REPUBLIC OF BULGARIA
National Statistical Institute

"MUNICIPAL WASTE" STATISTICAL SURVEY METHODOLOGY

The statistical survey is conducted annually by the Environmental and Energy Accounts Department, Macroeconomic Statistics Directorate, of the National Statistical Institute, on the basis of mandatory participation, according to the National Statistical Program.
According to Art. 20 of the Statistics Act, respondents are obliged to provide the National Statistical Institute with reliable data on surveys included in the National Statistical Program, which are intended to be conducted on the basis of mandatory participation.
According to Art. 25, para. 1 of the Statistics Act, individual data obtained and collected during statistical surveys are confidential and can only be used for statistical purposes.

GENERAL INFORMATION

OBJECTIVE
The main objective of the statistical survey is to provide information to all stakeholders and the public about the type and amount of waste generated by the population of household origin and, accordingly, the pressure on nature from daily human activities. The pupose is also tied to the country's responsibilities for reporting to Eurostat and collecting data in an appropriate format and standard according to European requirements.

ESSENCE

According to para. 1 of the Supplementary provisions of the Waste management act:
"Municipal waste" means:

a) mixed waste and separately collected waste from households, including paper and cardboard, glass, metals, plastics, bio-waste, wood, textiles, waste electrical and electronic equipment, waste batteries and accumulators, as well as bulky waste, including mattresses and furniture;

b) mixed waste and separately collected waste from other sources that are comparable to household waste in nature and composition; Municipal waste does not include waste from production, agriculture, forestry, fishing, septic tanks and sewage network and treatment, including sewage sludge, end-of-life motor vehicles or construction and demolition waste.

"Bio-waste" means biodegradable garden and park waste, food and kitchen waste from households, offices, wholesalers, canteens, restaurants, caterers and retail premises, as well as comparable waste from food processing plants.
"Biodegradable waste" means any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, paper, paperboard and others.
The method of data collection also complies with the requirements of Regulation (EC) No. 2150/2002 on waste statisticsand meets European data comparability standards. Thus, at a higher level, comparisons and conclusions can be made between EU member states, as well as with other countries.

For the preparation of the data on municipal waste, the data from the specialized statistical survey "Municipal waste" conducted by NSI, as well as data on the treated municipal waste and landfills for municipal waste, collected by the Environment Executive Agency, are used.

PURPOSE
The data on municipal waste are used both for reporting to various international institutions (EO - DG Eurostat, etc.) in the relevant formats, according to signed agreements/contracts, directives and regulations, and for carrying out estimations and analyzes by various institutions or organizations in the country .
The data are published annually, according to the Release Calendar, on the NSI website for public information.

STATISTICAL SURVEY

SCOPE, STATISTICAL UNIT AND GENERAL POPULATION
The statistical survey covers the municipalities on the territory of Bulgaria (total 265), as responsible for the management and collection of municipal waste on their territory, as well as administrative data for the municipalities collected by legal entities dealing with the transport/treatment of waste, provided by the ExEA .
The statistical unit is municipality.
The general population consists of all municipalities in the country.
The statistical survey is comprehensive.

DATA SOURCES
- Statistical survey "Municipal waste";
- Administrative sources (ExEA).
- Directorate "Environmental Monitoring and Assessment", Executive Environment Agency (statistics body) provides data collected through the NISO system for the reporting year by the end of October of the year following the reporting year.

FREQUENCY OF DATA COLLECTION AND PUBLICATION
Annually.

STATISTICAL STUDY

SCOPE, STATISTICAL UNIT AND GENERAL POPULATION
The statistical survey covers the municipalities on the territory of the country. The statistical study is exhaustive.

DATA COLLECTION
Primary data are collected from respondents for the previous reporting year. The data are collected via Environmental Statistics Information System (ESIS), which includes automatic checks for completeness, valid values, and logical data control, according to the specifics of the survey. The nomenclatures used for its needs and instructions for the respondents are available in the system.

PRIMARY DATA PROCESSING
After the respondents have reported their data in ESIS, their processing begins. It is carried out in the system according to the survey program schedule and goes through several stages.

Data validation is carried out on the basis of clearly defined criteria regarding their completeness, correct classification, units of measure, comparability with previous years, logical control, etc.
All checks are done at the respondent level.

DATABASE PREPARATION
After finalising the process of removing all identified errors and discrepancies in the data, actions on classifying and coding the data related to the statistical units or collected variables are also taken. The purpose of these encoding procedures is to obtain derived variables, numerical values, or aggregate values during the next processing stages. The coding process is carried out using code tables. When new versions of the used classifications and nomenclatures appear, recoding and reclassification of statistical units and variables is carried out.
After completing these actions, the methodologists prepare the primary database for further processing and calculation the statistical data.

CALCULATION AND ANALYSIS OF STATISTICAL INDICATORS

DATA PREPARATION
Data preparation is a set of processes through which the primary data are brought into a form suitable for the statistical data calculation, analysis and assessment of their quality and the subsequent presentation to users, incl. fulfillment of reporting obligations to Eurostat, according to the specified table formats.

