statistiche report

Istat | Istituto Nazionale di Statistica

WATER STATISTICS | YEARS 2020-2024

More than two out of three citizens are careful not to waste water, while almost one third does not trust to drink tap water

On the occasion of the World Water Day, established by the United Nations in 1992 and celebrated on 22 March, Istat published an integrated analysis on the topic. The information provided refers to various surveys, therefore the most recent data is available for different years.

In 2022, in some areas of the Country there was still a high fragmentation in public water services management.

In 2023, water rationing measures were adopted in one-third of the provincial/metropolitan capitals cities in Southern Italy (14 municipalities).

In 2022, a quarter of the total national environmental expenditure was spent for wastewater services.

In 2022, natural mineral waters withdrawals for production purposes showed a slight decrease compared to the previous year (-0.8%).

In the agrarian year 2019/2020, self-supplied water was used for more than one-third of the irrigated areas.

2,110

Water operators in public water services in 2022

2,391 in 2020 (-11.8%)

6.6mln

Residents not connected to the public sewage in 2022

5%

Springs from which one-third of water for public supply was withdrawn.

2.7 billion m^3 in 2022

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The protection of water and the responsible management of related services are fundamental to ensuring a balanced use of the resource, environmental sustainability, well-being of the population, and economic growth, as highlighted in the 2030 Agenda for Sustainable Development adopted by the United Nations. The issue of water is mainly addressed by Goal 6 ("Ensure availability and sustainable management of water and sanitation for all"), alongside other goals (including Goals 13 and 14), due to the integrated and indivisible nature of the objectives.
Tackling the challenges arising from climate change and the growing pressure on natural resources requires a continuous commitment to water protection. Promoting responsible water use by all social actors is crucial to ensure that the water resource remains accessible not only to current generations but also to future ones. Policies for the sustainable management of water also require continuous monitoring of the resource, supported by increasingly up-to-date, comprehensive, and detailed information at the territorial level.

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.

Public water services management still fragmented in some Italian regions

In 2022, there were 2,110 water operators for civil use, of which 1,738 (82.4%) were local public authorities (municipalities or other local entities), and 372 (17.6%) were water utilities. These operators provided at least one of the following water services in 2022: water withdrawal for public supply, municipal distribution, sewage systems, and urban wastewater treatment. Notably, four out of ten operators managed the entire water cycle, from water withdrawal to wastewater treatment.

Since the introduction of the integrated water management reform in 1994, the number of operators has been gradually decreasing (down from 7,826 in 1999). Compared to 2020, there was a reduction of 281 providers.

However, the implementation of integrated water management remains still incomplete, and a significant fragmentation persists in some areas, particularly in Calabria, Campania, Molise, Sicilia, Valle d'Aosta/*Vallée d'Aoste*, and the autonomous provinces of Bolzano/*Bozen* and Trento. That said, between 2022 and 2024, important signs of integration emerged, with efforts to consolidate services in some of these regions by appointing a single provider for the integrated water service.

Although the goal has not yet been fully achieved, this ongoing process of integration in water services management aligns with SDG indicator 6.5.1, which promotes the implementation of "integrated water resources management" at all levels.

WATER: KEY NUMBERS. Years 2018-2024.

YEARS	Water operator in public water services	Public sewer system coverage (% inhabitants)	Provincial and metropolitan capital cities that adopted water rationing measures	Households complaining irregularities in water supply in their houses (%)	Households not trusting to drink tap water (%)	People aged 14 and over worried about climate change and/or greenhouse effect (%)
2018	2,552	87.8	12	10.4	29.0	66.6
2019	-	-	19	8.6	29.0	71.0
2020	2,391	88.7	11	8.9	28.4	70.0
2021	-	-	15	9.4	28.5	66.5
2022	2,110	88.8	-	9.7	29.4	71.0
2023	-	-	14	8.9	28.8	70.8
2024	-	-	-	8.7	28.7	69.2

(a) The data is missing when the statistical survey was not carried out in the reference year.

Water withdrawal for public water supply: concentrated in water utilities

In 2022, water withdrawal for public water supply was managed by 1,492 operators (-127 on 2020): 1,184 local public authorities (79.4%) and 308 water utilities (20.6%).

Despite being significantly fewer in number, water utilities dominate drinking water extraction as they typically manage large areas and major water sources: out of the 9.14 billion cubic meters of water for public water supply, 91% of the total water abstracted was handled by water utilities, amounting to approximately 8.3 billion cubic meters. This marks a slight increase compared to 2020, reflecting the ongoing trend of centralization in water service management. While the local public authorities (79.4%) were responsible for only 9% of the total abstraction, about 814 million cubic meters, nearly all sourced from underground water.

In the river basin district Northern Apennines, withdrawals were almost exclusively managed by water utilities, which had covered 99% of the volume, leaving only 1% to be managed in-house. The growing dominance of water utilities in managing drinking water withdrawals was also particularly noticeable in the river basin districts of Central Apennines, Sardinia and Po river. Proportionally, the local public management of withdrawals was relatively more widespread in the river basin districts of Sicily (30%), Southern Apennines (14%), and Eastern Alps (12%).

The landscape of drinking water supply operators shows significant local diversification. The majority of the operators responsible for water withdrawal also manage the municipal water supply network, with 1,437 entities (over 95% of the total). Alongside these entities, there are operators who, within the water cycle for civil use, focus exclusively on abstraction: in addition to supra-area managers and wholesale suppliers of drinking water, that handle significant volumes for supply networks operators, there are also smaller operators that manage more limited water sources, which are then supply into the distribution system.

Local management of drinking water withdrawal: maximum ratio in Valle d'Aosta

In 2022, at the regional level, the local public management of water withdrawal for public water supply had a particularly high incidence in the Valle d'Aosta/*Vallée d'Aoste* (78% of the volume withdrawn). Significant percentages were also found in the Autonomous Provinces of Bolzano/*Bozen* and Trento (about 61%), Sicilia (30%), Molise (25%), Calabria (23%), and Campania (17%). In the other regions, local public management concerned less than 5% of the total volume (Figure 3). Umbria was the unique region where all abstractions were managed by water utilities; Basilicata, Emilia-Romagna, Friuli-Venezia Giulia, Puglia, Tuscany, and Veneto had residual values of volumes locally public managed.

FIGURE 1. WATER OPERATORS IN PUBLIC WATER SERVICES BY TYPE OF MANAGEMENT. Years 1999-2022.

