

## ISTAT WATER STATISTICS | YEARS 2020-2023

# Still too high total water losses in public supply network

In 2022, water lost in public supply networks would have met the water needs of 43.4 million people for a whole year.

In 2022, Italy ranked third in Europe for freshwater withdrawal for public water supply per inhabitant.

In 2022, 214 liters per inhabitant per day supplied in the public water supply network (-36 liters on 1999).

In 2021, 21.8% of total national environmental expenditure spent for wastewater services.

In 2020, 19.0% of the utilized agricultural area was irrigated.

# 4.7

**Billions cubic meters treated in urban wastewater plants with advanced treatment**

70% of the total volume treated in urban wastewater treatment plants in 2020.

# 28.8%

**Households that did not trust to drink tap water in 2023**

# 42.4%

**Total water losses in public water supply networks in 2022**

42.2% in 2020.

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On the occasion of the World Water Day, established by the United Nations in 1992 and celebrated on 22 March, Istat provided an annual focus that, through a multi-source approach, presents the results of its several surveys, elaborations and analysis, thus offering an integrated reading of the phenomenon with reference to the aspects linked both to the territory and to the population.

Water and services provided are at the basis of people's wellbeing, environmental sustainability and economic growth. Constant and timely monitoring and interventions are essential to develop adequate management strategies of the water resource.

In the 2030 Agenda for sustainable development adopted by the United Nations General Assembly, among the 17 Sustainable Development Goals (SDGs), several goals are linked to the theme of Water, mostly Goal 6 ("Ensure the availability and sustainable management of water for all water and sanitation facilities") and Goal 14 ("Conserve and sustainably use the oceans, seas and marine resources for sustainable development"); due to their integrated and indivisible nature, other Goals are related to water, such as Goal 13 ("Adopt urgent measures to combat climate change and its consequences").

The protection of water resources and the efficient and sustainable management of water services are, in Italy, among the objectives of the Recovery and Resilience Plan which represents an opportunity to strengthen the resilience of the water system, given the ongoing climate change, making processes more efficient, especially in territories that present greater vulnerability to critical water situations.

## Water withdrawal for public supply high in Italy compared to EU countries

In 2022, the total volume of water withdrawn for public water supply on the Italian territory amounted to 9.14 billion cubic meters, 424 liters per person per day. There were approximately 37,400 active abstraction points, on average 12 per 100 km<sup>2</sup>.

In 2022, despite the slight reduction of the volume withdrawn (-0.5% compared to 2020 and -4% to 2015), Italy was in the lead (for over twenty years) in the European Union, with the highest volume of freshwater abstracted for public water supply in absolute terms. The comparison among Eu27 countries showed relevant differences about the per capita indicator: Italy ranked third (155 cubic meters per inhabitant), immediately after Ireland (200) and Greece (159), with values quite distant from the following countries in the ranking, Bulgaria (117) and Croatia (111).

Most member States (20 out of 27) withdrawn between 45 and 90 cubic meters of freshwater per person in the year. Eastern European countries were overall at the lower end of the scale, closed by Malta with only 27 cubic meters per person per year.

Differences in water withdrawal between member States are related to available water resources, water demand, abstraction patterns, as well as climate and agricultural and industrial activities connected to the urban network. Specific domestic conditions may influence volumes, such as the infrastructures and the extent of leakages in the public supply network.

## WATER: KEY NUMBERS. Years 2018-2023

YEARS	Water withdrawal for public water supply (billion cubic meters)	Water supplied per capita (liters per inhabitant per day)	Total water losses in public water supply networks (%)	Households complaining about irregularities in the water supply (%)	Households not trusting to drink tap water (%)	People aged 14 and over worried about climate change and/or the greenhouse effect (%)
2018	9,230	217	42.0%	10.4%	29.0%	66.6%
2019	-	-	-	8.6%	29.0%	71.0%
2020	9,189	215	42.2%	8.9%	28.4%	70.0%
2021	-	-	-	9.4%	28.5%	66.5%
2022	9,142	214	42.4%	9.7%	29.4%	71.0%
2023	-	-	-	8.9%	28.8%	70.8%

## In Italy high exploitation of fresh groundwater for drinkable use

Among the European countries of the Mediterranean area, Italy recorded one of the highest share abstracted from groundwater (springs and wells), representing the most important and precious freshwater resource for drinkable use (84.7% of the total volume abstracted in 2022). Conversely, in Spain, Greece and Cyprus the incidence of groundwater abstraction was significantly lower (Figure 1).

In 2022, in detail, 48.5% of the volume was abstracted from wells and the 36.2% from sources. 15.2% was derived from surface waters (rivers, natural lake and artificial basin). In addition to freshwater sources, also to compensate for water shortages, a small part of the abstraction was derived from marine or brackish waters (0.1% of the total), concentrated mainly in Sicily to supply the smaller islands.

Although 2022 was the warmest and least rainy year since 1961, as reported in the SNPA Report on climate "Il clima in Italia nel 2022", public water supply did not appear to have undergone significant changes on the whole, although there may have been significant problems in some periods of the year at the local level.

The territorial analysis showed the highest water withdrawal for public water supply in the Po River basin district, with 2.80 billion cubic meters (30.7% of the total), and, among regions, in Lombardia (1.48 billion cubic meters; 16.2%).

