

WATER

1. Purpose, nature and relevance

Information on water covers different parts of the water cycle in quantitative terms (water abstraction, water use, wastewater), water infrastructure, treatment plants for drinking water, urban wastewater treatment plants (UWWTP) - capacity, sludge, population connected to public water supply, sewage, wastewater treatment plants; population under water supply regime.

Final results referring to the water use are derived by calculations based on the actual data from surveys and by applying balancing methods, structures and estimates.

The accuracy of the data on water is largely determined by the manner in which respondents recorded water levels. Direct and indirect methods are used. Higher quality data are obtained by direct measurement (e.g. through water meter). In the rest of cases indirect methods are used such as calculations, estimates (e.g.: capacity of pumping equipment multiplied by the duration of pumping; the energy consumption of pumping equipment, multiplied by a specific factor (m^3/MWh), capacity of production, etc.).

2. Coverage and sources of information

Source of data on data are the annual statistical studies that include surveys:

Survey on water services, sewage and wastewater treatment - exhaustive. Data are collected from public water supply companies (PWS partnerships), providers of water through irrigation systems and operators of urban wastewater treatment plants.

Survey on water use - the subject of the study are economic units that have used over 36 thousand cubic meters of water per year /approximately 4.1 cubic meters per hour/. The water abstraction of physical persons is not surveyed.

Data are collected through statistical questionnaires in electronic format.

3. Definitions of indicators

Water abstraction Abstracted water is divided into two categories - fresh and non-fresh water (sea and transitional). To the fresh surface waters are referred all shore waters (inland rivers, the Danube river, dams, freshwater lakes), and to the groundwater - all water located below the surface of the earth in the saturated zone in a direct contact with earth layers (sources, catchments, drilling wells, drainages, shaft wells). According to the Classification for characterization of surface type's water bodies in conformity with the Water Framework Directive in Bulgaria are not identified transitional waters (National Report on implementation of the WFD, 2007). Therefore, to non-fresh water since 2006 is included only sea waters.

Gross fresh water abstraction - is the total amount of water abstracted by the water supply companies (irrigation systems and public water supply (PWS partnerships) and that abstracted by self-supply in the surveyed enterprises (including cooling water in the Nuclear power plant). Processed water for hydropower production is a separate category and is not included in the total water volumes abstracted. There are no data available on self-supply of households. **Water net abstraction** is the water gross abstraction minus returned water (the water abstracted from any fresh water source and discharged back into it without being used).

Water passed is the annual volume of water entering the water supply system of the water supply companies (PWS partnerships and irrigation systems). The volume of passed water includes the water in fact delivered to consumers (for drinking and industrial purposes, irrigation, etc.) and losses in the transport of water.

Water losses in the transport is the volume of water lost between the point of abstraction and point of use (leaks and vapors). Respondents report losses through

computational methods, because direct measurements are difficult to apply. The percentage is calculated as a proportion of the lost water volume of water entered the water supply network.

Total water used is calculated as the sum of the quantities reported by water users and suppliers of water. There are three categories of water use - from self-supply, delivered by water supply companies (PWS partnerships and irrigation systems) and other water supply (e.g. from neighboring enterprises).

Calculations of the water used from delivery by economic activities (sectors, groupings) are made using the structure of the activities of the covered enterprises for weighting the total delivery of water.

Statistical difference between the results for the sectors at national and regional level is determined by differences in the structures of economic activities of the separate levels of aggregation.

UWWTP - subject of survey are the plants treating wastewater from settlements upon order of public body (public services). Information contains the main features of the operating in the country Urban wastewater treatment plants (UWWTP) - methods of treatment, design capacity (water volume and BOD5), inflow and outflow load (BOD5), connected settlements, sludge generated and disposed. Methods of treatment are consistent with the definitions in national law.

Water supply and sewerage network - the information contains key features of the infrastructure built for drinking water supply and for wastewater collection into the sewerage. Data is prepared about the length of the water supply and sewerage system (total, newly built, reconstructed/replaced), operated by the Water Supply Sector. Detailed data about the types of pipes and years of putting into exploitation is collected every five years.

Population connected to public water supply, sewerage, wastewater treatment plants. The calculations are performed by linking data from current demographic statistics with data on the settlements reported by water supply companies rendering services on delivery of drinking water, wastewater and discharge into public sewerage and UWWTP. As population connected to public sewerage network is considered the population with an organized wastewater discharge. As population with independent wastewater treatment is considered the population using its own facilities for treatment (septic tanks, cesspools, etc.). Percentage of the connected population could be overestimated in cases where settlement is partially connected to sewage network/the UWWTP. More accurate data can be provided by the Population census.

Wastewater. The information contains quantitative apportionment of water generated and discharged after use by public sewerage and water users. Water discharged after use is separated into two categories - wastewater and cooling water. The results are based on data from surveys and balance methods.

Generated and discharged wastewater is the total quantity of the water which, after use is discharged by the surveyed enterprises (into public sewerage and water bodies) and households. Wastewater generated by households are estimated (90% of water delivered to households by PWS companies). Wastewater reused in the same enterprise is not included.

4. Deadlines and ways of dissemination of the survey results

Deadlines for disseminating the results of statistical survey on water are specified in the *Calendar for the presentation of the results of the statistical surveys carried out by the National Statistical Institute*. The data is published once a year as final data. The survey results are published on NSI website – www.nsi.bg and in the following publications:

- "Statistical Yearbook"
- "Statistical Reference Book"
- Publication "Bulgaria – Statistical Panorama"

- Publication “Sustainable Development of Bulgaria”
- Publication “Environment”
- Brochure "Bulgaria"