

## ISTAT WATER STATISTICS | YEARS 2018-2020

# In 2018, Italy second in the EU27 for water abstraction for public water supply per capita

 In 2018, around **18** million people still not connected to public urban wastewater treatment plants.

Continue worsening in water losses in public water supply (**42.0%** in 2018).

In 2020, **87.4%** households very or fairly satisfied with water service in their houses.

In 2019, **9** provincial or metropolitan capitals (all located in southern Italy) affected by rationing measures in the public water supply.

In 2020, **67.4%** people aged 14 years or over careful not to waste water.

# 28.4%

**Household not trusting to drink tap water in 2020.**

40.1% in 2002

# 7.3 mln

**People still not connected to public sewage system in 2018.**

# 92.3%

**Monitored marine-coastal bathing waters with excellent quality in 2019.**

93.5% in 2018

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On the occasion of the World Water Day, established by the United Nations and celebrated on 22 March, Istat provides 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, as encouraged in the 17 UN Sustainable Development Goals (SDGs), in particular Goal 6 ("Ensure access to water and sanitation for all") and Goal 14 ("Conserve and sustainably use the oceans, seas and marine resources").

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

In 2020, 87.4% of households connected to public water supply declared themselves very or fairly satisfied with water service in their houses.

85.7% of households declared to be very or fairly satisfied with the water pressure level.

Regarding the smell, taste and clarity of water, 78.3% of households declared high levels of satisfaction.

Regarding the absence of interruptions to water supply, about 90.0% of households declared to be very or fairly satisfied.

On the meter reading frequency, eight out of ten households claimed to be very or fairly satisfied.

The level of households' satisfaction generally lowered in case of the comprehensibility of water bills: less than seven in ten households (67.4%) claimed to be very or fairly satisfied.

At the regional level, households living in northern regions showed, in general, the highest levels of satisfaction, which declined in other geographical areas, reaching generally the minimum in the Islands.

In 2020 8.8% of households complained about irregular water supply in their houses, value stable compared to 2019. This problem affected at different levels the whole of the Italian territory, involving 2.3 million households, mostly in the South and Islands. 34.1% of households complaining about irregularities declared that the malfunctioning occurred throughout the year, in 33% of cases in summer period and just sporadically in the remaining 32%.

With regard to water bill expenditure, 54.9% of households assumed that it was adequate; while 38.1% of households, mostly in the southern regions, considered it high.

## WATER: KEY NUMBERS. Years 2016-2020

YEARS	Households complaining irregularities in water supply in their houses	Household average monthly expenditure for water service	Household average monthly expenditure for mineral water	Households not trusting to drink tap water
2016	9.4%	13.59 euro	10.75 euro	29.9%
2017	10.1%	14.69 euro	11.94 euro	29.1%
2018	10.4%	14.65 euro	12.48 euro	29.0%
2019	8.6%	14.62 euro	12.57 euro	29.0%
2020*	8.8%	-	-	28.4%

\* provisional data

## Still low confidence to drink tap water

Almost one household in three did not trust to drink tap water, despite the gradual and fluctuating improvement over the last eighteen years: from 40.1% in 2002 to 28.4% in 2019. This distrust showed a marked territorial variability, with the highest values in the South Italy.

## Increasing environmental sensitivity but relevant territorial differences

In 2020 40.6% of people aged 14 and over said that they are worried about water pollution. There was a remarkable diversity between geographical areas, with the greatest concern declared by residents in the North and the least in the South.

Age is also a differentiating factor. Belonging to different age groups seems to have a rather appreciable impact on attitudes towards the water pollution: less sensitivity to the issue was found in the older groups (75 years and more) than the rest of the population surveyed.