Regional volumes per capita, closely linked to the availability of the resource, are very broad. Interregional water exchanges are mainly present in the South: the abstraction of Basilicata and Molise, net of losses in supply and any local wholesale uses for industry and agriculture, partly flow into neighboring regions to supply areas where local water supply is insufficient.

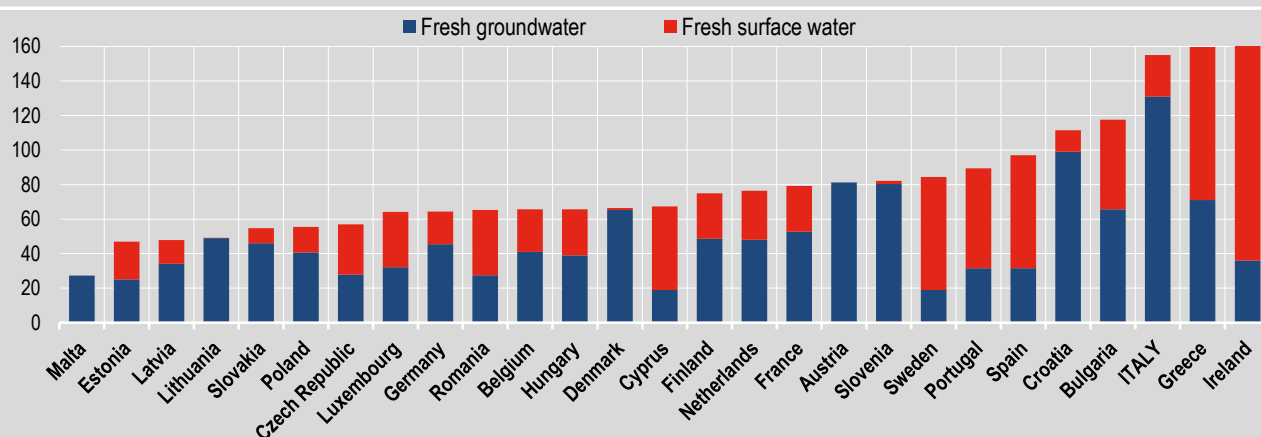
## Slight decline in the volume supplied per capita in urban water supply network

The volume of water withdrawn for public water supply is reduced at the entrance of the distribution system for the process losses in the treatment of drinking water, for the leakages in the supply network infrastructure and for the volumes requested wholesale for non-civil uses (agriculture and industry) in the adduction network.

In 2022, the volume of water input into the public urban water supply network was 8.0 billion cubic meters (371 liters per inhabitant per day), besides the volume of water supplied to end users for authorized uses was 4.6 billion cubic meters. The daily supply of water was 214 liters per inhabitant (it includes public uses, such as street cleaning, water in public buildings, fountains and so on).

Compared to 1999, the volume supplied decreased by 13% in volume terms and by 36 liters per capita per day. The decrease in water use should be analyzed considering several factors: more sustainable consumption habits; variation in the criteria used to quantify the unmetered components of the water balance; containing use campaigns promoted by water operators, as well as to the adoption of water restriction measures that has become necessary in some territories for the water emergency.

**FIGURE 1. FRESHWATER WITHDRAWAL FOR PUBLIC WATER SUPPLY IN THE EU27 COUNTRIES.** Year 2022 or last available year, cubic meters per inhabitant (a)



Source: Istat, Urban water census

(a) Marine or brackish waters are not accounted in the figure.

## The highest level of water supply in the North-West and in the capital cities

The supply of water showed a relevant territorial heterogeneity, as it is related to infrastructural equipment, demographic structure and socio-economic dynamics. The supply of water per inhabitant was on average higher in the North, with the highest volume in North-West (251 liters per capita per day). Due to the greater concentration of population, services and non-residential uses, the 109 provincial and metropolitan capital cities had on the whole a higher volume of water supplied per capita, equal to 236 liters per capita per day, 22 liters more than the national value.

## Persistent critical conditions in the public water supply networks

Not all water input into the distribution network is actually supplied to end-users due to the losses. Despite the fact that in recent years many water operators have taken steps to ensure greater capacity for measuring consumption and are using new techniques to find and fix more leaks, the quantity of water dispersed in distribution continues to represent a considerable volume (Figure 2).