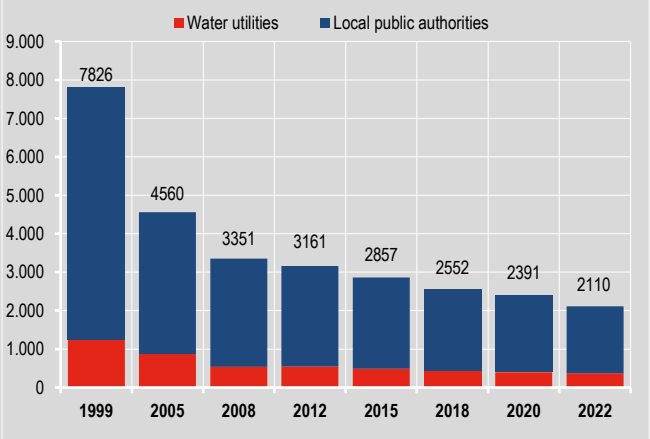
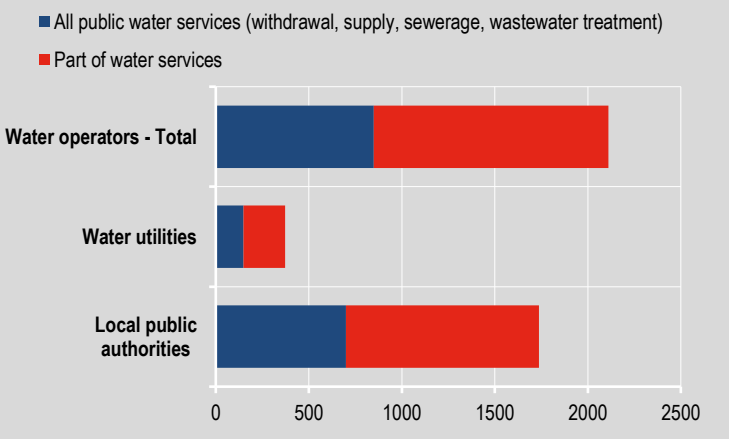


FIGURE 2. WATER OPERATORS BY TYPE OF SERVICES MANAGED AND MANAGEMENT. Year 2022, absolute values.



Source: Istat, Urban water census.

One-third of public water supply withdrawn from less than 5% of springs

In 2022, although the number of operators involved in water withdrawal for public water supply was high, about half of the total volume (4.6 billion cubic meters) was abstracted from just 24 operators, which account for only 1.6% of the active entities. The largest volume withdrawn was managed by Acea Ato 2, which operates in the river basin district of Central Apennines, supplying water to the city of Rome as well.

In Italy, the majority of water for public water supply is withdrawn from springs and wells. Over 50% of drinking water sources are springs, contributing 36.2% (3.3 billion cubic meters) of the total.

More than 900 of these springs (less than 5%) had abstraction rates equal to or greater than 10 liters per second, providing 80% of the spring-sourced water, which accounted for 29% of the total water extracted from all sources in use. These sources were not evenly distributed across the national territory. Springs with extraction rates greater than 100 liters per second were mostly found in the river basin districts of Central Apennines and Southern Apennines; the regions of Campania, Abruzzo, and Lazio alone, however, accounted for 43% of the total water abstracted from the source.

Considering springs with abstraction flows of at least 10 liters per second, sources with extractions not exceeding 50 liters per second accounted for 76% of the cases and 16% of the total abstracted volume, and were mainly located in the river basins of the Po River and Southern Apennines.

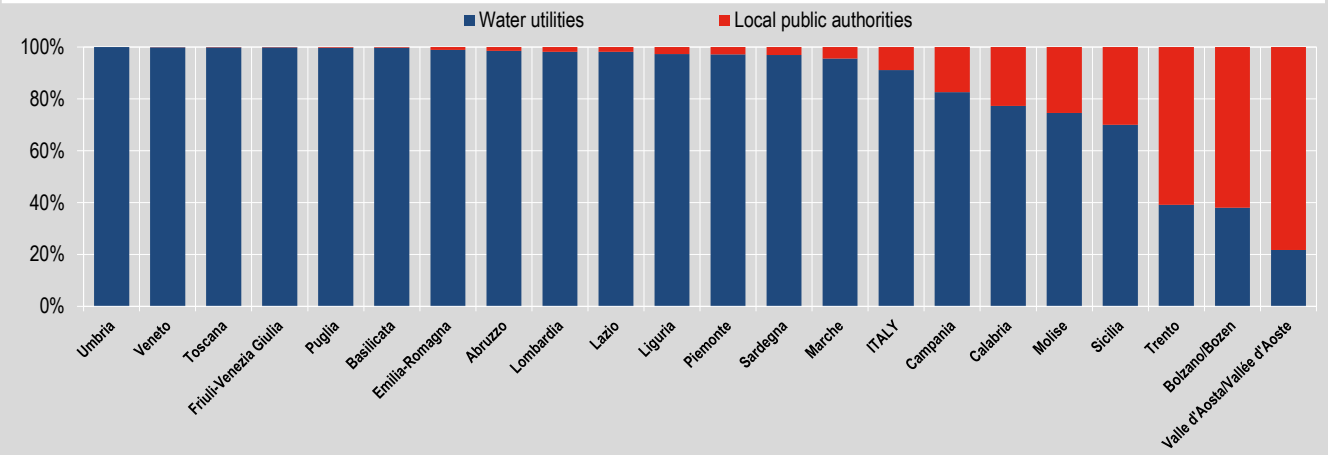
Historical data shows that since 2012, the volume of water withdrawn from springs with a flow rate of at least 10 liters per second has remained stable, with the only exception being 2020, when a slight decline in abstracted volumes was observed due to the effects of the COVID-19 pandemic.

Public water supply service active in almost all Italian municipalities

The drinking water withdrawn reaches the final points of use through the municipal distribution networks, which provide to the water needs of citizens, businesses, offices, hotels, commercial, agricultural, and industrial activities, as well as public uses such as street cleaning, schools, hospitals, public green spaces, and fire-fighting systems.

In 2022, the public water supply network was active in 7,891 municipalities out of 7,904, covering all or part of their territories. Only 13 municipalities, where about 58,000 residents lived (0.1% of the total population), lacked public water distribution services. In these municipalities, located in Lombardia (6), Veneto (4), and Friuli-Venezia Giulia (3), self-supply solutions, such as private wells, are used to meet the water needs of the population.

FIGURE 3. WATER WITHDRAWAL FOR PUBLIC WATER SUPPLY BY TYPE OF MANAGEMENT, REGIONS AND AUTONOMOUS PROVINCES. Year 2022, percentage composition.



Source: Istat, Urban water census.

Public water supply in charge of water utilities for more than 8 in 10 municipalities

In 2022, the management of public water supply service was handled by 1,811 operators (-154 than in 2020); of these, 84.8% were local public authorities (1,536), while 15.2% were water utilities (275).

At the regional level, the management of the service was completely in charge of water utilities only in Umbria, but it also had a significant presence in Basilicata, Emilia-Romagna, Friuli-Venezia Giulia, Tuscany, and Veneto. On the other hand, local public management was predominant in Valle d'Aosta/*Vallée d'Aoste*, but it was also significant in Calabria and the autonomous provinces of Bolzano/*Bozen* and Trento. In Molise, there is a gradual shift from completely local public management to water utilities.

Where the public water supply service was available, in more than four out of five municipalities, it was managed by water utilities, while approximately one in five relied on local public management. Although mixed management is rare at the national level (where local authorities and water utilities operate in different areas of the same municipality), it is a case relatively common in the autonomous province of Bolzano/*Bozen* and in the metropolitan area of Catania.