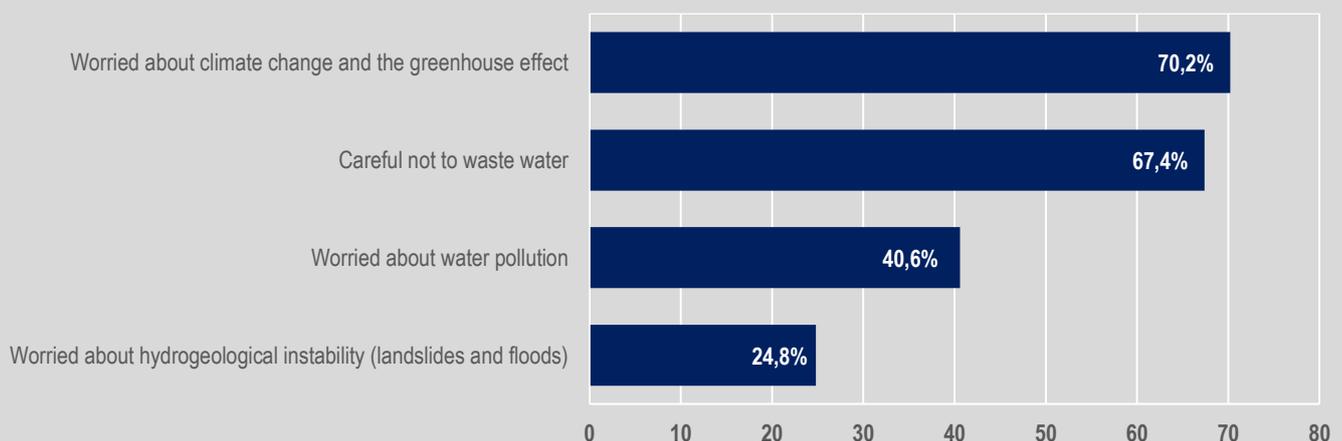
In 2020 24.8% of people aged 14 and over said that they are worried about hydrogeological instability (landslides and floods). Older respondents (people aged 55 and over) were more likely to be worried about hydrogeological risks, whereas young people (people aged 14-24 year) expressed less concern.

There was a significant and continuous increase in concern for climate change and the greenhouse effect, from 63.3% in 2012 to 70.3% in 2020, also because of the progressively more frequent extreme meteorological events and the consequent effects on hydrogeological risks and on the availability of water resources.

In 2020 67.4% of respondents (people aged 14 years or over) declared to be careful not to waste water, confirming the consciousness of how important is an appropriate management of the natural resources of our planet, even at the individual level.

**FIGURE 1. ATTITUDES OF PEOPLE AGED 14 AND OVER TOWARDS WATER ISSUES.**

Year 2020, percentage values



Source: Istat, Survey "Aspects of daily life" (provisional data)

## Growth in average monthly household expenditure for bottled water

Considering all Italian households, the average monthly expenditure for mineral water consumption was 12.57 euro in 2019. For the supply of water in the home, each household spent on average 14.62 euro, quite stable compared to 2018.

Overall, compared to 2015, household spending on bottled water grew more than that for the supply of water in the home (respectively, +22.4% and +9.2%).

In 2019 there was the lowest difference since 2015 between the expenditure for the supply of water in the home and that related to the mineral water consumption, with a gap of just two euro.

In 2019 in the 65.0% of households there was at least one member used to drink daily more than one litre of mineral water.

## Increasing in natural mineral water withdrawals

The Italian hydrogeological system makes the national mineral water heritage one of the most relevant for number of springs and quality of these natural resources.

