities with the greatest decreases, such as Air Transport (which records more than 60% reductions in both energy consumption and emissions), and activities with an increase, such as Healthcare and social assistance and Public Administration (respectively 16.0% and 9.9% for energy consumption and 13.5 and 20.2% for emissions).

The contraction in the consumption of energy products affected the amount of tax paid by companies and households for their use. This is the main cause of the drop in total revenue deriving from environmental taxation (-13.5%); one of the main indicators of the responses that the economic system activates in the protection of the environment or in the management of natural resources.

The value added generated by the environmental goods and services sector is also decreasing by 3.0% (at current prices), while it is growing in terms of incidence on GDP (from 2.3% in 2019 to 2.5% in 2020). The resources spent on environmental protection by households, corporations and public administrations are stable (-0.02%). The incidence of environmental expenditure on GDP increases to 2.6% from 2.4% in the previous year.

ENVIRONMENT AND ECONOMICS: MAIN INDICATORS. Years 2018-2020, absolute values, values per unit of GDP^(a) and percentage change

INDICATORS	Unit of measure	2018		2019		2020		% change on 2019
		Absolute values	Values/G DP (a)	Absolute values	Values/G DP (a)	Absolute values	Values/G DP (a)	
Net domestic energy use – Ndeu	Thousands of terajoule	7,149	4.16	7,102	4.11	6,477	4.12	-8.8%
Greenhouse gases in CO2 equivalents	Million tons	445	259	436	252	392	249	-10.2%
Domestic material consumption	Million tons	488	284	497	288	459	292	-7.7%
Value added of environmental goods and services	Billion euros	42.2	2.4%	42.1	2.3%	40.9	2.5%	-3.0%
Revenue from environmental taxes	Billion euros	58.6	3.3%	58.3	3.2%	50.4	3.0%	-13.5%
Expenditure on environmental protection	Billion of euros	41.9	2.4%	43.2	2.4%	43.2	2.6%	-0.02%

(a) Ratios of physical indicators and GDP in millions of euros at chain-linked values with reference year 2015; ratios of monetary indicators and GDP in millions of euros at current prices
Source: Istat, Environmental Accounts

Contraction in energy use by business and households

The overall energy requirement for production and consumption activities, measured by the Energy consumption of resident units (*Net domestic energy use*, Ndeu), decreased by 8.8% between 2019 and 2020, due to the fall of economic activity and travel restrictions, standing at 6,477 thousand terajoules in 2020 (it was 7,102 in 2019).

Energy consumption in production activities impacted the total contraction by 416,000 terajoules (-8.5%), while for households there was a drop of 208,000 terajoules (-9.5%). The intensity of energy consumption compared to GDP was almost stable (+0.3%), equal in 2020 to 4.12 terajoules per million euro (chain-linked values with the reference year 2015).

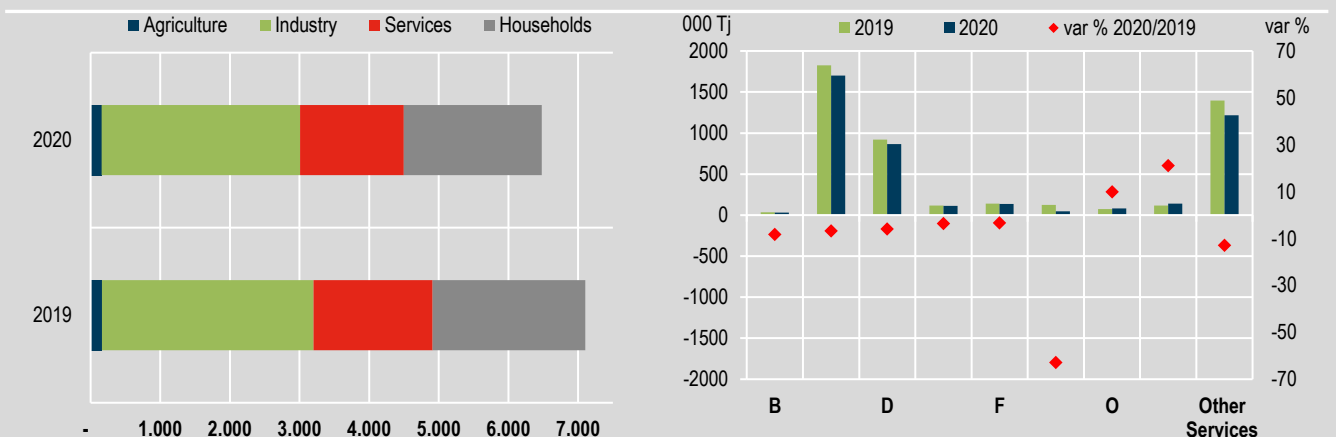
In the dynamics of households' energy consumption, the reduction in transport clearly prevails (189 thousand terajoules, -20.9%) due to the lockdowns and the widespread adoption of remote working. Domestic consumption, for heating and other purposes, recorded a decrease of 19 thousand terajoules (-1.5%).