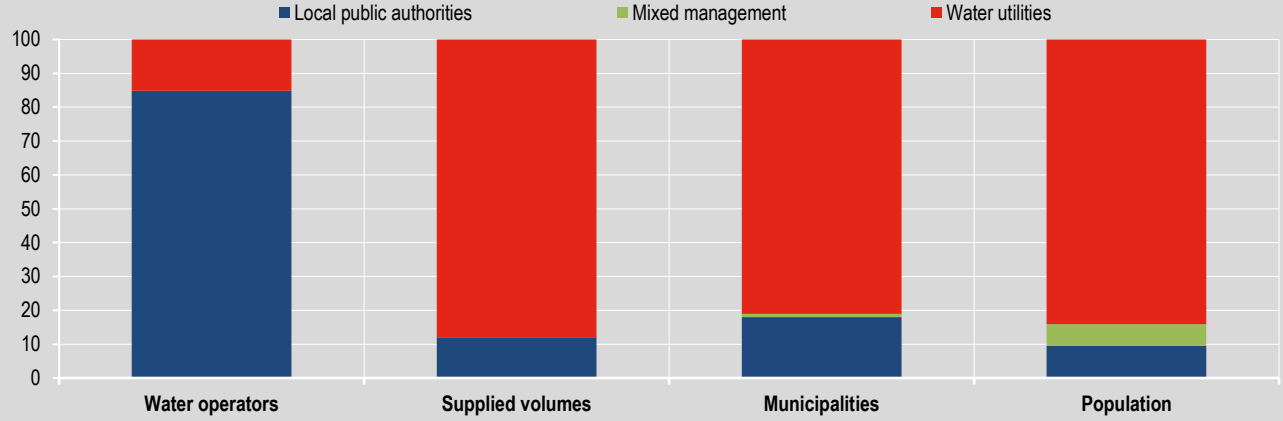
In terms of volume, out of 4.6 billion cubic meters of water supplied to final users, about 88% was managed by water utilities, while the remaining 13% by local public operators. As of December 31, 2022, 84.1% of residents in Italy lived in municipalities where the public water distribution service was exclusively managed by water utilities (although there may be areas in the municipality not covered by the public network), 6.2% lived in municipalities with mixed management, and 9.6% in municipalities with local public management (Figure 4).

In the South and the Islands, the highest incidence of exclusively local public management was recorded, accounting for 21.9% and 29.2% of the population, respectively.

Higher water losses in public water supply network managed by local operators

Water losses in Italian municipalities with public water supply services showed a significant difference between management models. In 2022, municipalities with local public management (where the service is directly run by municipalities or local entities) had total water losses in distribution of 45.5%, 3.5 percentage points higher than the national value (42.4%). On the other hand, water utilities had lower water losses, totaling 41.9%.

FIGURE 4. WATER OPERATORS, SUPPLIED VOLUMES, MUNICIPALITIES AND RESIDENT POPULATION BY TYPE OF MANAGEMENT OF THE PUBLIC WATER SUPPLY SERVICE (a). Year 2022, percentage composition.



Source: Istat, Urban water census
(a) Public water supply network can serve either fully or partially the resident population of a municipality.

6.6 million inhabitants not connected to the public sewerage

In 2022, the public sewer system was managed by 1,866 operators, a decrease of 265 compared to 2020. This is the water service with the highest number of operators and the largest share of local public management entities (1,690, accounting for 90.6% of the total). The service was active in 99.5% of municipalities, covering either all or part of the territory. However, in 41 municipalities, home to 397 thousand residents (0.7% of the total population), the service was completely absent, with 26 of these municipalities located in Sicilia (6.7% of the regional population).

It is estimated that nine out of ten residents (88.8% of the population) were connected to the public sewerage, regardless of the presence of a subsequent wastewater treatment in place. Approximately 6.6 million residents, however, were not connected to the network. This situation remained stable at the national level compared to 2020 (88.7%).

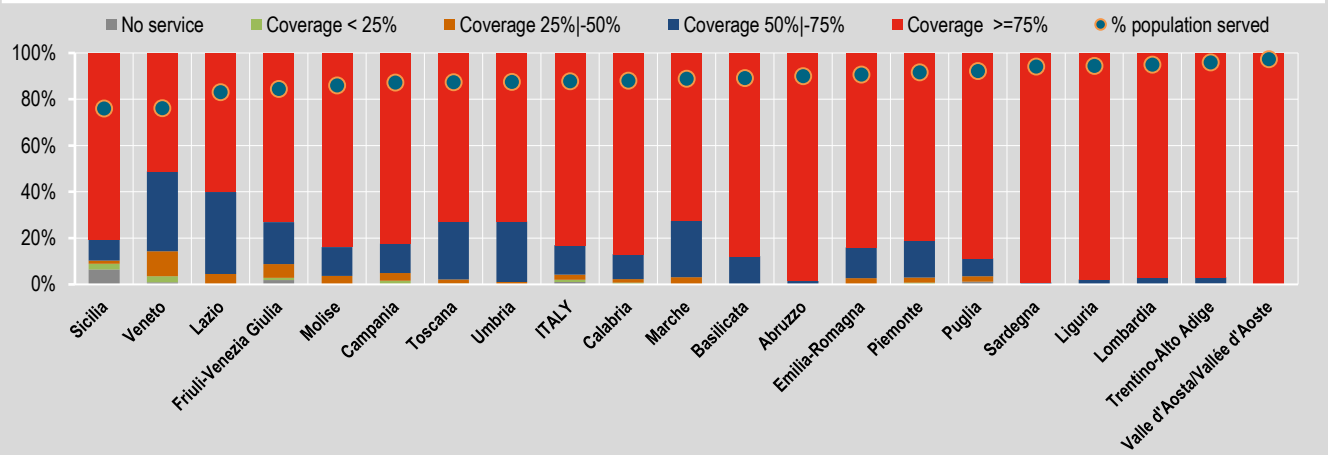
In 2022, Italy ranked ninth among the EU27 countries in terms of the percentage of the population served by the public sewerage, with a value of 88.8%. Luxembourg ranked first, where the entire population was connected to the public sewer system. Extremely high coverage percentages (over 97%) were also recorded in the Netherlands, Malta, Spain, and Germany. At the bottom of the ranking, with percentages below 60%, were Romania (59.2%) and Croatia (57.4%).

In Italy, 82.2% of municipalities had public sewerage service coverage for more than 75% of their residents. For 14.2% of municipalities, coverage was between 50% and 75%, for 2.4% it was between 25% and 50%, and only a small portion (0.6%) has coverage lower than 25% or no operational network (0.5%).

In 13 out of 21 Regions and Autonomous Provinces, the coverage percentage was higher than the national value. The North-West had the highest coverage (94.6%), and the regional maximum was in Valle d'Aosta/*Vallée d'Aoste* (97.9%). The North-East overall had a coverage level of 85.2%, with Veneto having the lowest regional coverage in this area (79.8%), although it had increased compared to 2020 (Figure 5).

The coverage of the public sewerage was the lowest in the Islands (81.1%), reaching the minimum value in Sicilia, with a service extended to 76.5% of residents (-12.3 percentage points compared to the national average). At the provincial level, the lowest value of the indicator was recorded in the metropolitan city of Catania, where the service covered just over one in three residents (35.8%).

FIGURE 5. MUNICIPALITIES BY PUBLIC SEWER SYSTEM COVERAGE AND RESIDENT POPULATION SERVED BY REGIONS AND AUTONOMOUS PROVINCES. Year 2022, percentage values.



Source: Istat, Urban water census.

Local public management for sewerage still in one out of five municipalities

As of December 31, 2022, 79.0% of municipalities with public sewerage service had a management in charge of water utilities, 20.9% had local public management, and the remaining 0.1% had a mixed management model (where both local public authorities and water utilities mange on different sections of the network within the same municipality). Water utilities covered 87.4% of the Italian population (there may be areas of the municipality not covered by the public sewage system).

In 2022, Umbria was the unique region where the public sewerage was entirely managed by water utilities. In Veneto, Friuli-Venezia Giulia, Emilia-Romagna, Toscana, Marche, and Basilicata, the services were almost entirely managed by water utilities. In contrast, a local public management predominated in Molise (where the transition to water utilities is underway), Calabria, Valle d'Aosta/*Vallée d'Aoste*, and the autonomous province of Bolzano/*Bozen*.