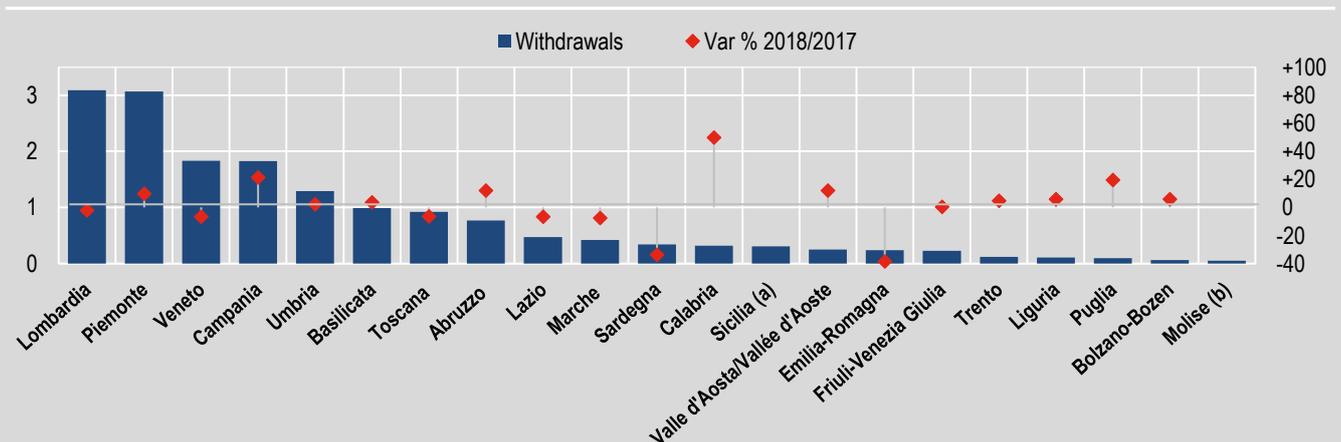
In 2018, there was at least one authorized mining site of natural mineral waters in 159 Italian municipalities. Companies working in these authorized mining sites were 187 (38.5% in the North and 32.6% in the Centre).

Natural mineral waters withdrawals used for production purposes amounted to 16.8 million cubic meters (+1.7% compared to 2017).

Withdrawals were mostly concentrated in the North of Italy with 9 million cubic meters (53.5% of the total extracted).

In 2018, the Extraction Intensity indicator (EII, ratio between volumes extracted and land areas considered), was 56 cubic meters of mineral water per square kilometers calculated at the national level. The highest EII value was recorded in the North-west of Italy (112 cubic meters per square kilometers).

**FIGURE 2. WITHDRAWALS OF NATURAL MINERAL WATER USED FOR PRODUCTION PURPOSES BY REGION.** Year 2018, values in million cubic meters (primary axis) and percentage variations (secondary axis)



Source: Istat, Survey "Anthropic Pressure and Natural Risks. Mining and Quarrying extraction activities"  
 (a) Data 2017 not available (b) Data 2018 not available

### Italy ranks first in the Eu27 for freshwater abstraction for public water supply

In 2020, Italy was in the lead, in the European Union (Eu27), with the highest volume of freshwater abstracted for public water supply in absolute terms (9.2 billion cubic meters). In per capita terms, the gap between member states was wide and Italy took the second place (153 cubic meters per inhabitant), immediately after Greece (157), with values quite distant from the following countries in the ranking, Ireland (128), Bulgaria (119) e Croatia (111). In contrast, in Malta it was just 30 cubic meters per inhabitant.

The great majority of Eu Member States abstracted between 45 and 90 cubic meters of freshwater per person for public supply in 2020. The amount abstracted in each country is strictly related to the available water resources, the demand, the abstraction practices, the climate conditions and the industrial and agricultural activities connected to the urban network. Besides, specific national conditions can also influence the volumes, such as the infrastructural conditions, the level of leakages in the public water supply network.