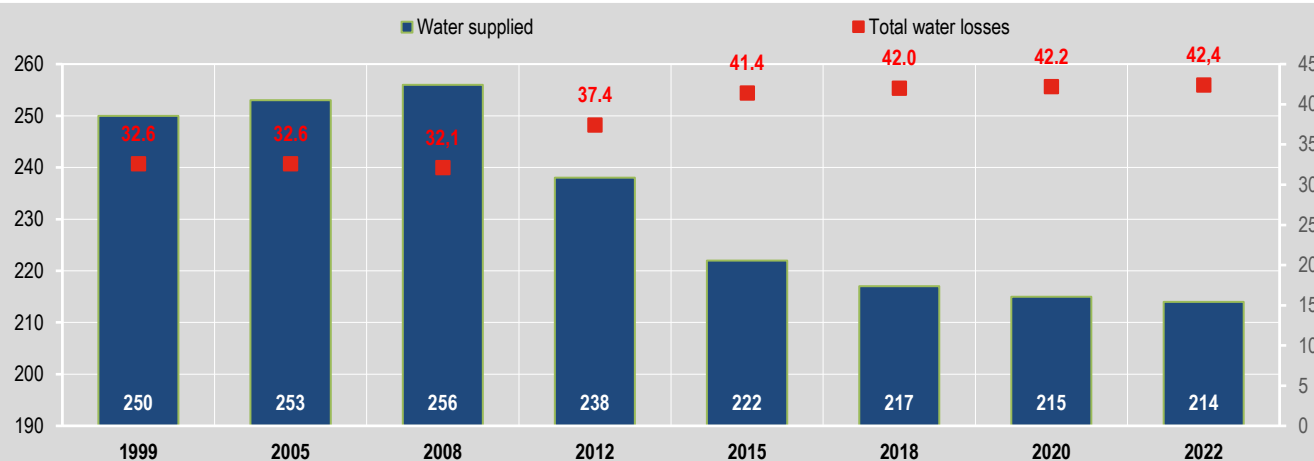
In 2022, 3.4 billion cubic meters leaked in distribution: 157 liters per person per day, which - estimating a daily consumption per capita of 214 liters (national value) - would have guaranteed the water needs of about 43.4 million people for a whole year. This volume corresponds to the 42.4% of the volume input into the distribution network (total water losses). This figure is in very slight ascent compared to 2020 (when it stood at 42.2%), confirming the persistence of criticalities mainly due to physical losses.

The infrastructural situation remained critical in some areas of the country, mainly due to the presence of physical losses (corrosion or deterioration of the system, breakages in the pipes, faulty joints, etc.) and to a lesser extent of physiological and apparent losses (administrative component due to unauthorized connections and measurement errors).

Total water losses were higher than national value in nine regions (NUTS2). The most critical areas were in the Centre, South and Islands, in the river basin districts of the Apennine and insular belt. In 12 out of 21 regions and autonomous provinces and in three out of seven river basin districts total water losses increased on 2020. Changes detected may depend not only on the state of the networks, but also on variations in estimation methods of volumes delivered but not measured, on the increasing diffusion of measuring instruments, that are more effective in highlighting critical situations, on contingent situations and management changes that can modify the system of accounting volumes.

In 2022, total water losses in the 109 provincial and metropolitan capital cities stood at 35.2% of the volume input into the distribution network, about 10 percentage points lower than the other municipalities, confirming that the investments of water operators are more concentrated in these cities. Continuing the trend already marked from 2018, losses in these cities were reduced by a percentage point compared to 2020. Water losses, proportional to the length of the infrastructure, resulted in a daily loss per kilometer of water distribution network (excluding the connection pipes) of about 40 cubic meters (41 in 2020).

**FIGURE 2. WATER SUPPLIED PER CAPITA AND TOTAL WATER LOSSES IN PUBLIC WATER SUPPLY NETWORK.** Year 2022, per capita in liters per inhabitant per day (primary axis), losses in percentage on water input into the network (secondary axis)



Source: Istat, Urban water census.

## From advanced wastewater plants a quarter of water for agriculture and industry

In the present climate change and water scarcity scenario, reusing treated wastewater is an ever-growing practice able to assure a constant availability of significant non-conventional resources, useful to integrate the volumes used for different purposes, excluding drinking use, such as: irrigation, some particularly hydro-demanding industrial processes, some civil uses (such as, street washing, firefighting, ornamental fountains) and environmental services (such as, feeding wet areas). In this sense they can help to reduce the withdrawal of primary resource.

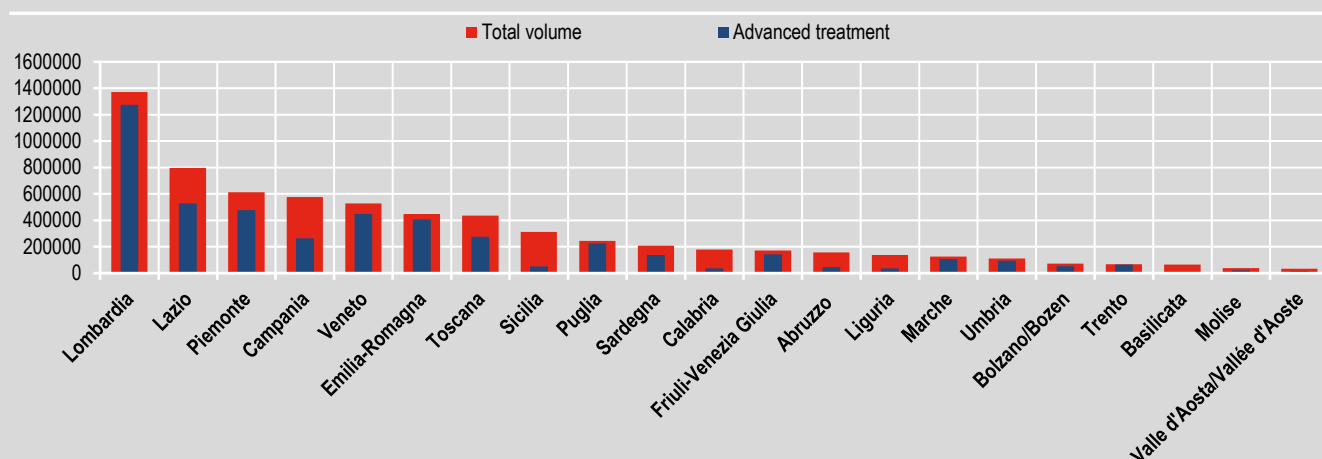
In 2020 the public urban wastewater treatment was guaranteed by 18,042 plants in operation nationwide: 56.3% were primary plants and Imhoff tanks, 32.5% were secondary plants and the remaining 11.1% was plants with advanced (or tertiary) treatment (Figure 3).