Urban wastewater treatment plants: over a third in the Northwest

In 2022, urban wastewater treatment service was managed by 1,277 operators, a decrease of 100 compared to 2020. Of these, 1,067 were local public authorities (83.6%) and 210 were water utilities (16.4%).

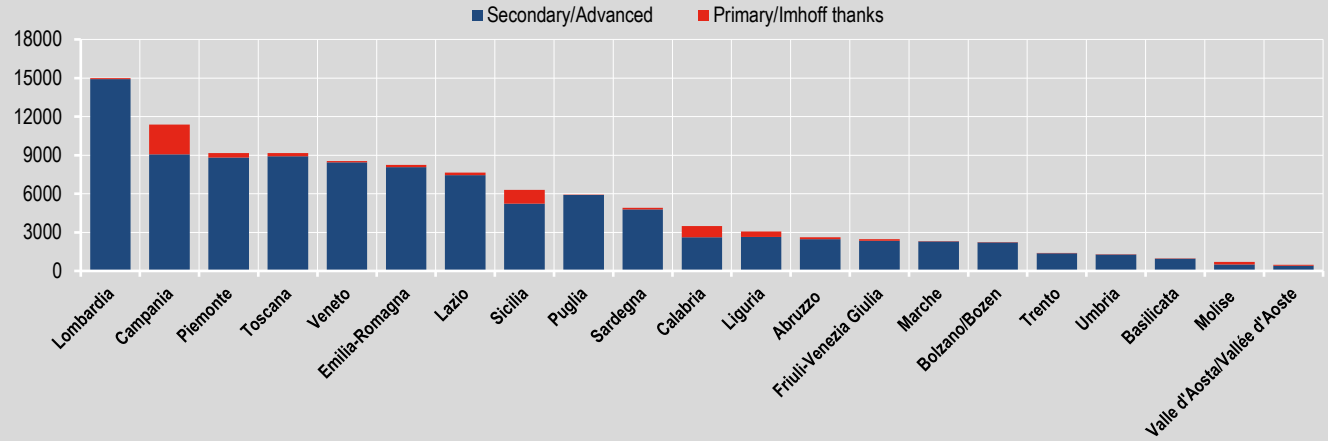
There were 18,118 urban wastewater treatment plants in operation in 2022. Over one-third of these plants were located in the Northwest regions. Among these, 56% use primary treatment or Imhoff tanks, while 44% employ secondary or advanced treatment.

Overall, these plants have the capacity to treat a pollutant load equivalent to 107.3 million population equivalent, derived from urban and partly industrial wastewater. This value was slightly higher than that of 2020 (107.1 million) because during this period, new large treatment plants were brought into operation, particularly in Sicilia and Abruzzo.

Although the number of urban wastewater treatment plants with at least secondary treatment is significantly lower, these plants have a larger treatment capacity, being capable of processing more than 94% of the pollutant loads carried by the public sewer system.

The plants in operation with secondary/advanced treatment, although fewer in number, were designed to treat 94% of the pollutant load (expressed in population equivalent) that could potentially reach the urban wastewater treatment plants (Figure 6). This share decreased in Calabria, Campania, and Molise, where the treatment capacity of at least secondary treatment plants was below 80%.

FIGURE 6. CAPACITY OF URBAN WASTEWATER TREATMENT PLANTS BY TYPE OF TREATMENT, REGIONS AND AUTONOMOUS PROVINCES. Year 2022, values in thousands of equivalent inhabitants.



Source: Istat, Urban water census

Still water rationing in Southern capital cities

In 2023, one-third of the provincial/metropolitan capital cities in Southern Italy (14 municipalities) implemented water rationing measures, reducing or suspending the water supply. In detail, water rationing measures were adopted in most capitals of Sicilia (except Enna, Ragusa, and Siracusa) and Calabria (except Crotone), as well as one in Abruzzo (Chieti), two in Puglia (Foggia and Bari), and one in Sardegna (Nuoro). Compared to 2019 (the lowest figure since 2015), the number of capitals affected by rationing increased from 9 to 14, with the duration of emergency measures remaining high.

Several factors contributed to the limited availability of water in these areas, including the severe obsolescence and deterioration of water infrastructure, significant precipitation deficits compared to the 1991-2020 climatic average (-40% in Calabria and -60% in Sicilia between September and December 2023; Informal hearing in the Chamber of the National Extraordinary Commissioner for urgent measures to address the issue of water scarcity), higher-than-average temperatures, and reductions in reservoir volumes (-30% in the total level of reservoirs in Sicilia and Sardegna).

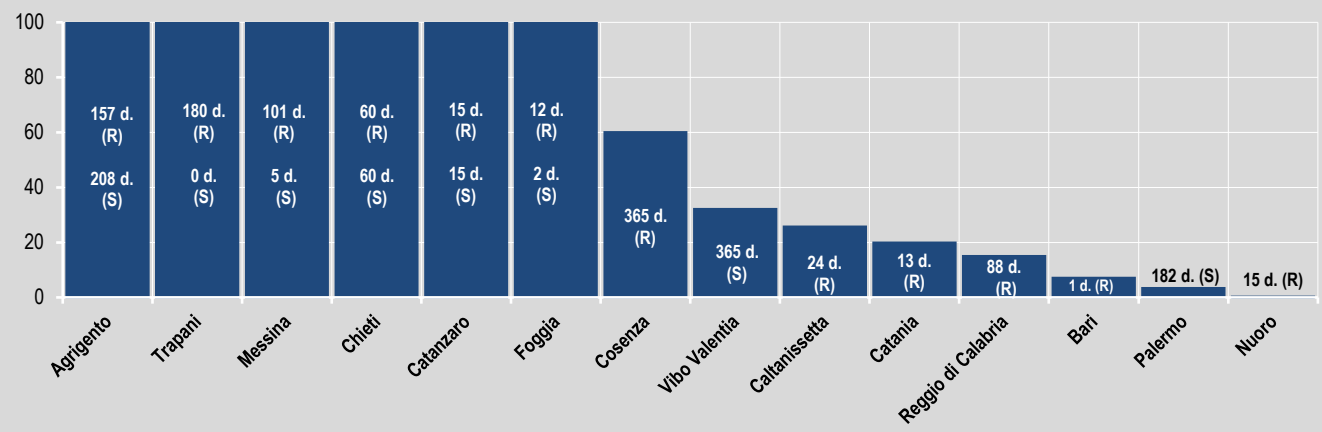
In six capitals, water distribution restrictions affected the entire municipal area, with the most critical situations occurring in the cities of Agrigento and Trapani (Figure 7).

In contrast, rationing measures only affected part of the municipal area in eight capitals (all in Calabria and Sicilia, in addition to Bari and Nuoro), including those in three metropolitan cities (Reggio Calabria, Palermo, and Catania). Compared to 2021 (last available data), both the percentage of the resident population affected by restrictive measures (falling from 2.8% - 485,057 residents - to 1.1% - 191,357 residents) and the number of municipalities involved (12) improved.

In 2023, water rationing measures overall, applied to part and/or all of the municipal territory, affected approximately 800,000 people, corresponding to the 4.6% of the population residing in the provincial/metropolitan capital cities.

Compared to 2023, the situation worsened further in 2024, with an increase in both the number of affected capitals and the duration and intensity of emergency measures. In 2024, the water emergency became even more pronounced in some areas of the country, as insufficient water resources struggled to meet the needs of the population and local activities, resulting in even more frequent and severe restrictions.