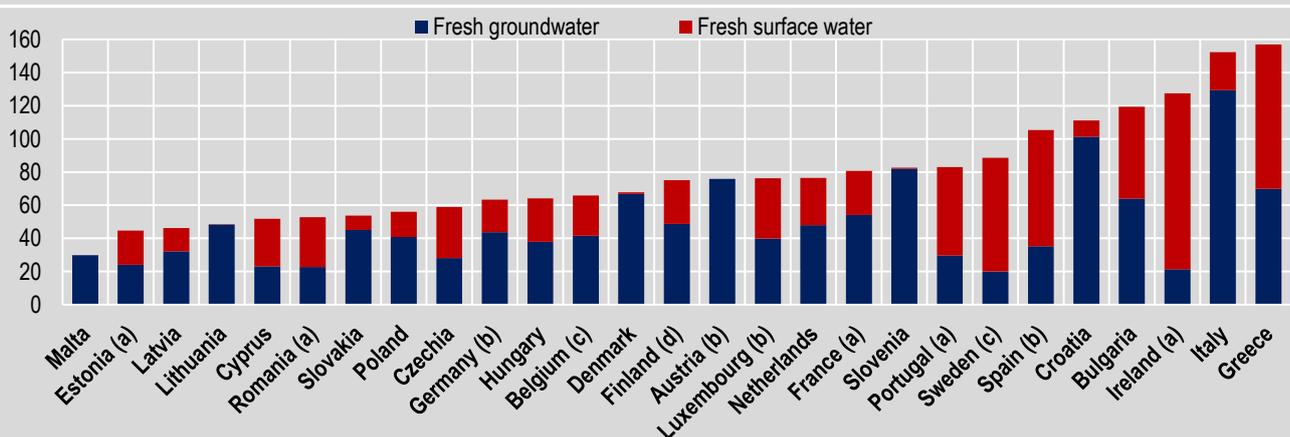
### In Italy high exploitation of fresh groundwater for drinkable use

Among the Eu27 countries in the Mediterranean area, in 2018 Italy was one the countries that exploited the vast majority of groundwater, springs and wells, the largest and most precious fresh water resource for the Italian territory (84.8% of the total volume abstracted) essential to satisfy the drinkable uses.

About 56% of the total water was abstracted from abstraction points with flow rates above 50 liters per second, that represented 2% of points (approximately 35 thousand), predominant in the case of artificial basins (98.0% of the volume) and small for the wells (35.6%). The abstraction from sources with consistent flow rates (over 30 liters per second) was predominant even in the case of natural lakes and rivers. On the other hand, springs and wells had a much more widespread variability, in number and flow.

In 2018, for the first time over the last 20 years, there was in Italy a reduction in the volume of water abstracted for drinking use (-2.7% on 2015), generalized at the river basin district and regional level, with the exception of the Molise region, where a consisting increase of the withdrawals was recorded (+27.4% on 2015), also to meet the needs of neighbouring regions under strong pressure on the available resource following the 2017 water crisis.

**FIGURE 3. FRESHWATER ABSTRACTION FOR PUBLIC WATER SUPPLY IN THE EU27 COUNTRIES.** Year 2018 or last available year, cubic meters per inhabitant



Source: Istat elaboration on Eurostat data  
 (a) Year 2017; (b) Year 2016; (c) Year 2015; (d) Year 2014

### Well abstraction peaks in the summer

The monthly withdrawals were not constant in the 2018, reaching peaks in the summer period and in particular in July, when 9.3% of the annual total was abstracted. The seasonal analysis indicates, therefore, that the highest withdrawal occurred during the summer, in the July-September quarter.

The long drought periods of the summer months mainly affected the springs availability, with a consequent greater exploitation of the other types of sources, in particular wells used as summer reserves and artificial basins. The exploitation of marine or brackish water for drinkable purposes, even if it represented a small percentage of the total volume abstracted (0.1%), was particularly accentuated in the summer, being strictly functional to satisfy the water uses in the smaller Italian islands, due to the greatest tourist attraction.

### Slight worsening of total water losses in public water supply

The water supply is quite heterogeneous in Italy. In 2018 the territorial supply of 4.7 billion cubic meters was strictly connected to the infrastructural aspects, the attractiveness of the territory (for tourism, work, health), the demographic conditions and the socio-economic dynamics. The spread of fountains, especially in mountain areas, may give rise to significant volumes supplied, explaining the significantly higher values of per capita volumes.