Among the production activities, the Services sector as a whole (Ateco G-S), contributed more than the others to the contraction in energy consumption, with a reduction of 226 thousand terajoules, recording the greatest percentage reduction between 2019 and 2020 (-13.2%). However, the activity with the greatest reduction, in absolute terms (approximately -80 thousand terajoules) and in percentage terms (-62.8%), is that of air transport (Ateco 51).

In a generalized context of reduced consumption, a few growing activities are the exceptions: health services (Ateco 86, +21.2%), Public Administration (Ateco O, +9.9%) and scientific research (Ateco 72, +4.4%). These activities are the ones that have played a fundamental role in contrasting the pandemic crisis.

In the Industry sector (Ateco B-F), the contraction in Manufacturing (Ateco C, -123 thousand terajoules, equal to -6.8%) has the greatest impact on the overall drop in energy consumption (-189 thousand terajoules; -6.2%), even if in percentage terms the most evident reduction concerns the mining industry (Ateco B -8.2%).

FIGURA 1. "NET DOMESTIC ENERGY USE" BY ECONOMIC SECTOR AND HOUSEHOLDS.
Years 2019-2020, thousands of terajoules and percentage change



Legend: B – Mining industry; C - Manufacturing activities; D - Supply of electricity, gas, steam and air conditioning; E - Water supply; sewerage, waste treatment and remediation activities; H51 – Air transport; O - Public administration and defence; compulsory social insurance; Q86 - Health services activities
Source: Istat, Environmental Accounts - Physical Energy Flow Accounts

Air emissions decline more than GDP

The economic contraction induced by the crisis was accompanied by a general slowdown in atmospheric emissions.

In 2020, Italian production activities and households released 10.2% less greenhouse gases into the atmosphere than the previous year, 11.3% less pollutants responsible for the acidification phenomenon and 9, 5% less precursors of tropospheric ozone.

The provisional estimates for 2021 show a recovery in CO2 emissions and other greenhouse gases compared to 2020 (+6.2%) with levels that, however, do not reach those of the pre-pandemic period, confirming the downward trend observed starting from 2008 (-28.7% in the entire period 2008-2021).

To the overall reduction of greenhouse gas emissions in 2020, approximately equal to 44,5 million tons (Mt) of CO2 equivalent (from 436 to 392 Mt of CO2 eq.), mainly contribute production activities (-30 Mt of CO2 eq.), which generate about three quarters of the Italian economy's greenhouse gas emissions (with a slight increase in share from 74.1 to 74.8%).

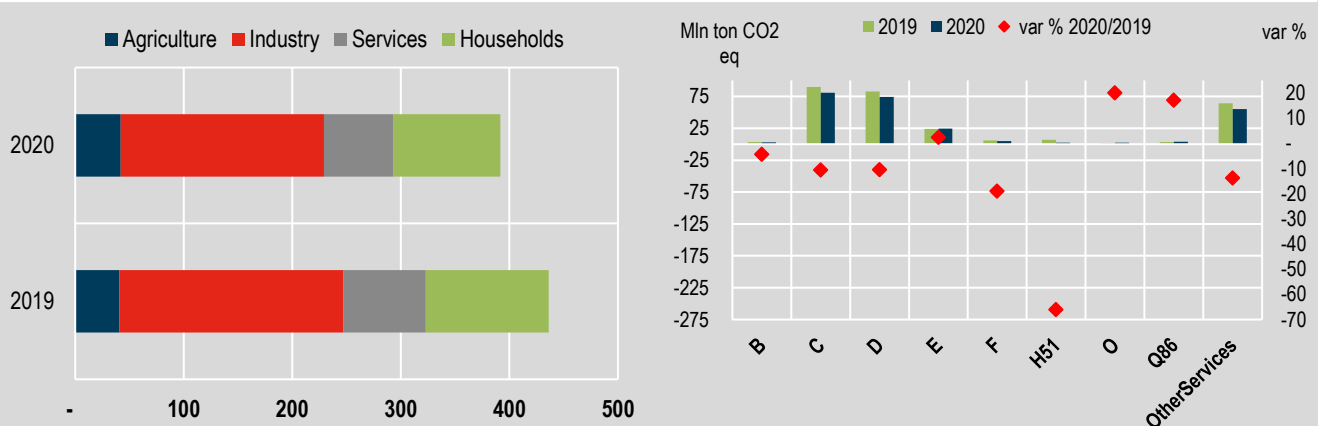
Emissions from households decreased proportionally more than those from production activities (-12.7% and -9.3% respectively). Therefore, the contribution of households to the production of greenhouse gases in Italy decreases from 25.9% to 25.2%.