These plants have been designed to treat a total organic biodegradable load of 107 million population equivalent. In 2020, the relative average actual polluting load that flowed into the plants corresponded to about 67 million total population equivalent, of which 29.2% was treated with secondary treatment and 65.2% with advanced treatment.

The total amount of wastewater treated in the Italian urban wastewater treatment plants was approximately 6.7 billion cubic meters; this figure is significantly higher (43% more) than water delivered in the public water supply (4.7 billion cubic meters) and discharged, in most cases, into the public sewage. This is due to the fact that a part of the industrial discharges also flow in the municipal sewage, several waterways drained in urban areas and parasitic water.

70% of the wastewater treated in urban plants, equal to 4.7 billion cubic meters, underwent an advanced type of treatment, producing wastewater with a better level of quality compared to other types of treatment, for greater reduction of polluting loads. This volume can be considered a resource potentially available for subsequent reuse and it is equivalent to just under a quarter (22%) of the entire volume abstracted on average in the period 2015-2019 for irrigation and industrial uses.

**FIGURE 3. WASTEWATER TREATED IN URBAN WASTEWATER TREATMENT PLANTS BY REGION.** Year 2020, thousands of cubic meters



Source: Istat, Urban water census

## Irrigated areas account for less than 20% of the utilised agricultural area

Water plays a crucial role in agriculture, especially for irrigation that represents the greatest pressure on the water resource, principally in areas where rainfall and soil moisture are not sufficient to ensure the water needs of crops.

In the 2019-2020 agrarian year, the irrigable area of Italian farms, or the area equipped for irrigation, was 3,808 thousand hectares (30.6% of the utilised agricultural area - UAA), distributed on about 484 thousand farms, 42.8% of the Italian agricultural holdings.

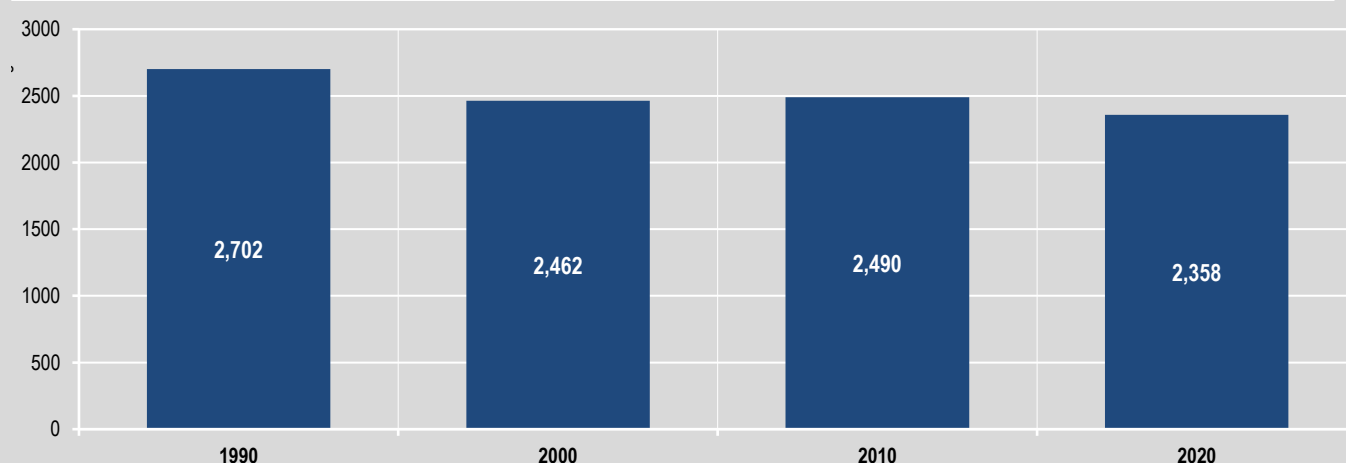
Compared to the potentially irrigable area, the area actually irrigated can vary considerably, from year to year and on the territory, depending on the meteorological conditions and the crops cultivated. In the agrarian year 2019-2020 irrigation was carried out by 34.1% of farms: almost 386 thousand farms irrigated an area of 2,358 thousand hectares (19.0% of the UAA).

With respect to 1990 the irrigated area decreased of 12.7%, associated with a reduction of the UAA of 17.3%, resulting in a greater propensity to irrigation, although modest (Figure 4).

The number of farms that practiced irrigation was reduced by 58%, as a result of a decrease in the total number of farms of 60.2% and the relative increase in the average size of the company, aided also by the economic crisis of recent years.

In 2020, at the national level, the propensity to use the irrigation potentiality, measured by the percentage ratio between irrigated and irrigable areas, was equal to 61.9%. The propensity to irrigation, measured by the percentage of the total irrigated areas on UAA, was equal to 19.0%.

**FIGURE 4. IRRIGATED AREA.** Years 1990, 2000, 2010 and 2020, thousands of hectares



Source: Istat, Agriculture Census



## Nine out ten households satisfied with water service in their houses

In 2023, 86.4% households was very or quite satisfied with water service in their houses. However, the level of satisfaction varied rather markedly in the territory, with the highest percentages in the North and the lowest in the Islands.