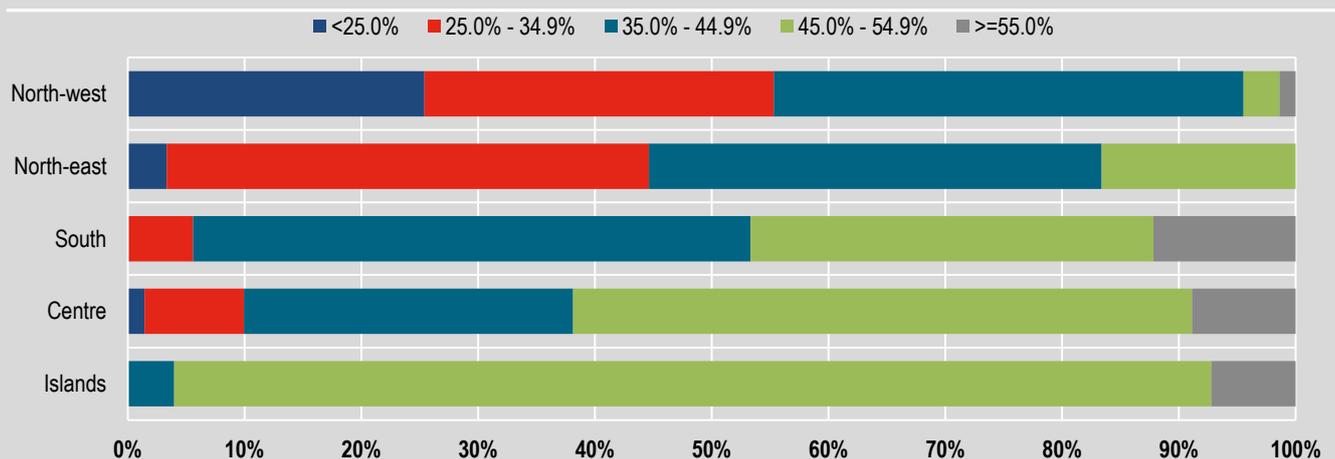
Not all water input into the network is actually supplied to end-users due to the losses. In 2018, comparing 8.2 billion cubic meters input into the network and 4.7 billion supplied for authorized uses, the public water supply network had a percentage of total water losses of 42.0% (41.4% in 2015), which implies that every 100 liters input into the supply system, 42 were not supplied to end-users, confirming the critical state of the water infrastructure. In the end, 3.4 billion cubic meters were lost in distribution: 156 liters per person per day which, estimating a daily consumption per capita of 215 liters (national value), would have guaranteed the water needs of about 44 million people for a whole year.

About one in two provinces/metropolitan cities had a value of total water losses in distribution higher than the national figure, with the most critical situations concentrated in the areas of central and southern Italy (Figure 4). Compared to 2015, more than four out of ten provinces have suffered a worsening of total water losses in public water supply.

### Slight improvement in water rationing in southern provincial capitals

Water rationing measures in the public water supply occurred, in 2019, in 9 provincial or metropolitan capital cities, all located in the South Italy. The number of cities involved reduced of 3 units in relation to 2018 and the number of days of water rationing considerably decreased in some municipalities.

**FIGURE 4. RESIDENT POPULATION BY PROVINCIAL RATE OF TOTAL WATER LOSSES IN PUBLIC WATER SUPPLY AND GEOGRAPHICAL AREA. Year 2018, percentage composition**



Source: Istat, Urban water census

## Around 9 out of 10 inhabitants connected to the public sewerage system

The percentage of the population served by the public sewerage system, regardless of the availability of subsequent treatment plants, was estimated equal to about 88% in 2018. The service was completely absent in 40 municipalities and, where present, not always it was extended to the entire municipal territory, especially in scattered settlements, mountain areas or zones difficult to reach, or in municipalities where the sewage network was recently put in operation. Where there is no service, urban wastewater is generally treated in autonomous disposal systems, such as private Imhoff tanks.

It was estimated that 7,3 million people were still not connected to public sewage system in 2018.

84.2% of Italian municipalities had a public sewerage service coverage of more than 75% of population in the area, 12.9% between 50% and 75%, 2.3% between 25% and 50%, 0.6% has coverage of less than 25% of residents and the remaining 0.5% did not have a network in operation.