A trend in contrast with the rest of the economy is shown by some productive activities such as Agriculture, Waste Treatment, Health and Social Assistance and Public Administration, recording increases in the respective emissions between 2019 and 2020.

Overall, emission intensity drops in 2020 to 249 tonnes of CO2 eq. per million euros of GDP, compared to 252 in 2019. This reduction (-1.3%) is weaker than in the years 2015 to 2019 (-2.1% annual average), a period in which there was an absolute decoupling between decreasing emissions (-4.2%) and increasing GDP (4.4%).

FIGURE 2. GREENHOUSE GAS EMISSIONS BY HOUSEHOLDS AND ECONOMIC SECTOR.

Years 2019-2020, million tons of CO2 equivalent and percentage change



Legend: B – Mining industry; C - Manufacturing activities; D - Supply of electricity, gas, steam and air conditioning; E - Water supply; sewerage, waste treatment and remediation activities; H51 – Air transport; O - Public administration and defence; compulsory social insurance; Q86 - Health services activities
 Source: Istat, Environmental Accounts – Air Emissions Accounts

Decline in material flows

In 2020, Domestic material consumption (Dmc) fell to 459 million tonnes (Mt), down by 38 Mt compared to 2019 (-7.7%), in contrast with the stability shown over the previous years.

Components that mostly contribute to this reduction are Domestic Extraction (De), which went from 331 to 319.5 Mt (-3.5%), and Net Flows from abroad (Physical trade balance, Ptb; -16.1%).

In terms of materials, Ptb is mainly affected by the decline in energy minerals and products derived from them (-13.7%, equal to 18 million tons), while in relative terms the reduction in metal ores and derived products is more marked, passing from 14 to 9.5 million tons (-32%).

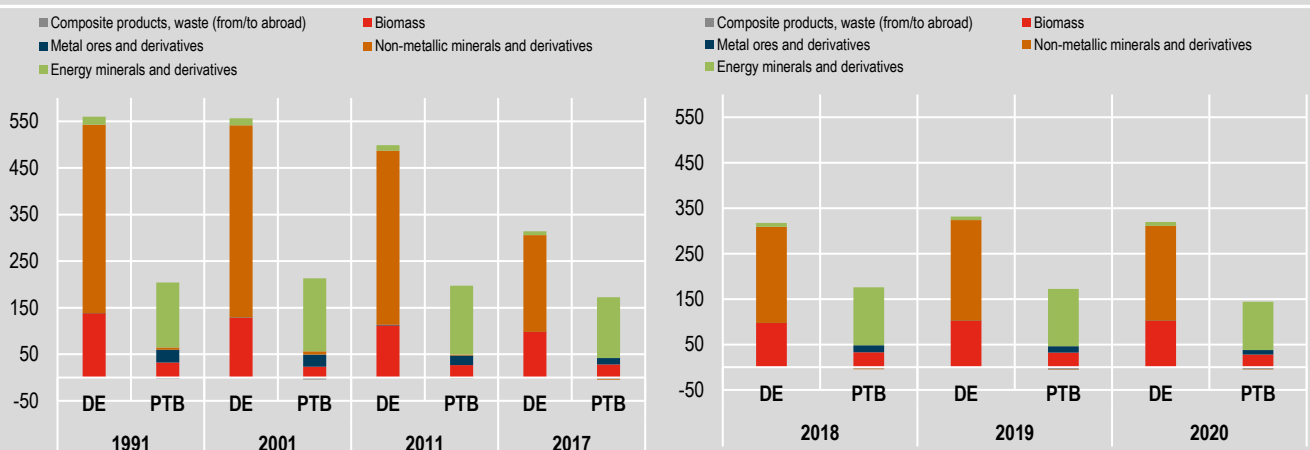
Domestic extraction is the item that most contributes to the decrease (from 221 Mt to 208 Mt) of the Dmc component relating to non-metallic minerals. Within Domestic Extraction, the share of biomass increases (from 30.9% to 32.2% of the total weight of materials extracted internally and incorporated into products) while their extraction remains stable between 102 Mt and 103 Mt. Instead, direct extractions from nature of energy minerals are growing (from 2.3% to 2.7% of De).

The intensity of material consumption on GDP increased slightly, in line with the trend of recent years, going from 288 to 292 tonnes per million euro.

The quantity and composition of the matter from which the Italian socio-economic system draws energy and material goods, generating residues (including emissions into the atmosphere), have changed considerably over the decades, corresponding to the structural changes in the economy.

The annual changes due to the management of the pandemic must be read in the long term. In fact, after the post-war period, which recorded a steady growth in the consumption of materials, a progressive reduction in the quantities "consumed" has already been observed since the 1990s. The composition of this consumption continues to change in favor of foreign flows and fossil fuels and to the detriment of construction minerals and internally extracted biomass.