In 2023, the share of households complaining about irregularities in the water supply in their homes amounted to 8.9% and is slightly down on 2022 (9.7%). This problem affected the whole Italian territory at different levels, involving 2.3 million households, mostly in the South and Islands.

With regard to water bill, just more half of households (55.7%) reported their expenditure was adequate; while 37.2% of households, mostly in the southern regions, considered it high.

## People concerned for climate change and careful not to waste water

The effects of climate change and/or the greenhouse effect are among the top five environmental problems that most concerned people aged 14 and over, as reported by 70.8% of respondents in 2023.

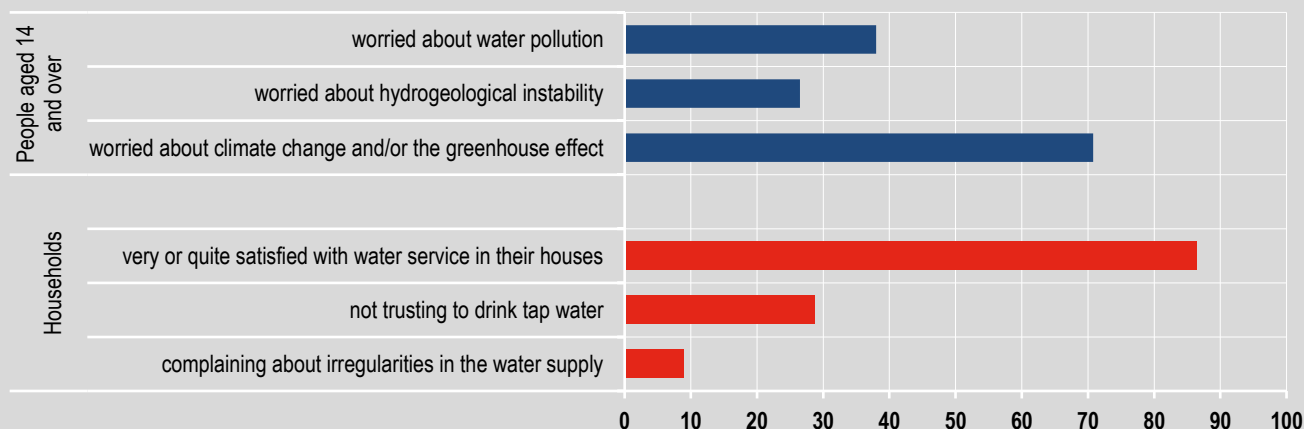
In 2023, almost four people aged 14 and over in 10 declared to be worried about water pollution (38%). Hydrogeological instability (landslides and floods) concerned 26.5% of people aged 14 and over, up by 4.2 percentage points compared to 2022.

In 2023, almost 70% of people aged 14 and over said to be careful not to waste water, confirming the growing awareness regarding the correct use of natural resources.

In 2023, the share of people aged 11 and over who used to drink daily at least half a liter of mineral water was 81.8%, substantially unchanged compared to 2022.

The share of households that did not trust to drink tap water was 28.8% in 2023, stable compared to the previous year, although it reflects a much lower concern than 20 years ago (it was 40.1% in 2002).

**FIGURE 5. HOUSEHOLDS AND PEOPLE AGED 14 AND OVER: SOME INDICATORS LINKED TO WATER.** Year 2023, percentage values



Source: Istat, Survey Aspects of daily life

## Slight decrease in natural mineral waters withdrawals

In 2021 natural mineral waters withdrawals for production purposes amounted to 19.1 million cubic meters down by 3.4% compared to 2020, thus interrupting a period of increases recorded since 2015 (first year detected by Istat) with an annual average rate equal to +4% approximately.

Mining concessions issued by local public institutions were 318. Municipalities with at least one active extraction site were 212. Natural mineral waters withdrawals were mostly concentrated in the North of Italy, with 10.1 million cubic meters (about 52.9% of national extractions). With reference to river basin districts, the highest amount of withdrawals occurred in the Po River basin district, with 7.8 billion cubic meters (equivalent to about 40.7% of the national volume extracted).

In 2021, the Extraction Intensity Indicator (IE) - calculated as the ratio between volumes of natural resources extracted and territorial areas considered - accounted for 63 cubic meters of natural mineral waters per square km at the national level, with the highest value recorded in the North-west of Italy (129 meters/km<sup>2</sup>). Concerning the river basin districts level, IE reached its highest value in the Po River basin district (94 cubic meters/km<sup>2</sup>).

## Value added of wastewater and water management on the rise

In 2021, output at basic prices of goods and services for wastewater and water management (Class 2 of Ceca, class 10 of CreMA) was 10.7 billion euro (at current prices) and value added was 4.7 billion euro, respectively 1.2% and 5.8% higher than previous year. This sector covered 5.9% of output and 7.1% of value added of total ecoindustries (Environmental goods and services sector account). Data include activities carried out by all the economic operators (*market e non market*) and own-account activities carried out by industries (Figure 6).

Wastewater management represented 96.5% of output (valued at 10.2 billion euro) and 96.9% of value added (valued at 4.6 billion euro); wastewater treatment and sewerage services being the most relevant activities carried out. The remaining 3.5% of output referred to management of waters and the highest quota was devoted to maintenance and repair of water networks.