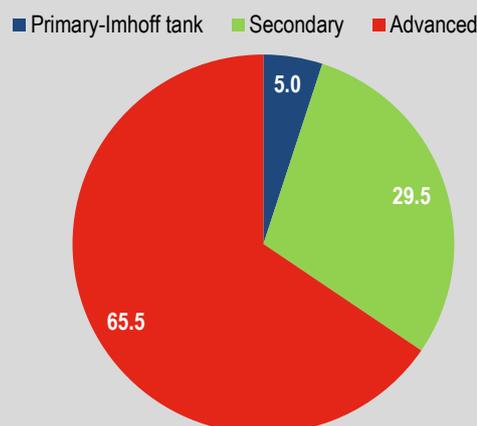
## Absent the public waste water treatment for about three in ten residents

In 2018 the public urban waste water treatment, guaranteed by 18,140 plants in operation nationwide, treated an average annual pollutant load of about 68 million population equivalent. 65.5% of the civil and industrial pollutant load was purified in plants with advanced (or tertiary) treatment, 29.5% in secondary plants, the remaining 5.0% in primary plants and Imhoff tanks (Figure 5).

Pollutant loads include discharges from residents, non-residents, tourists and productive activities with fewer than five employees.

The estimated proportion of the population connected to urban waste water treatment plants corresponded to about 70% in 2018, about 42.3 million inhabitants. The remaining share of the population (18 million) was therefore not connected to the public sewage service or lived in municipalities partially treated by urban waste water treatment plants or where the service was completely lacking (339).

**FIGURE 5. POLLUTANT LOADS IN ENTRANCE TO URBAN WASTE WATER COLLECTING AND TREATMENT SYSTEMS, BY TREATMENT LEVEL.** Year 2018, percentage values in terms of population equivalent



### Over two thirds of the Italian coastline subject to bathing water monitoring

In 2019 over two thirds (67.1%) of the Italian coastline (over 9,000 km in total) were monitored to evaluate the quality of bathing water set out by the EU Bathing Water Directive; the remaining 32.9% was subjected to permanent bathing prohibition as located in areas reserved for specific activities excluding bathing, or presenting safety risks due to hygienic-sanitary reasons.

In 2019, the share of bathing water sites with excellent water quality were 92.3% of the monitored Italian coastline. Puglia was the region with the greatest share of water classified 'excellent' (99.7%).

Veneto, Puglia and Friuli-Venezia Giulia regions had not waters with poor quality, while Calabria, Campania and Sicily had the largest number.

Taking into account monitored bathing water banned (temporary bans) for the entire bathing season, due to the presence of contaminants above the health risk thresholds, in 2019 65.5% was the percentage of the length of the bathing coast compared to the total length of the coastal line. 1.6% of the monitored coast was never opened during the 2019 bathing season.

### Slight increase in annual precipitation with respect to the period 1971-2000

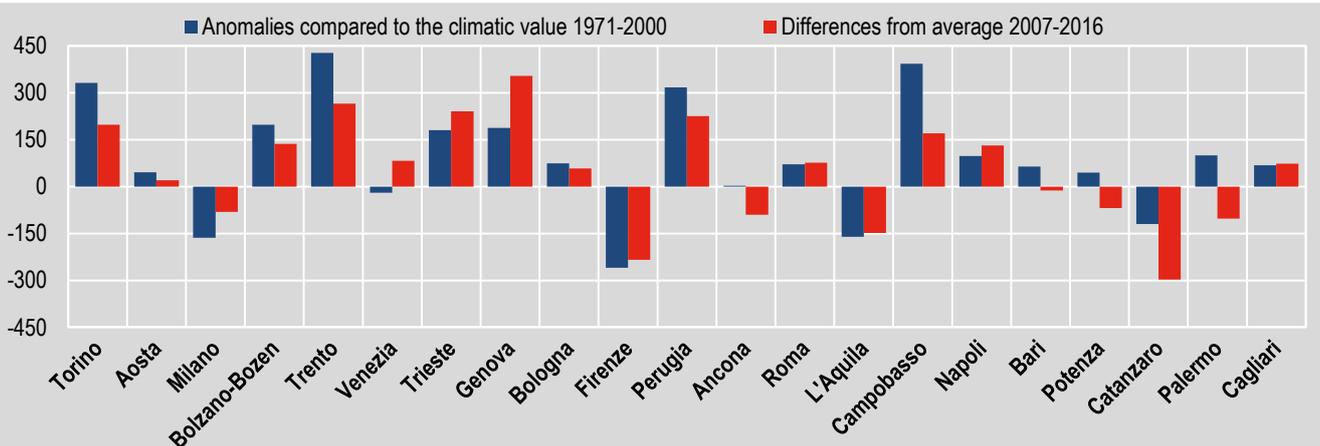
In 2019, in Italian regional capital cities – where about 16% of the Italian population lived – the total annual precipitation was about 855.4 millimeters (calculated as average of the values recorded in the cities observed). It means +89.5 mm compared to 1971-2000 (Climatic Normal) correspondent average value and +47.5 mm compared to 2007-2016 average period (Figure 7).