FIGURE 3. DOMESTIC MATERIAL CONSUMPTION IN ITALY BY ORIGIN AND TYPE OF MATERIAL
Years 1991, 2001, 2011, 2017 and 2018-2020, million tons



Source: Istat, Environmental Accounts - Material Flow Accounts at Whole Economy Level

The revenue from environmental taxes on energy and transport falls

The general reduction in economic transactions that characterized our country in 2020 also led to a reduction in the revenue from taxes paid by corporations and households. Environmental taxes, which represent a subset of them, amounted to around 50 billion euros in 2020, with a decrease of 7.8 billion compared to 2019 that was more pronounced than the average of taxes (-13.5% compared to -7.4%).

The share of environmental taxes on total social taxes and contributions also decreased (from 7.7% in 2019 to 7.1%) as well as the impact on GDP (from 3.2% to 3.0%), as an effect of the more limited contraction of the basis of comparison. In 2021, on the other hand, there is a recovery in the revenue from environmental taxes, which exceed 53 billion euros, accompanied however by a further reduction in their weight on total taxes and social contributions (6.9%).

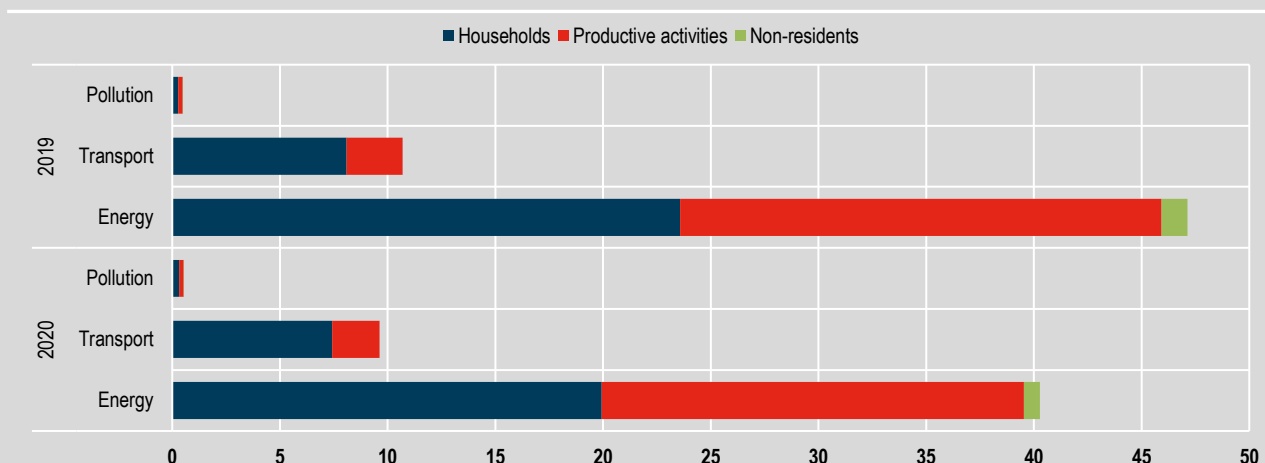
Almost 55% of the overall reduction in environmental tax revenue in 2020 compared to the previous year is due to the lower outlay by resident households, amounting to 4.2 billion euros. With 27.6 billion euros paid in environmental taxes, households are confirmed as the economic subject that contributes the most to total revenue (54.9% in 2020, an almost stable share compared to 2019). In 2020, production activities paid approximately 22 billion euros (43.7% of revenue, a slight increase compared to 43.1% in 2019) with a reduction of approximately 3 billion.

For households, 70% of the reduction in revenue paid in 2020 concerns taxes on mineral oils (approximately -3 billion), above all due to the reduction in the consumption of fuel for transport linked to traffic restrictions and other measures adopted during the pandemic.

Also for economic activities, the overall reduction in revenue depends on taxes on mineral oils (approximately -1 billion, equal to 33.2% of the total reduction) as well as, to an even greater extent, on those for the use of electricity (-1.4 billion, equal to 46% of the total). In the latter case, the reduction is linked both to the contraction of consumption in the context of the total or partial blockage of production processes during the health crisis, and to the reduction during the year of system charges for supporting renewable sources. The macro-sectors most affected by the reduction in revenue are Construction, Services, Transport and Trade.

The reduction in the revenue paid by foreigners and foreign transport companies operating in Italy (non-resident units), for the purchase of fuel (tax on mineral oils -38.2%) and the operation of air transport (tax on aircraft noise emissions -21.6%), is also due to national and international travelling restrictions.