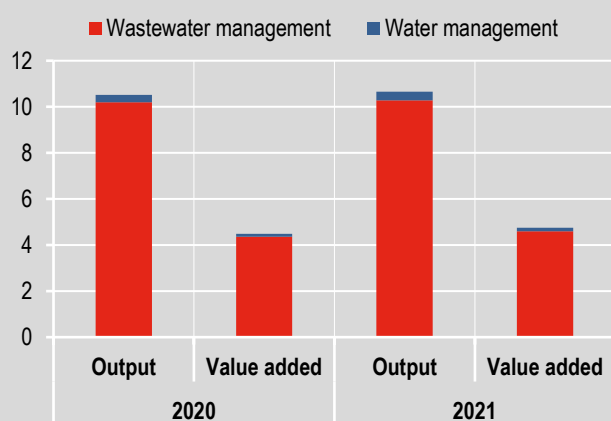
## Growth in the national expenditure for wastewater management

In 2021, the Italian economy spent 10.1 billion euro (current prices) for wastewater management, 7% more than in 2020. Resources spent for wastewater services were 21.8% of total national expenditure for the prevention, reduction and elimination of pollution and environmental degradation (Figure 7).

Around 80% of expenditure for wastewater management was carried out for the use of wastewater services either for intermediate consumption of private and public producers (47%) or for final consumption of Households and General Government (33%). The remaining part of expenditure (20%) was made up of investments. They were mostly corporations' investments carried out for the production of wastewater services.

**FIGURE 6. OUTPUT AND VALUE ADDED FOR WASTEWATER AND WATER MANAGEMENT.**

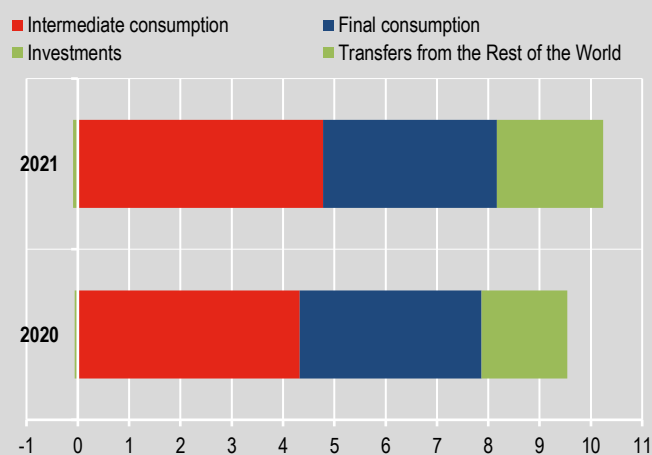
Years 2020-2021, billion euro



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

**FIGURE 7. NATIONAL EXPENDITURE FOR WASTEWATER MANAGEMENT BY COMPONENT.**

Years 2020-2021, billion euro



Source: Istat, Environmental accounts - Environmental protection expenditure



## Italy in the top ten Eu27 countries for bathing waters of excellent quality

Bathing waters are areas in which the competent authority expects a large number of people to bathe and has not imposed a permanent bathing prohibition or issued permanent advice against bathing in case of "presence of microbiological contamination or other organisms or waste affecting water quality and presenting a risk to bathers' health". They include all waters where bathing is possible: coastal waters, inland waters (lakes and rivers) and transitional waters (lagoons and coastal lakes).

In 2022, 85.7% of bathing water sites in the Eu27 were classified as "excellent", Italy ranked tenth with 89.6% (Figure 7).

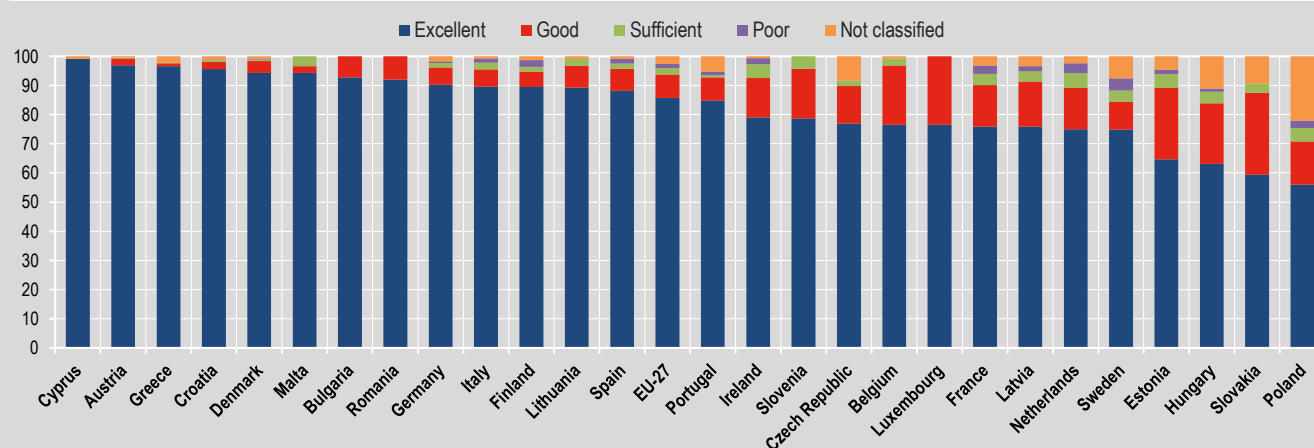
Italy held the largest number of bathing waters classified as being of excellent quality (4,952), corresponding to the 26.7% of the areas with such level of quality of the whole Eu27 (18,571), followed by France (2,558), Germany (2,068), Spain (2,000) and Greece (1,624).