FIGURE 7. RESIDENT POPULATION INVOLVED IN THE REDUCTION (R) OR SUSPENSION (S) IN PUBLIC WATER SUPPLY FOR PART AND/OR THE ENTIRE MUNICPIAL AREA IN PROVINCIAL/METROPOLITAN CAPITAL CITIES. Year 2023, % of inhabitans involved and duration in days of the service disruption.



Source: Istat, Urban environmental data

In the South and Islands the highest complaints about water supply irregularities

Complaints from households about irregularities in water supply detected through the "Aspects of daily life" survey confirm the territorial problems related to water rationing, that have already emerged from the direct observations of Urban environmental data survey. Water scarcity and access difficulties represent a critical issue for households, particularly in the Southern regions.

In 2024, the share of households complaining about irregularities in the water supply in their houses amounted to 8.7%, unchanged compared to 2023. This problem affected the whole Italian territory at different levels, involving 2.3 million households; of these, more than two-thirds were resident in South and Islands (1.6 million households): Calabria and Sicilia (with 29.9% and 29.2% respectively) were the regions most exposed to problems of water supply in homes.

In 2024, 8.7% of households claimed to have experienced irregularities in water service in their homes, a share unchanged from 2023. The disservice affected, albeit in very different percentages, all regions and about 2 million 300 thousand households. Of these, more than two-thirds were residents in the South (1.6 million households): Calabria and Sicilia (with 29.9% and 29.2% of households, respectively) were the regions most exposed to problems with water supply in their homes.

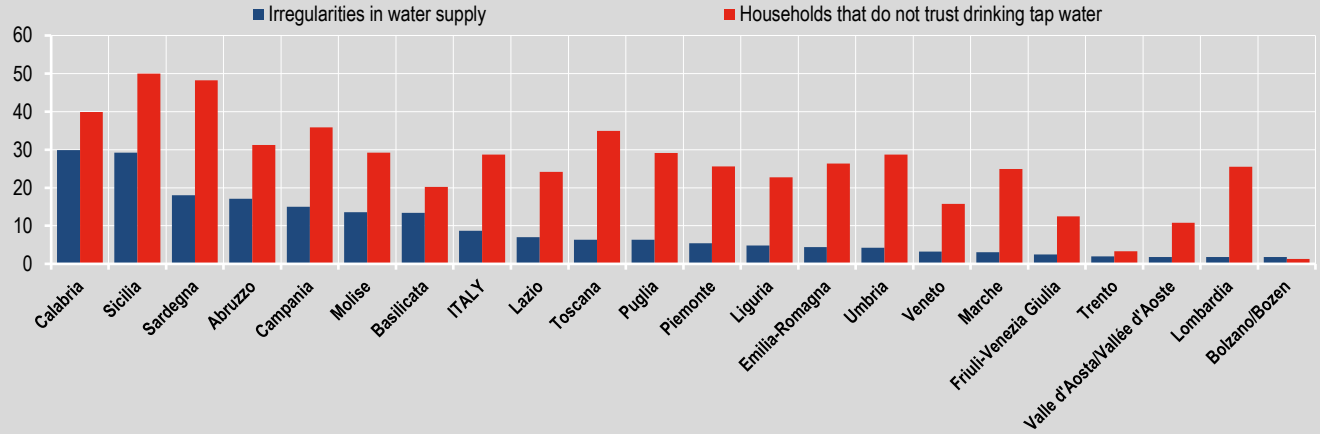
Households' evaluations confirm that service criticalities can be seasonal in nature or represent a systematic and ongoing problem: in particular, in 2024, among households that detected irregularities in water supply just under 40% experienced them throughout the year, 27.8% only during the summer period, and 31.2% described them as a sporadic event.

Four out of ten households considered water supply costs to be high

With regard to water bill, just more half of households (53.7%) reported their expenditure was adequate; while 39.8% of households considered it high. High levels of dissatisfaction with the amount of expenditure were observed in the Islands (55.2%), in the South (45.6%), and in the Centre (42.0%); lower levels were found in the North-West (34.2%) and in the North-East (29.4%).

In 2024, 76.2% of households rated the quality of water in terms of "odor, taste, and clarity" as very or fairly satisfactory, down from 86.4% in 2023. Dissatisfied households made up 23.8% of the national total, but the percentage was significantly higher in Sicilia (37.2%), Calabria (34.4%), and Sardegna (33.9%).

FIGURE 8. HOUSEHOLDS COMPLAINING ABOUT IRREGULARITIES IN WATER SUPPLY AND THAT DO NOT TRUST DRINKING TAP WATER BY REGIONS AND AUTONOMOUS PROVINCES. Year 2024, per 100 households in the same area.



Source: Istat, Survey Aspects of daily life.

Still little trust in tap water

In 2024, 28.7% of households reported they did not trust drinking tap water. This figure is stable compared to 2023, although in the context of a gradual reduction in concerns compared to twenty years ago (40.1% in 2002). Significant territorial differences remain, however, ranging from 18.4% in the Northeast to 49.5% in the Islands. The highest percentages were in Sicilia (50.0%), Sardegna (48.2%) and Calabria (39.9%). The population residing in the central municipalities of the metropolitan area or in very small municipalities (under 2,000 inhabitants) showed less distrust in drinking tap water (25.2% and 26.0%, respectively).

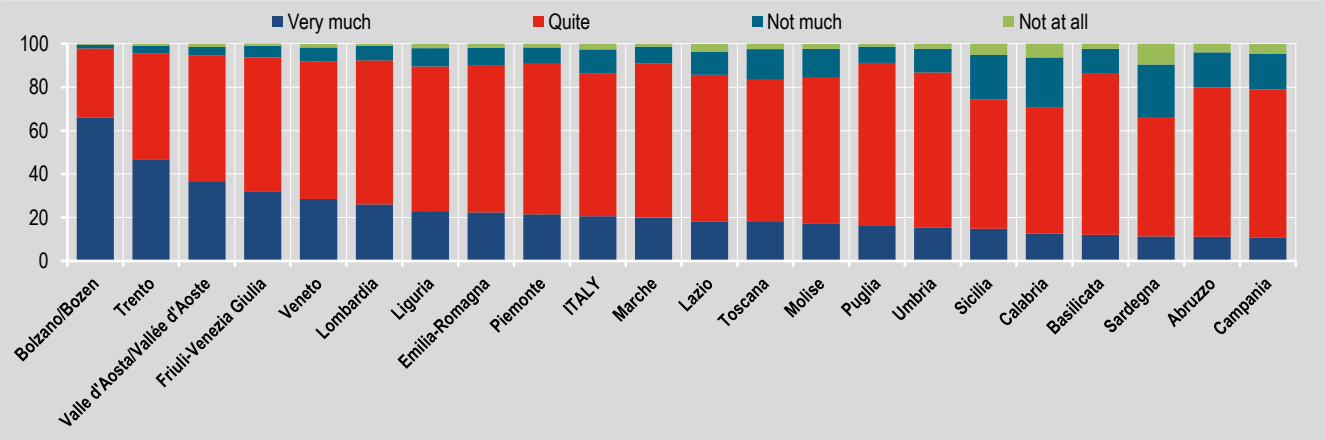
Greater dissatisfaction with water services in the Islands

In 2024, 86.4% of households connected to the municipal water network considered themselves very or fairly satisfied with water service. The level of satisfaction varies across the territory to a rather marked extent: about 92% of households residing in the North, 85.8% of those in the Center and 81.8% in the South were very or fairly satisfied; the percentage reached a minimum in the Islands (72.3%).