FIGURE 4. REVENUE FROM ENVIRONMENTAL TAXES BY CATEGORY AND PAYING UNIT
Years 2019-2020, billion euros



Source: Istat, Environmental accounts - Environmental taxes by economic activity

Decline recorded also in the output of eco-industries

In 2020, the output at basic prices of environmental goods and services (eco-industries) amounted to 104 billion euros (at current prices) and the value added to 40.9 billion euros, with a decrease respectively of 3.8% and by 3.0% over the previous year. The contraction of the sector's value added was less than that of the GDP (-7.6% in current prices), making it possible to record a slight growth in the incidence on the gross domestic product, which went from 2.3% in 2019 to 2.5% in 2020.

The output of eco-industries is mainly carried out by the sector of market operators, with a value of 78 billion in 2020, corresponding to 74.8% of the total value of the sector and a value added of 32.3 billion euros. The remaining 25.2% of the output in this sector, estimated for the first time by the Institute, is carried out by non-market operators (Public administration and Non profit institutions serving households) or carried out for own use by all economic operators, either for reuse in the production process (for example, recovery of materials to be reintroduced into the production process) or for own final consumption (for example, solar energy produced and consumed within households).

In 2020, the prevalence of activities carried out in the energy field, which absorb almost 40% of the total value of the sector, was confirmed, followed by water purification and waste management services, which generate a third of the total value added of eco-industries.

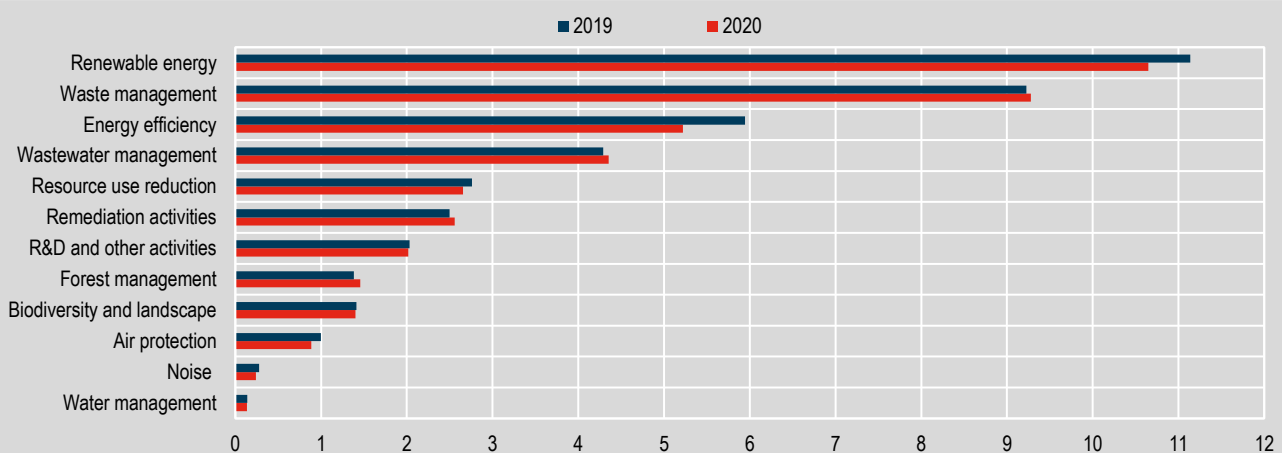
The overall reduction observed for the sector compared to 2019 is the result of different dynamics depending on the environmental goals pursued.

The energy field is one of the areas with negative dynamics, with a decline in value added both in the value of energy efficiency measures and in the materials produced for this purpose (-12.2%) and in the renewable energy sector (-4.4%). In this case, even in the presence of an increased quantity of energy produced, it is the trend in the basic price that determines the negative trend.

On the other hand, wastewater treatment services, the waste sector and remediation activities were not affected by the downward effects of the pandemic, recording increases in value added (respectively of 1.4%, 0.6% and 2.4%).

FIGURA 5. VALUE ADDED FOR ENVIRONMENTAL PURPOSES

Years 2019-2020, billions of euros



Source: Istat, Environmental accounts - Environmental goods and services account

Environmental protection expenditure remains stable

For the prevention and reduction of pollution and any other form of environmental degradation, the economy mobilizes resources, mainly consumption and investments, measured by national expenditure for environmental protection. In 2020, expenditure amounted to 43.2 billion euros, equal to 2.6% of GDP, with a reduction of 0.02% compared to 2019.

Half of the expenditure (over 22 billion in 2020, +2.0% compared to 2019) concerned waste management activities, such as the prevention of their production, collection, treatment, and disposal.