ASSESSMENT OF PRIMARY DATA RESPONSE RATE
Reports from all survey respondents should be collected within the Campaign. Given the provisions of Art. 20 of the Statistics Act and as local self-government bodies, the municipalities are obliged to provide the required data, and ensuring full (100%) collection of reports and data is mandatory

STATISTICAL DATA CALCULATION
<u>Population served and served settlements by the waste collected system</u>
Data from the demographic statistics for the annual number of the population in the reporting year and the previous year by settlement are used to calculate the served population.
A file with the data on the average annual population for the reporting year is loaded into the ESIS.
The percentage of the population served is calculated using the following formula:

Percentage (%) served population =
(Population in the served settlements / Average annual population)*100

The date is aggregated by statistical region and district by indicators:
- Average annual population;
- Population in the served settlements;
- Number of served settlements;
- Percentage (%) population served.

<u>Collected, generated and treated waste</u>
<u>Collected waste (tons)</u>

From the array of primary data from the ExEA (with data by waste codes, enterprises and municipalities), waste is taken, according to "List of waste" and "Ordinance No. 2 of July 23, 2014 for the classification of waste" from group 15 01 (packaging, including separately collected municipal packaging waste) and group 20 group (municipal wastes (household waste and similar commercial, industrial and institutional wastes), including separately collected fractions), without the following codes:

- 200301 (mixed municipal waste) - under this code the data is collected by NSI;
- 200202 (soil and stones), 200304 (septic tank sludge), 200306 (waste from sewage cleaning) – these are non-domestic waste, according to the Guidance for the compilation and reporting of data on municipal waste.

Checks are made on the waste data provided by the ExEA (by codes). Checks are carried out on the basis of a specially developed instructions for processing municipal waste data in the ExEA.
Only the amounts of waste code 200301 (mixed municipal waste) are taken from the primary database of the "Municipal waste" survey.

The data processed in the above-described method are aggregated at the various territorial levels. A re-check is carried out for the quantities of collected and, accordingly, treated waste at the level of municipality, district, region, zone, and country.
The amount of waste collected per capita from the population served is calculated according to the following formula:

Collected waste per capita from the population served (kg/capita/year) =
Waste collected / (Population served * 1000)

Generated waste (tons)
The generated waste by the unserved population is calculated at the municipality level, and this amount is added to the landfilled waste.
Unserved is the population that is not covered by waste collection systems. The data for the unserved population is necessary, because the final statistical data must be relevant to the phenomenon of generated waste in its entirety.
Waste generated by the unserved population at the municipality level is calculated according to the following formula:

Waste generated by the unserved population at the municipality level =
Waste collected * Population in unserved settlements / Average annual population = Waste collected * (100-% served population)/100

Waste generated (kg/capita/y) =
Waste generated / Population * 1000

Checks are made again for the quantities of generated and, accordingly, treated waste at the level of municipality, district, region, zone, and country.

Waste collection systems - number, occupied area, residual capacity
A comparison of the data with the data of previous years is made, as well as a check for large differences at the various levels - municipality, district, region, zone and country.

Specialized software – Excel, SPSS and/or R – is used to calculate the data.

CONFIDENTIALITY

According to Regulation (EC) No. 223/2009 on European statistics and the Statistics Act , individual (primary) data of enterprises are confidential (confidential). In order to ensure their protection and the impossibility of being identified, aggregated indicators are defined as confidential and when:

- Criterion A - the indicator is formed by one or two enterprises;
- Criterion B - one enterprise dominates the value of the indicator with a share equal to or greater than 85%.

QUALITY ASSURANCE

The statistical survey follows the General model of the statistical production process in NSI. The quality ssurance is carried out in order to guarantee compliance with the requirements of the Statstics Act. Data quality is ensured by the application of the European Statistics Code of Practice principles and NSS Common Framework for Quality Management.

In order to ensure high quality of the data, their consistency with administrative data is checked. Efforts are being made to continuously improve the quality of the data, by improving the primary data collection system through the online-based ESIS, ensuring strict arithmetic and logical control of the input data, and by performing additional analyzes and verifications.

Quality report and metadata are also published on the NSI website together with the statistical data. They are updated annually and contain additional information related to the survey.

STATISTICAL PRESENTATION

The data on municipal waste are presented in general for the country and by territorial levels - statistical districts and regions.

They are published on the NSI website in the 'Statistical data – Environment' section, as well as in the Infostat system. The data are used for the preparation of NSI publications: Statistical Yearbook, Statistical Reference Book, brochure 'Bulgaria', specialised electronic publication 'Environment', as well as for providing information upon users' request.

Data on generated, treated waste and waste landfills are provided to the Ministry of Education and Culture for the purposes of calculating the Inventories of emissions of harmful substances and greenhouse gases into the atmosphere.