In 2024, 65.7% of households reported being very or fairly satisfied with the clarity of their water bills. However, in the Islands and South, dissatisfaction (those who were "not at all" or " not much" satisfied) was significantly higher than the national average (respectively 41.4% and 40.3%). Conversely, satisfaction was notably higher among households residing in cities with more than 50,000 inhabitants, with 70.7% expressing satisfaction.

In 2024, 78.2% of households reported being very or fairly satisfied with the frequency of meter readings. Among the 21.8% of households that were dissatisfied (either "not at all" or "not much" satisfied), there was a significant territorial divide, with particularly high dissatisfaction in some Southern regions.

FIGURA 9. HOUSEHOLDS CONNECTED TO PUBLIC WATER SUPPLY NETWORK BY LEVEL OF SATISFACTION, REGIONS AND AUTONOMOUS PROVINCES. Year 2024, per 100 households.



Source: Istat, Survey Aspects of daily life.

More than two out of three people concerned about climate change

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, indicated by 69.2% of respondents in 2024. The national value remained stable compared to the last three years, reaching its highest levels in the Northwest and Central regions (70.3% and 70.4%, respectively), and its lowest in the South (67.7%).

Hydrogeological instability (landslides floods and avalanches) concerned 28.5% of people aged 14 and over, with the percentage rising to 32.4% among those over 55 years old. Overall, the national figure has increased by two percentage points compared to 2023. Notably, the increase was around five percentage points in the North, and as much as nine percentage points in Emilia-Romagna, a region severely impacted by flooding events over the past two years.

Young people more concerned about water pollution

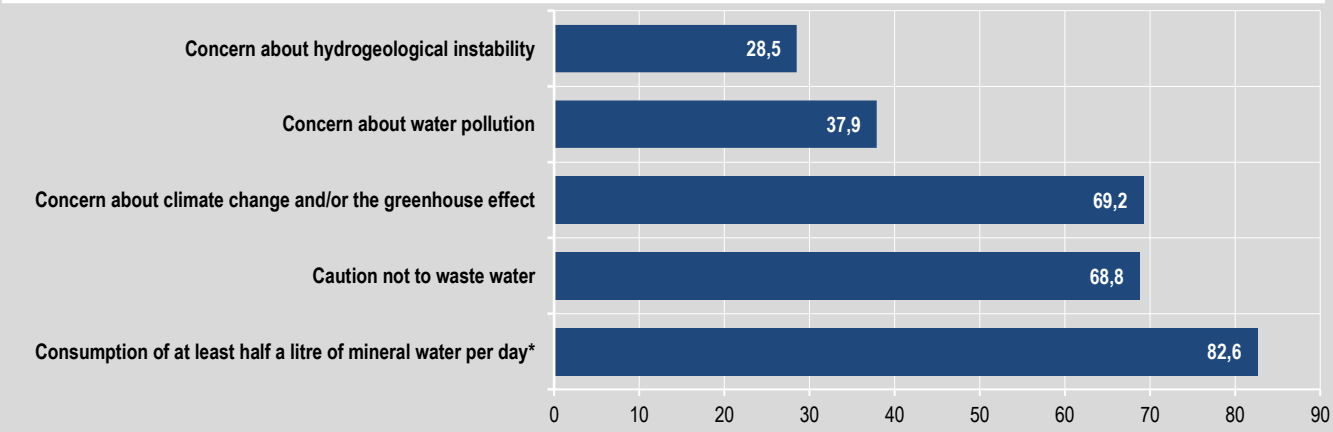
In 2024, 37.9% of people aged 14 and over declared themselves concerned about water pollution (rivers, seas, lakes, aquifers), a figure that rose to 39.8% in the North-West, while in the South it stood at 35.7%. Young people aged between 14 and 24 (40.3%) were more sensitive to the issue than those over 55 (36.0%). The incidence of those who are concerned about this problem was also higher among those living in municipalities on the outskirts of metropolitan cities (38.7%) and in municipalities with more than 50,000 inhabitants (39.1%).

In 2024, almost 70% of people aged 14 or older say paid attention to not wasting water, confirming the widespread awareness of the need for proper management of natural resources. However, there were still significant regional differences, with the shares being lowest in Calabria (62.8%) and highest in Sardegna (75.0%).

Umbria always in the lead for mineral water consumption

In 2024, the share of people aged 11 and over who consume daily at least half a liter of mineral water was 82.6%, substantially unchanged over the past three years. Mineral water consumption was highest in the North-West (87.2%) and the Islands (84.8%), and lowest in the South (76.0%). At regional level, Umbria maintained the lead in mineral water consumption (92.0%), while the autonomous province of Bolzano/*Bozen* had the lowest value (58.6%).

FIGURE 10. INDICATORS LINKED TO WATER. Year 2024, per 100 people aged 14 and over.



Source: Istat, Survey Aspects of daily life.
*People aged 11 and over

Slight decrease in natural mineral waters withdrawals in 2022

In 2022, natural mineral waters withdrawals for production purposes amounted to 18.9 million cubic meters (down by 0.8% compared to 2021), continuing a declining trend observed since 2021. From 2015 to 2020, national withdrawals showed an increase, rising from 16.2 million to nearly 19.8 million cubic meters, with an average annual growth rate of about +4%. Such trend was interrupted in 2021, when a decrease of -3.4% with respect to the previous year was recorded.

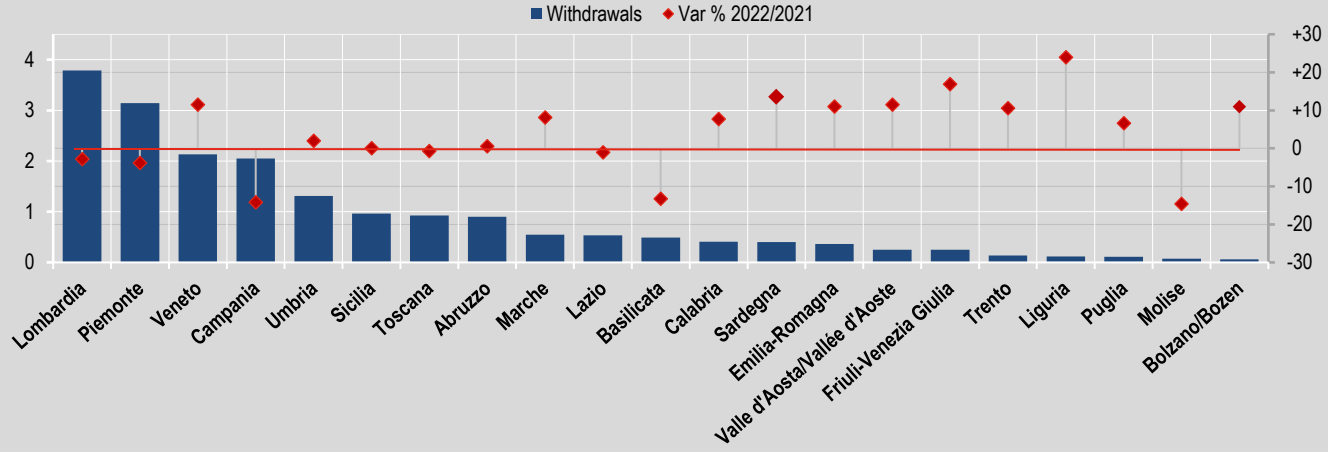
In 2022, current mining concessions issued by local public Institutions were 308 and municipalities with at least one active extraction site were 212.