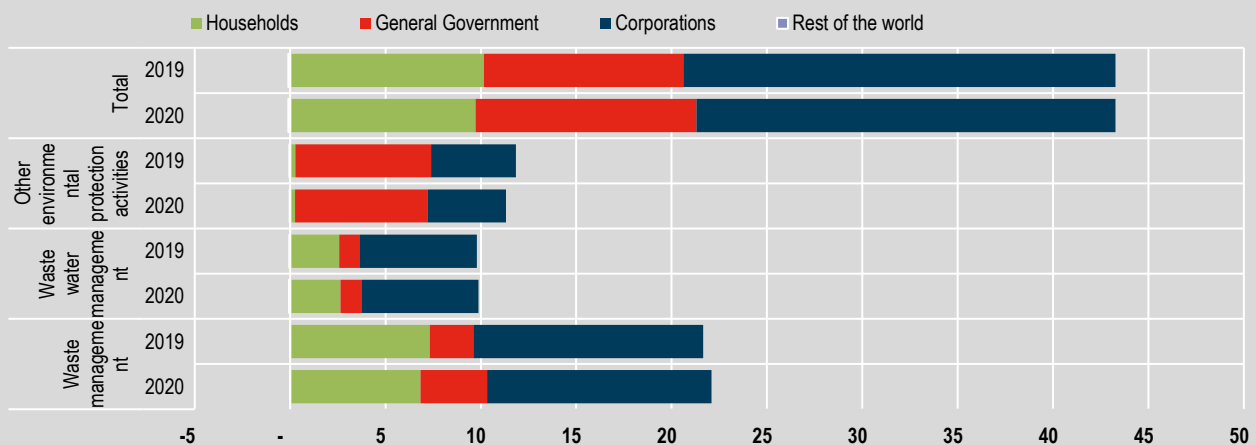
23% of resources for environmental protection (almost 10 billion in 2020, up 0.8% on 2019) were spent on wastewater management, i.e. reducing discharges, collecting and treating of wastewater. Expenses incurred for other environmental protection activities - for air and climate, decontamination of polluted soil, noise reduction, biodiversity and landscape conservation, radiation protection and Research and Development - total more than 11 billion at current prices (-4.4% in the period).

Corporations bear most of the wastewater and waste management expenses (respectively 62% and 53% of the 2020 total), investing and purchasing these services for the implementation of their activities. Household expenditure for the two sectors considered covers 27% of total expenditure in the case of wastewater and over 30% for waste management. The remaining part (over one billion for wastewater and around 3.5 billion for waste management) is represented by general government expenditure, made up of collective consumption by general government, purchases of the services in question and investments.

For environmental protection activities other than the management of wastewater and waste altogether, general government contributes more than 60% of the total expenditure, followed by corporations, which cover approximately 36% of the total.

National expenditure also includes transfers to the Rest of the world, such as contributions to financial mechanisms linked to international agreements for environmental protection, net of transfers received. The latter prevail in the two years considered, resulting in a negative balance.

FIGURE 6. NATIONAL EXPENDITURE FOR ENVIRONMENTAL PROTECTION BY ENVIRONMENTAL PURPOSE AND INSTITUTIONAL SECTOR. Years 2019-2020, billions of euros



Source: Istat, Environmental accounts - Environmental protection expenditure account

Glossary

Acidification: phenomenon determined by the deposition on the ground and in the water of certain gases, of natural and anthropic origin, present in the atmosphere. These depositions, which occur mainly through atmospheric precipitation, damage freshwater systems, forests, soils, and natural ecosystems sensitive to acidity. The main atmospheric emissions that contribute to the phenomenon are nitrogen oxides (NO_x), sulfur oxides (SO_x) and ammonia (NH₃). To aggregate the emissions of these pollutants, the different Potential Acid Equivalent (PAE) of each of them is considered, i.e. the amount of hydrogen ions that would be formed for each gas if its deposition were complete, thus arriving at a common unit of measurement. The coefficients used to obtain the measurement in tons of "potential acid equivalent" (ton PAE) are as follows: 1/46 for NO_x; 1/32 for SO_x; 1/17 for NH₃.

Atmospheric emission accounts: register and provide information on the emissions of greenhouse gases, acidifying substances, precursors for ground-level ozone, particulate matter, and heavy metals, released by production activities and by households resident in Italy, according to the classification of economic activities used in the Resource and Use Tables of the Italian economy.

Basic price: the actual amount received by the manufacturer. Includes subsidies on product and excludes taxes on product and any trade and freight margins invoiced separately by the manufacturer.

Biomass and derived products: include biomass from human food, forage for livestock, animals, and fish, processed products, timber and wood-based products and other products consisting predominantly of biomass.

Cepa classification: Classification of Environmental Protection Activities; it includes all the activities and actions whose primary purpose is the prevention, reduction and elimination of pollution and any other form of environmental degradation. It is divided into the following main headings: 1. Protection of ambient air and climate; 2. Wastewater management; 3. Waste management; 4. Protection and remediation of soil, groundwater, and surface water; 5. Noise and vibrations abatement; 6. Protection of biodiversity and landscapes; 7. Protection against radiation; 8. Environmental research and development; 9. Other environmental protection activities.