## Nearly reached the goal set out by the Eu Bathing Water Directive

Italy is very close to reach the target set by the Eu Bathing Water Directive: in detail, in our country 97.8% of bathing water sites was of at least sufficient quality in 2022, although there were bathing waters with still "poor" quality (1.5%) or "not classified" (0.7%). Moreover, the instability of climatic conditions and extreme rainfall events can lead to difficulties in managing monitoring and in mitigation actions of the pressures on water quality.

The share of bathing waters with excellent quality rose compared to 2020, from 87.9% to 89.6%.

**FIGURE 7. BATHING WATERS QUALITY IN THE EU27 COUNTRIES.** Year 2022, percentage composition



Source: Eurostat

# Glossary

**Basic price:** the amount the producer receives from the purchaser per unit of goods or service produced, less the taxes on the products because of its production and sale (i.e. product taxes), and plus any subsidies on the products to be received on that unit as a consequence of its production or sale (i.e. subsidies on products). The basic price excludes transport costs invoiced separately, transport margins charged by the manufacturer on the same invoice are included, even if indicated as a separate item.

**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.

**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).

**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 (see Cepa 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 (see Cepa Classification).

**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.

**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.

**Irrigated area:** area of crops which have actually been irrigated at least once during the reference agrarian year of the survey.

**Management of water:** according to the classification of activities for natural resources management (Crema), management of water comprises activities aimed at the minimisation of inland waters intake through in-process modifications, the reduction of water losses and leaks or reduction of the intake by substituting the resource with alternative resources, water reuse and savings. Restoration activities (recharge of groundwater bodies) are included as well as the measurement, control, laboratories and the like and education, training and information and general administration activities linked to the management of inland waters and water saving.

**Mining licenses:** administrative measure issued by a local public institution for the exploration and/or cultivation of an extraction site (mine), in which the following items are defined: the mineral resource whose extraction is authorized, the authorized companies into production and the duration of the cultivation. It also indicates a specification on the exercise of mining and environmental restoration activities.

**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, General Government 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.

**Natural mineral waters:** waters that originate from an underground aquifer or deposit and come from one or more natural or drilled springs, which have hygienic characteristics and properties favorable to health. According to current legislation (Regio Decreto 1443/1927), mineral waters are included among mining mineral resources (substance of I category). They are referred to volumes used for production purposes.

**Population equivalent (p.e.):** 1 p.e. is defined as the organic biodegradable load having a five-day biochemical oxygen demand (BOD5) of 60 g of oxygen per day.

**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 General Government and by non-profit institutions serving Households).

**Public water supply network:** piping complex, covering the municipal area that, starting from the supply tanks, distributes drinking water to individual points of use (e.g., dwellings, factories, shops, offices, schools, hospitals).

**Resident population:** where not otherwise specified, it is the average population of the reference year, obtained by the semi-sum between the number of residents registered on 1 January and 31 December.

**Total water losses:** difference between the volumes input in the public water supply and the water supplied for authorised uses. It consists in real water losses and apparent water losses (unauthorised water uses and metering errors).

**Total water losses (%):** percentage ratio between total water losses and the volume of water input in the public supply network.

**Total water losses (linear):** ratio between total water losses and the length of distribution network (net of the length of the connecting pipes). The indicator is expressed in cubic meters lost per kilometer per day.

**Urban wastewater treatment plant:** plant used for the treatment of wastewater from civil settlements and where appropriate from production sites (mixed plants), which can be mixed with rainwater and cleaning streets water.

**Utilised agricultural area – UAA:** the total area taken up by arable land, permanent grassland, permanent crops and kitchen gardens used by the holding, regardless of the type of tenure or of whether it is used as a part of common land. It includes arable land, permanent grassland, permanent crops and kitchen gardens. It excludes area cultivated with mushrooms in caves, underground or special buildings.

**Value added at basic prices:** difference between the value of the output of goods and services and the value of the intermediate costs incurred for this production. Output is valued at basic prices, i.e. net of product taxes and gross of product subsidies and intermediate costs at purchase prices. It corresponds to the sum of the wages of the production factors and depreciation.

**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.

**Wastewater treatment:** process to render wastewater fit to meet applicable environmental standards or other quality norms for recycling or reuse. Three broad types of treatment are distinguished in the questionnaire: primary, secondary and advanced.

**Water input in the public supply network:** the amount of water actually fed into municipal distribution networks; this corresponds to the amount of drinking water supplied by aqueducts and/or from direct inputs from abstraction points, boat tankers or tank trucks.

**Water supplied for authorised uses:** water delivered for domestic use and for all other uses in the municipal network: offices, small factories, local authorities (e.g. for cleaning streets and watering parks), watering of private gardens, etc. This is the sum of billed and unbilled volumes, measured or estimated for lack or failure of water meters.

**Water withdrawn for public water supply:** water removed from fresh groundwater (source and well), fresh surface water (river, natural lake and artificial basin) or marine and brackish waters and destined to public water supply.