Natural mineral waters withdrawals were mostly concentrated in the North of Italy, with 10.2 million cubic meters (about 54.1% of national volumes). With reference to river basin districts, withdrawals were mostly concentrated in the Po River basin district, with approximately 7.6 million cubic meters (equivalent to about 40.3% of the national volumes extracted).

In 2022, the slight decline in natural mineral water withdrawals is mainly attributed to a decrease in extraction activities in the South (-8.7%), amounting to approximately -386 thousand cubic meters, and in the Northwest (-2.5%), with -187 thousand cubic meters.

The Extraction Intensity Indicator (IE) - calculated as the ratio between volumes of natural resources extracted and territorial areas considered - at the national level accounted for 63 cubic meters of natural mineral waters per square km, in 2022. The highest value was recorded in the North-west of Italy (126 meters/km^2). Concerning the river basin districts level, IE reached the highest value in the Po River basin district, with 92 cubic meters/km^2.

FIGURE 11. NATURAL MINERAL WATERS WITHDRAWALS FOR PRODUCTION PURPOSES BY REGIONS REGIONS AND AUTONOMOUS PROVINCES. Year 2022, milions of cubic meters (left axis), percentage variations (right axis).



Source: Istat, Anthropic pressure and natural risks.

Value added of wastewater and water management still on the rise

In 2022, output at basic prices of goods and services for wastewater and water management (Class 2 of Cepa, class 10 of CreMA) was 13.9 billion euro (at current prices) and value added was 6.0 billion euro, respectively 10.8% and 9.6% higher than previous year. This sector covered 6.4% of output and 7.5% of value added of total ecoindustries (Environmental goods and services sector account). Data include production activities carried out by all the economic operators (*market* e non *market*) and own-account production carried out by industries (Figure 12).

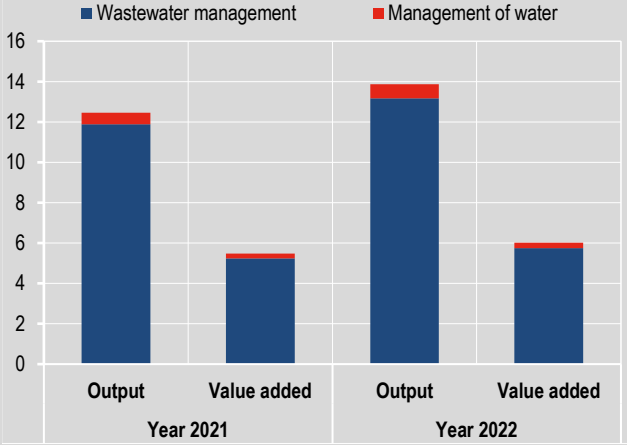
Wastewater management accounts for 94.9% of output (valued at 13.2 billion euro) and 95.4% of value added (valued at 5.7 billion euro); wastewater treatment and sewerage services being the most relevant activities carried out. The remaining 5.1% of output stems from management of waters and the highest quota was devoted to maintenance and repair of water networks.

Growth in the national expenditure for wastewater management

In 2022, Italian households, corporations and General Government spent 13.1 billion euro (current prices) for wastewater management, 14.6% more than in 2021. Resources spent for wastewater services amount to one quarter of total national expenditure for the prevention, reduction and elimination of pollution and environmental degradation (Figure 13).

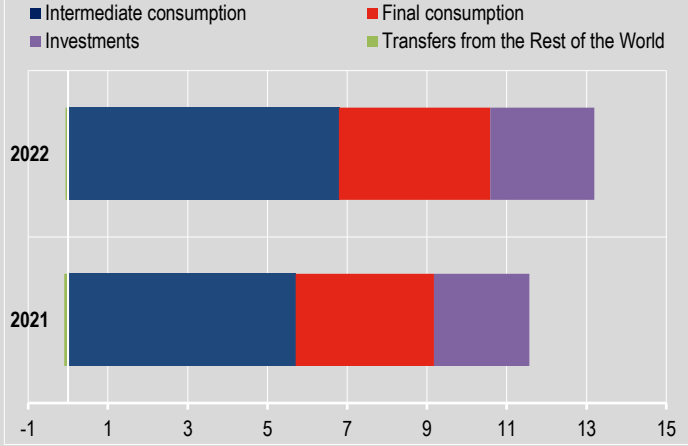
80.0% of expenditure for wastewater management was carried out for the use of wastewater services either for intermediate consumption of private and public producers (49.8%) or for final consumption of Households and General Government (30.2%). The remaining part of expenditure (20%) was made up of investments. They were mostly corporations' investments carried out for the production of wastewater services.

FIGURE 12. OUTPUT AND VALUE ADDED FOR WASTEWATER AND WATER MANAGEMENT.
Years 2021-2022, billion euro



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

FIGURE 13. NATIONAL EXPENDITURE FOR WASTEWATER MANAGEMENT BY COMPONENT. Years 2021-2022, billion euro



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

More than a quarter of irrigated area cultivated with maize

In the 2019/2020 agrarian year, of the 2,358 thousand hectares of irrigated area (19% of the utilised agricultural area - UAA), arable crops were predominant, representing 68.5% of irrigated area. To follow, areas dedicated to permanent crops (27.5%) and permanent pastures and meadows (4.0%).

Among the arable crops, maize was the most significant crop in terms of irrigated area, accounting for 26.4% of the total irrigated land: maize for grain production (19.0%) and green maize (7.4%). Rice was the second most important crop, representing 9.0% of irrigated area (Figure 14). Among permanent crops, grapes had the largest share of the irrigated area (9.5%), followed by fruit crops (7.9%, excluding citrus fruits).

When analyzing the proportion of irrigated area with respect to total cultivated land by crop, rice was the only crop with fully irrigated land. Among arable crops, other heavily irrigated crops included outdoor vegetables (80.6% of the planted area), green corn (79.7%), corn for grain production (67.3%), and potatoes (66.3%).

In the group of permanent crops (or tree crops), citrus fruits stood out with 83.8% of the planted area being irrigated. Lower irrigation percentages were found for other fruit trees (47.9%), grapes (35.5%), and olives (12.6%).

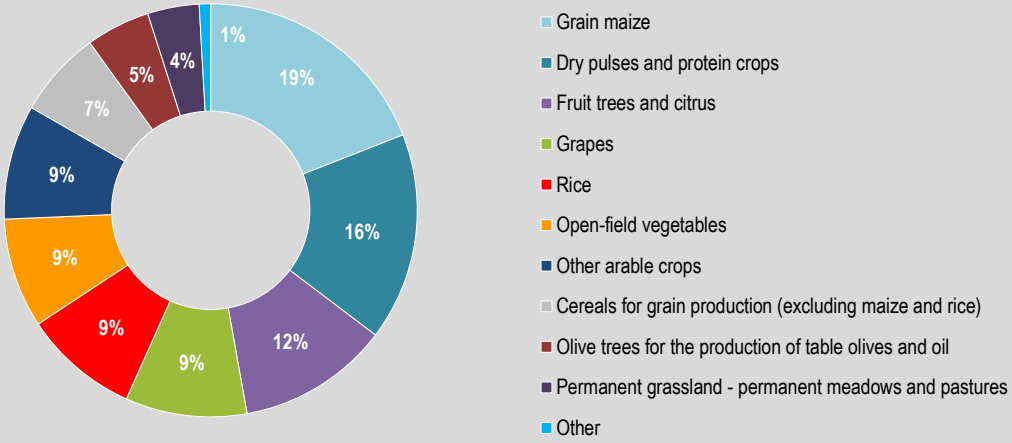
Among the irrigation techniques used, the most common was *sprinkling*, which was employed by farmers to irrigate 38.0% of the total irrigated land. This was followed by *microirrigation* (21.5%), *surface flow and lateral infiltration* (28.4%), *flooding* (7.0%), and *other systems* (5.1%).