Crema classification: Classification of Resource Management Activities, which includes activities and actions whose primary purpose is the conservation, maintenance, and improvement of the stock of natural resources and, their protection from depletion phenomena. It is divided into the following main items: 10. Management of water, 11. Management of forest resources, 12. Management of wild flora and fauna, 13. Management of energy resources (13A. Production of energy from renewable sources, 13B. Heat/energy saving and management, 13C. Minimization of the use of fossil energy as raw materials), 14. Management of minerals, 15. Research and development activities for resource management, 16. Other resource management activities.

Domestic extraction: aggregate of material flow accounts which includes natural resources extracted within the territory and thus transformed into products.

Domestic material consumption (Dmc): aggregate of material flow accounts which is the sum of Domestic Extraction and Imports net of Exports.

Economic activity: activity of producing goods or services that takes place when resources such as capital goods, labour and raw materials are combined to produce specific goods or services. Economic activity's distinctive features are the factors of production, a production process and an output of one or more products (goods or services). For statistical analysis purposes, the economic activities are classified according to the Ateco 2007 classification (consistent with the European nomenclature Nace Rev. 2).

Energy intensity (of the whole economy): measured by comparing the "Net domestic energy use", expressed in terajoules (unit of measurement of energy), to the GDP expressed in chain-linked values with reference year 2015.

Energy Minerals and Energy Mineral Products: Includes coal, oil, gas, other fossil fuels, and other products consisting primarily of energy minerals.

Environmental economic accounts/environmental accounting: system of satellite accounts representing the interaction between economic and environmental information in line with national economic accounts and with the principles outlined by the international statistical standards "Integrated environmental and economic accounting system" (Seea Central Framework 2012 and Seea Ecosystem Accounting 2021, chapters 1-7). Pursuant to EU Regulation No. 691/2011 on environmental economic accounts (amended by EU Regulation No. 538/2014 of 16 April 2014 and by EU Delegated Regulation 2022/125 of the Commission of 19 November 2021), it is mandatory for the Statistical Institutes of the EU the production of six environmental accounts: three accounts in physical units (material flows, physical energy flows, air emissions) and three accounts in monetary units (environmental protection expenditure, environmental tax revenue, goods and environmental services). Istat regularly produces and disseminates the six mandatory accounts.

Environmental goods and services sector (EGSS) accounts: report and present data on activities that generate environmental products. Environmental products include goods and services made for environmental protection and resource management. Environmental protection includes all activities and actions whose primary purpose is to prevent, reduce and eliminate pollution and any other environmental degradation (cf. Ceca Classification). Resource management includes the conservation, maintenance, and improvement of the stock of natural resources and, therefore, the protection of these resources from depletion phenomena (see Crema Classification).

Environmental protection expenditure accounts: record and present data on the economic resources allocated to environmental protection by resident units according to the classification of environmental protection activities (Ceca; see Glossary entry).

Environmental taxes: taxes based on a physical quantity that has a proven and specific negative impact on the environment. The revenue from environmental taxes is classified according to four categories - energy, transport, pollution, resources - and according to the economic subject that pays the tax: resident productive activities, resident households, and non-resident units.

Exports (material flows): include material exported to other territorial contexts or economies. The weight of the goods crossing the border is considered and - in the case of the national level only - the direct purchases made in Italy by units resident abroad.

Final consumption expenditure of households: value of households' expenditure for the set of goods and services purchased to satisfy their individual needs. In the case of the Households sector, it includes the consumption expenditure of non-profit institutions serving households.

Greenhouse gases: some gases present in the atmosphere, of natural and anthropic origin, absorb and emit infrared radiation at specific wavelengths, determining the phenomenon known as the "greenhouse effect". These include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃). "Greenhouse gases" allow solar radiation to pass through the atmosphere and hinder the passage towards space of part of the infrared radiation from the surface of the Earth, thus contributing to global warming. Each of these gases has its own specific warming potential. To calculate overall greenhouse gas emissions, the quantities relating to the emissions of individual pollutants are converted into "tonnes of CO₂ equivalent", obtained by multiplying the emissions of each gas by its global warming potential (Gwp) over 100 years - expressed in relation to the warming potential of carbon dioxide. To this end, the following coefficients are applied: 1 for CO₂; 298 for N₂O; 25 for CH₄ and several different weights in relation to specific gases for HFC, PFC, SF₆ and NF₃.

Gross domestic product at market prices (GDP): the final result of the productive activity of the resident units of production. It is equal to the total production of goods and services of the economy decreased by intermediate consumption and increased by the VAT levied and indirect taxes on imports. It is also equal to the sum of the value added at basic prices of the various branches of economic activity, increased by taxes on products (including VAT and taxes on imports), net of subsidies on products.

Imports (material flows): include material imported from other territorial contexts or economies. The weight of the goods crossing the border is considered and - in the case of the national level only - the direct purchases made abroad by units, resident in Italy.