## Methodological notes

### Characteristics of the urban water services

Since 1951 Istat has periodically collected information on water resources for domestic use through the Urban water census. The survey, included in the National Statistical Programme (IST-02192), aims to describe the state of urban water services in Italy. The respondent units are all water operators in the urban services. Information required is referred to water abstraction, water use, sewage system, urban wastewater treatment plants. The survey contents have been progressively updated by considering both the European directives on Water resources and the increasing request of information from public institutions and private stakeholders.

Some of the indicators produced from this survey, with reference to water abstraction for public water supply, the efficiency of the distribution network and the characteristics of the sewage system and urban wastewater treatment, are listed in Goal 6 of the SDGs.

For further information:

[Urban water census - Survey information and methodologies](#)

### Irrigated area

Data on irrigated area comes from Agriculture Census 2020, which disseminates detailed information on the structure of Italian agricultural and livestock holdings, disaggregated up to the municipal level. Data collection took place from 7 January to 30 July 2021. Crops data are referred to the agricultural year 2019/2020 and the livestock consistency to 1 December 2020.

The observation unit is the agricultural holding, as defined in Reg. (EU) 2018/1091 of the European Parliament and of the Council.

For further information:

[Agriculture Census - Survey information and methodologies](#)

### Evaluations and opinions of citizens towards water services

Data on public opinions on water services as well as on environmental behaviors and concerns come from the sample survey "Aspects of daily life". The survey, included in the National Statistical Programme (IST-00204), is a part of an integrated system of social surveys - The Multipurpose Surveys on Households - and it collects data on individual and household daily life.

For further information:

[Aspects of daily life - Survey information and methodologies](#)

## Mineral waters

The survey “Anthropic Pressure and Natural Risks”, included in the National Statistical Programme (IST-02559), is carried out annually since 2016 aiming to collect data and information on extractive activities of non-energy mineral resources (including natural mineral waters) from all authorized sites of quarries and mines, that are present in the national territory.

Linked to mineral resources extraction - activity with a high environmental impact - Istat also produces and disseminates some environmental pressure indicators, based on internationally shared methodologies (UN, OECD, EEA, Eurostat) such as: Extraction intensity, Density of mining sites in the territory, Extractions in municipalities with the presence of areas subject to environmental protection, Extractions in coastal and inland areas, Extractions in areas with hydrogeological and seismic risk.

For further information:

[Anthropic Pressure and Natural Risks - Survey information and methodologies](#)

[IstatData - Environment and energy/Mining and quarrying – Tables of data \(years 2013-2021\)](#)

[Istat - Annuario Statistico Italiano 2023, Chapter 2 Environment, energy and climate](#)

## Output and value added of goods and services for wastewater and water management

The environmental goods and services sector, abbreviated as EGSS, records data on the production of goods and services aiming at the protection of the environment and the management of natural resources.

EGSS is also known as eco-industries' account but, despite this name, the accounts does not cover only producers specialized in environmental products; by contrast, it covers the production of all goods and services regardless of the economic activity producing them.

The environmental goods and services sector account records the supply of environmental goods and services in terms of output, value added, exports generated by resident production units and employment engaged to produce these products.

In order to limit, out of all goods and services produced in the national economy, those belonging to the environmental goods and sector, Eurostat established an indicative compendium (see Commission implementing Regulation (EU) 2015/2174 of 24 November 2015 on the indicative compendium of environmental goods and services). The compendium consists of a list of environmental goods and services and a list of economic activities. It is not exhaustive and it does not exclude the existence of other nationally relevant environmental goods, services and economic activities.

For further information:

[IstatData – National Accounts\Environmental accounts\Environmental goods and services accounts](#)

## Expenditure for wastewater management

Environmental protection expenditure accounts present - in a way that is compatible with the concepts and principles of the European System of Accounts (ESA) - data on the economic resources devoted by resident units to environmental protection.

Environmental protection includes all activities and actions which have as their main purpose the prevention, reduction and elimination of pollution and of any other degradation of the environment. Excluded are activities related to the prevention of natural disasters and risks (landslides, floods, etc) and activities related to natural resources managements, like energy saving or savings in the use of natural resources as raw materials.

Environmental protection (EP) expenditure accounts allow to calculate “national expenditure for environmental protection” (NEEP) which quantifies, for the economy as a whole and/or for its various units, the national resources (i.e. not including financing by the rest of the world) devoted to environmental protection by resident units, regardless of the origin of the financing; each unit can use its own funds or benefit from transfers received by other units.

For further information:

[IstatData – National Accounts\Environmental accounts\Environmental protection expenditure](#)

[Economy and environment: main indicators - Years 2020-2022](#)

## State of bathing waters

The EU Bathing Waters Directive requires Member States to identify bathing places in fresh and coastal waters and monitor them for indicators of microbiological pollution (and other substances) throughout the bathing season. Before the start of each bathing season, a monitoring programme is drawn up for each bathing water and, following the data processing, a water quality category is then assigned, showing the level of pollution.

Constant observation of other factors related to health is also envisaged; although they are not directly examined for bathing waters classification, trigger management measures are decided to prevent exposure if they have values considered to be at risk to health, including adequate information to citizens.

For further information:

[European bathing water quality in 2022](#)

[Italian water portal](#)

[For more details, please refer to the Italian version](#)

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