Self-supply of water for over a third of irrigated land

In the 2019/2020 agrarian year, the most common source of water supply for irrigation was the *aqueduct, irrigation consortium, or other irrigation entity*, used to irrigate more than half of the irrigated surfaces (59.7%). This source was followed by *groundwater, sourced from within or near the farm*, used to irrigate 23.9% of the area. *Surface water, either from natural or artificial basins within the farm or from external sources such as lakes, rivers, or streams*, was used to irrigate 13.2% of the area. Finally, *other sources* were used to irrigate 3.2% of the irrigated land.

In the 2019/2020 agrarian year, only 6.3% of the farms that irrigated land requested irrigation consultancy services, with significant regional variability. The highest rates were observed in the autonomous provinces of Trento and Bolzano/*Bozen* (34.5% and 37.7%, respectively) and the Emilia-Romagna region (10.9%). In contrast, the lowest rates were found in the Marche region (1.3%), Abruzzo (1.7%), and Molise (1.4%), where the use of irrigation consultancy services was quite limited.

FIGURE 14. IRRIGATED AREA BY CROPS.
Agrarian year 2019/2020, percentage composition



Source: Istat, Agriculture Census.

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, by EU Delegated Regulation 2022/125 of the Commission of 19 November 2021 and by EU Regulation N. 3024/2024 of 27 November 2024), it is mandatory for the Statistical Institutes of the EU the production of nine environmental accounts, three of which will be produced from 2025 onwards while six (including Epea and Egss whose data are analysed in this report) are regularly produced by Istat: 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).

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 (EPEA): 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.

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

The analysis of the characteristics of water public services for the distribution of drinking water, sewage, and urban wastewater treatment is conducted using data from the “Urban water census”, a biennial survey conducted by Istat and included in the National Statistical Program (code PSN IST-02192).

Urban water census provides information on the entire public use of water resources, from the withdrawal of water for drinking purposes to the treatment of urban wastewater, as well as the main characteristics of water services in Italy. The unit of measurement is represented by the water operators in operation in the public water sector. The units of analysis are the managing entities and the facilities operated by each entity to carry out services such as: the extraction and transport of drinking water, drinking water distribution, sewerage networks, and urban wastewater treatment.

Data collected undergoes control, correction, and validation procedures to identify missing, partial responses, outliers, and inconsistencies. Some of the indicators produced through this survey, with reference to the water withdrawal for public water supply, the efficiency of the distribution network, and the characteristics of the sewerage and treatment system, contribute to Goal 6 of the SDGs.

When evaluating indicators for type of management, it is important to consider that the measurement of variables is less widespread among local public authorities and water utilities. Indeed, the collection of volumes supplied and distribution network characteristics is less systematic in local-managed operations, as these municipal entities often lack the same tools and expertise that are more commonly found in the water utilities.

The calculation of the coverage of residents actually served by public sewage does not rely on direct measurements but on indirect estimates made by the water operators based on information about the served users, demographic data, and infrastructure. Differences in calculation models and base information can influence results, causing variations over time in the estimated coverage, without necessarily being linked to real changes in service.

The main results of the survey are made available on the Istat website through "Statistical Reports" and "Data Tables." The IstatData database is also periodically updated. The collected data is analyzed and published in general publications (SDGs Report, Report on Equitable and Sustainable Wellbeing, Annual Report, Italian Statistical Yearbook, Noi Italia, Italia in cifre).

The territorial detail available varies depending on the indicator. In general, indicators are analyzed at the national, regional, hydrographic district, provincial, and metropolitan city level, as well as by type of municipality. Some indicators are also provided at the level of provincial/metropolitan capital cities.

Data tables and maps are included in the Statistical Report, referencing the main indicators discussed in the text, to facilitate the comprehension and interpretation of the content.

For further insights:

Urban water census - Survey information and methodologies

IstatData – Environment and energy/Water

Istat Water statistics - Years 2020-2023

Water rationing measures in provincial/metropolitan capital cities

The survey "Urban environmental data" is carried out annually by Istat in order to collect environmental information relating to the all Italian provincial and metropolitan capital cities. Present in the National Statistical Programme (IST-00907), it aims to provide useful indicators to compose an information framework in support of the monitoring of the state of the urban environment and of the activities carried out by the administrations to ensure the good quality of the environment in the cities. The survey is divided into 7 survey questionnaires: Air, Eco management (including water rationing for civil use, previously in the Water module), Energy, Mobility, Waste, Noise and Urban Green.

Data tables and maps are included in the Statistical Report, referencing the main indicators discussed in the text, to facilitate the comprehension and interpretation of the content.

For further insights:

Urban environmental data - Survey information and methodologies

IstatData – Environment and energy/Urban environment

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.

The main results of the survey are made available on the Istat website through "Statistical Reports" on several topics. Every year, the collected data is analyzed and published also in general publications (SDGs Report, Report on Equitable and Sustainable Wellbeing, Annual Report, Italian Statistical Yearbook, Noi Italia, Italia in cifre), and occasionally in Istat's in-depth or analytical series.

The available territorial detail is provided at the regional level and by type of municipality (Municipality center of the metropolitan area; suburban areas of the metropolitan area; municipalities with 50,001 inhabitants or more; municipalities with 10,001 to 50,000 inhabitants; municipalities with 2,001 to 10,000 inhabitants; and municipalities with up to 2,000 inhabitants).

Data tables and maps are included in the Statistical Report, referencing the main indicators discussed in the text, to facilitate the comprehension and interpretation of the content.

For further insights:

Aspects of daily life - Survey information and methodologies

Environmental concerns - Year 2024

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 insights:

Anthropic Pressure and Natural Risks - Survey information and methodologies

IstatData - Environment and energy/Mining and quarrying – Tables of data (years 2013-2022)

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.

Detailed data are released once per year on IstatData database by February. Time series starts from the year 2016 up to 2022 for the national territory as a whole. The time series are updated annually to incorporate updated inputs and revised during methodological reviews, including general reviews of national accounts. Data included in this report are consistent with the 2024 general revision of national accounts.

For further insights:

IstatData – National Accounts/Environmental accounts/Environmental goods and services accounts

Environment and Economy: Main Indicators - Years 2021-2023

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.

Detailed data are released once per year on IstatData database by February. Time series starts from the year 2016 up to 2022 for the national territory as a whole. The time series are updated annually to incorporate updated inputs and revised during methodological reviews, including general reviews of national accounts. Data included in this report are consistent with the 2024 general revision of national accounts.

For further insights:

IstatData – National Accounts\Environmental accounts\Environmental protection expenditure

Environment and Economy: Main Indicators - Years 2021-2023

Agricultural irrigated areas

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.

The field of observation is defined in the General Census Plan and is not entirely comparable with that of the previous Census. The main information disseminated, with reference to the farm centre of the holding, concerns the number of holdings, the ownership title of the land and its use, the size of the cultivated land, the labour employed, irrigation, organic areas, information on the manager of the holding, information on structural characteristics and economic size, information on other gainful activities.

For further insights:

Agriculture Census - Survey information and methodologies

For more details, please refer to the Italian version

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