Indices of meteo-climatic extreme related to precipitation show a number of rainy days, equal to 83 during 2019 (on average among the capital cities observed), slightly increasing compared to 1971-2000 climatic value (+3 days). Increases affect more than half of the cities observed.

In 2019, the number of consecutive wet days (with precipitation  $\geq 1$  mm) was on average equal to seven. The number of consecutive dry days (with precipitation  $\leq 1$  mm) was 26. Even if such index remained in line with the climatic value, it recorded increases in half of the regional capitals considered.

The annual count of days with daily precipitation greater than or equal to 20 mm was 12 (average value among the cities observed).

**FIGURE 6. ANNUAL PRECIPITATION ANOMALIES COMPARED TO THE CLIMATIC VALUE 1971-2000 AND TO THE AVERAGE 2007-2016, BY REGIONAL CAPITAL MUNICIPALITY.** Year 2019, values in millimeters



Source: Istat, Survey "Meteo-climatic and hydrological data"

# Methodological notes

## Water abstraction and use for public water supply

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 management companies operating in Italy in the urban water 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.

The focus analyzes, in particular, the data from the survey carried out in 2019, in reference to 2018.

For further information:

<https://www.istat.it/en/archivio/252831>

## Evaluations and opinions of citizens towards water services

The sample survey "Aspects of daily life" is a part of an integrated system of social surveys - The Multipurpose Surveys on Households - and it collects fundamental information on individual and household daily life. From 1993 to 2003 the survey was conducted annually, with data collected during the month of November. In 2004 the survey did not take place and, starting from 2005, it was run every year in February. The survey, included in the National Statistical Programme (IST-00204), provides information on the citizens' habits and the problems they face in everyday life. In the questionnaires, thematic areas are on different social aspects permitting to realize which is the quality of individual life, the degree of satisfaction of their conditions, their economic situation, the area in which they live, the functioning of all public utility services; all topics useful to study the quality of life. School, work, family and social life, spare time, political and social participation, health, life style, access to the services are all investigated from a point of view in which behavior objectivity, motivations, opinions contribute to define the social information.

For further information:

<http://www.istat.it/it/archivio/91926>

## Household water expenditure

The Household Budget Survey (HBS) aims to measure and analyze expenditure behaviors of households residing in Italy, according to their main social, economic and territorial characteristics. It is included in the National Statistical Programme (IST-02396). The survey, carried out continuously with CAPI (Computer Assisted Personal Interview) technique on an annual theoretical national sample of about 28,000 households, is based on the harmonized international classification of expenditure voices (Classification of Individual COntsumption by Purpose – Coicop). Since 2014, the new HBS has replaced the old HBS (carried out between 1997 and 2013). The current survey design differs deeply from the previous one: in particular, expenditure reference periods have been enlarged and the most updated ECoicop has been adopted. As a consequence, it has been necessary to reconstruct the time series of the main expenditure aggregates since 1997. Time comparisons between 2014 estimates and previously disseminated estimates can be made only using reconstructed data.