Institutional Sector: Groups institutional units that have similar economic behavior. The institutional sectors are Non-financial corporations, Financial corporations, Public administration, Households, Non-profit institutions serving households and Rest of the world. In Italy, Households are divided into consumer households and producer households.

Material flow accounts: record and provide measurements relating to the physical exchanges (in units of mass) of the Italian socio-economic system with the natural system and with the rest of the world. All materials other than water and air are included. The primary products resulting from internal extraction and all products - raw, semi-finished and finished - imported and exported are classified by type of material.

National expenditure for environmental protection: measures the economic resources devoted to prevention, reduction and elimination of pollution and any other degradation of the environment by resident operators (i.e. net of funding received from the Rest of the world). The aggregate is the result of the sum of four main types of expenditure by economic subjects: spending on environmental protection services (such as waste management or waste water purification) by corporations, public administrations and households; investments for environmental protection by operators that produce environmental protection services sold to third parties; expenses for the purchase of equipment and machinery, goods and services and for the payment of personnel assigned to environmental protection activities by companies that carry them out on their own and expenses destined abroad, for example in the context of international agreements for environmental protection.

Net domestic energy use - Ndeu: statistical indicator derived from the Physical energy flow accounts - Pefa - which denotes the actual energy use of residents at the level of the entire economy. It represents the energy consumption net of what remains incorporated in the derived products during the transformation processes (it is therefore free from double energy counting); therefore, it expresses the energy consumed and un-available for further energy purposes including all the energy dissipated (through combustion and not), all types of energy loss and the amount of energy used for non-energy purposes.

Non-metallic Minerals and Derived Products: Includes construction minerals, industrial minerals, and other products consisting predominantly of non-metallic minerals.

Non-resident units (environmental taxes): category that includes both consumer households resident abroad and economic activities not resident in the country of reference. Both are subject to the payment of taxes, for example by purchasing energy products for transport in Italy.

Ores and derived products: These include ores of iron, copper, lead and other metals, as well as other products consisting predominantly of ores.

Physical energy flow accounts: record and present the flows of energy from the environment to the economy, within the economy and from the economy back to the environment, expressed in terajoules, distinguishing natural resources, products, and energy residuals. For each energy flow, supply (resources) is recorded according to origin, and demand (uses) according to destination, through a matrices scheme based on the structure of the Resource and Use Tables of the national monetary accounts.

Physical trade balance - Ptb: aggregate of material flow accounts given by Imports minus Exports.

Waste management: according to the Classification of activities and expenses for environmental protection (Cepa), the following activities are included: waste prevention, waste collection, transport, and disposal; waste monitoring and control, regulation and administration, information, and communication.

Production: it is an activity resulting in a product. It is used with reference to the whole range of economic activities carried out in the country by the resident units in a given period of time. There are several notions of production. The standardized national accounting distinguishes between market production of goods and services intended for sale, and object of exchange which gives rise to the formation of a market price; non-market production which is not an object of exchange (production for own final use, the collective services provided by the public administration and by non-profit institutions serving households).

Tax: mandatory levy not counterpart of the benefit that the individual receives from the action of public administrations.

Wastewater management: according to the Classification of activities and expenses for environmental protection (Cepa), the following activities are included: prevention of water pollution; collection and purification of wastewater; wastewater monitoring and control, regulation and administration, information, and communication.

Aggregations of economic activities used in the Statistics Report:

1. Aggregation A*3 (according to the transmission program of Sec2010) and connection with the sections of the Ateco classification (Nace Rev.2)

Name	Ateco Section	DESCRIPTION
Agriculture	A	Agriculture, forestry and fishing
Industry	B, C, D, E, F	Mining and quarrying; Manufacturing; Electricity, gas, steam and air conditioning supply; Water supply, sewerage, waste management and remediation activities; Construction
Services	G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U	Services

2. Aggregation A*21 (according to the transmission program of Sec2010): sections of the Ateco classification (Nace Rev.2) and connection with the divisions

Section	Divisions	DESCRIPTION
A	01-03	Agriculture, forestry and fishing
B	05-09	Mining and quarrying
C	10-33	Manufacturing
D	35	Electricity, gas, steam and air conditioning supply
E	36-39	Water supply, sewerage, waste management and remediation activities
F	41-43	Construction
G	45-47	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	49-53	Transportation and storage
I	55-56	Accommodation and food service activities
J	58-63	Information and communication
K	64-66	Financial and insurance activities
L	68	Real estate activities
M	69-75	Professional, scientific and technical activities
N	77-82	Administrative and support service activities
O	84	Public administration and defence; compulsory social security
P	85	Education
Q	86-88	Human health and social work activities
R	90-93	Arts, entertainment and recreation
S	94-96	Other service activities
T	97-98	Activities of households as employers, undifferentiated goods- and services-producing activities of households for own use
U	99	Activities of extraterritorial organisations and bodies

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