For further information:

<https://www.istat.it/it/archivio/71980>

## Water rationing

The survey "Urban environmental data" is carried out annually by Istat in order to collect environmental information relating to the capitals cities of all Italian provinces and metropolitan areas. Present in the National Statistical Programme (IST-00907), it aims to provide useful indicators to compose an information framework to support 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 (which includes water rationing for civil use, previously in the Water module), Energy, Mobility, Waste, Noise and Urban Green.

For further information:

<https://www.istat.it/it/archivio/254037>

## Bathing waters

The purpose of Directive 2000/60 is to preserve, protect and improve the quality of the environment and to protect human health. Istat, thanks to the contribution of Regions and ARPA, has defined and updated a homogeneous coastline on which bathing areas and sample points have been reported. The coastline produced by Istat consists of the external line of the census sections of Italian coastal municipalities, updated with the information received by the Regions, ortophotos of 2011, 2013 and 2014 and the coastline produced by ISPRA. This line indicates a coastal development of the Italian peninsula higher than 9,000 km, including also anthropic infrastructures such as port facilities, erosion barriers, docks, configuration of natural ports. This coastline is used only for statistical purposes.

For further information:

<https://www.eea.europa.eu/themes/water/europes-seas-and-coasts/assessments/state-of-bathing-water/country-reports-2019-bathing-season/country-reports-2019-bathing-season>

<https://www.eea.europa.eu/publications/european-bathing-water-quality-in-2019>

<http://www.portaleacque.salute.gov.it/PortaleAcquePubblico/>

## Meteo-climatic and hydrological data

The Istat Meteo-climatic and hydrological data survey is included in the National Statistical Programme (IST-02190) and is regularly conducted by Istat. Data analyzed in the report are referred to 2019. Statistical information provided by this survey can be put in relation with other official statistics regularly produced by Istat on thematic areas such as environment, human health, urban systems, public utilities, to multidimensional analyses. Meteo-climatic variables collected include daily observations of precipitation (mm), minimum temperature (Celsius degree), maximum temperature, mean temperature, and humidity. The respondents units are institutions (public and private) and agencies officially managing national networks of georeferenced meteorological stations.

In particular, given the purpose of this analysis, measurements analyzed come from meteorological gauging stations (units of analysis) located within the territory of regional capital municipalities. For this reason, data used and indices calculated provide measures related to the climatic characteristics of the individual monitored areas. In the report aspects of regional capital municipalities climatic variability are described, in particular observing precipitation anomalies of 2019 comparing to the Climatological Normal (CLINO) value, defined by the 1971-2000 period, and the 2002-2017 mean values.

Some Indices of climatic extremes, defined by the ETCCDI (Expert Team on Climate Change Detection and Indices of WMO-UN) core set have been calculated for Italian regional capitals.

For further information:

<https://www.istat.it/it/archivio/251803>

<https://www.istat.it/it/archivio/202875>

## Mineral waters

In 2015 the survey “Anthropic Pressure and Natural Risks. Mining and Quarrying extraction activities”, included in the National Statistical Programme (IST-02559), was carried out for the first time with the aim to analyze extracting mineral resources from quarries and mines at regional level, and also to highlight aspects related to the pressures exerted on the natural environment and in the territory. Subsequently, survey was carried out on an annual basis, with the aim to update the Istat’s Mineral Database. Extending the field of observation, since 2017 data on mineral and thermal water withdrawals per region were collected for the first time. Extraction of energy-producing minerals is not included in the survey.

The microdata are acquired from the administrative archives of the local public institutions responsible for the extraction of minerals that do not produce energy (also involving the Statistical Offices of the Regions) through the Technical Offices of the sector located in Regions, Provinces, Autonomous Provinces of Trento and Bolzano, Sicilia Mining Districts.

In the 2020 edition, important innovations were introduced in the data collection, implementing some methodological advances aimed at standardizing the information collected and improving the quality of statistical production.

For further information:

<https://www.istat.it/it/archivio/246015>

**For more details, please refer to the Italian version**

## For technical and methodological information

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