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BOŽIĆ I SINOVI

INCREASING THE RECYCLING RATE FOR BATTERIES AND LIGHT BULBS

Current situation and suggestions for improvement

Implemented by:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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March 2021

The document was prepared within the project "Increasing the recycling rate for batteries and light bulbs", under develoPPP programme of the German Federal Ministry for Economic Cooperation and Development (BMZ). The Project is implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and companies Božić & Sinovi and E-Reciklaža, in cooperation with National Alliance for Local Economic Development (NALED) and the Association of Recyclers of Serbia.

What needs to be done to improve the existing system?

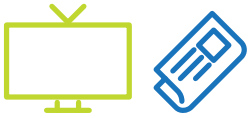
COOPERATE WITH RELEVANT COMPETENT AUTHORITIES AND HARMONIZE POLICY AND IMPLEMENTATION OF LEGISLATION

OPEN A BATTERY RECYCLING PLANT

PLACE CONTAINERS FOR SEPARATE COLLECTION OF USED BATTERIES, ACCUMULATORS AND LIGHT BULBS AND ESTABLISH A SYSTEM OF SEPARATE COLLECTION OF THIS WASTE

ORGANIZE COLLECTION OF BATTERIES AND LIGHT BULBS THROUGH RETAIL NETWORK, EDUCATIONAL AND PUBLIC INSTITUTIONS

APPLY THE LIGHT BULBS COLLECTION MODEL FROM THE EXISTING LEGISLATIVE FRAMEWORK



CONDUCT PUBLIC EDUCATION WITH THE OBJECTIVE OF STRENGTHENING THE AWARENESS OF IMPORTANTS OF RECYCLING

INCLUDE LOCAL GOVERNMENTS IN THE COLLECTION NETWORK

ORGANIZE STRICTER CONTROLS BY THE COMPETENT INSPECTION

For the separate collection of recyclable and hazardous waste from households, it is planned to establish 169 recycling yards that will be operational by the end of 2028. Depending on the population density, it is planned to establish one or more yards in each municipality, where citizens will bring waste that must not be disposed of in household waste bins, including used batteries and accumulators and waste electrical and electronic equipment.

In order to improve the data collection system, which will reflect the actual amount of waste light bulbs and batteries that become available for collection, **it is necessary to establish and maintain a National Register of Manufacturers/Importers**.

This includes a database of information on:

- categories of electrical and electronic equipment
- quantities of products placed on the market, by weight
- quantities of waste electrical and electronic equipment that are separated collected, recycled, reused, disposed or exported
- recycling efficiency

COLLECTION AND RECYCLING OF LIGHT BULBS IN SERBIA

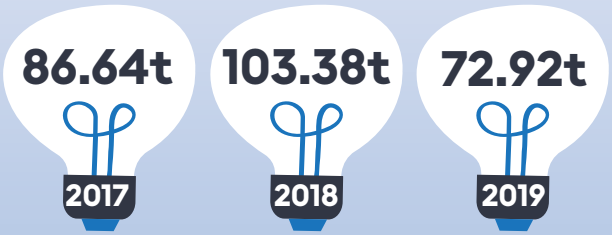
Serbia doesn't have a system for collecting light bulbs. Burnt-out light bulbs are discarded in bins with municipal waste, and ending up in landfills, most of which are just places where waste is tipped, without any environment protection measures. Unlike for batteries, there are incentives for recycling light bulbs, and there is also a center that recycles light bulbs in our country. However, although retail facilities, local governments and farms have a recycling center they can hand over light bulbs to for free, they do not do so in most cases.

The Rulebook on Adjusted Amount of Incentives for Reuse, Recycling and Use of Certain Types of Waste in 2020 determines the amount of **129 RSD/kg** for the flow of waste light bulbs. Incentives are awarded to the operator of a plant for the treatment of waste electrical and electronic equipment, or to the collective operator for the management of this waste.

The recycling center "Božić i sinovi" is currently **the only company in Serbia that provides a complete recycling service for light bulbs, fluorescent tubes and other lighting devices**. The quantities of collected and treated waste light bulbs in previous years they between 70 and 100 tons per year, which is **only about 5% of the volume of light bulbs placed on the market, while the total capacity for recycling is 25 million light bulbs per year**.

It is necessary to expand the collection network to local governments and use the existing treatment capacities.

According to the data submitted to the Environmental Protection Agency by the operators, light bulbs and fluorescent tubes containing mercury that are also waste from electrical and electronic equipment were collected and subjected to reuse treatment in the following quantities:



At the moment, there is **no possibility of importing waste light bulbs for recycling** from the region, so that the existing capacities can be used, because the import of hazardous waste to Serbia is prohibited, except for some types of waste needed as secondary raw materials in the processing industry, which does not include waste light bulbs.

In order to import waste light bulbs from the region to Serbia for recycling, it is necessary to change the appropriate legal regulations.

COLLECTION OF BATTERIES IN SERBIA

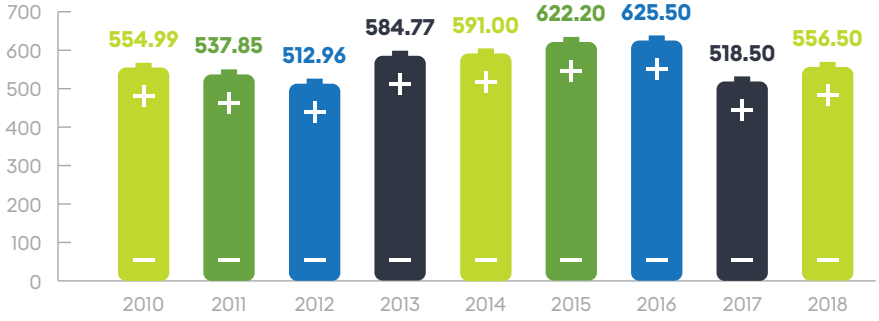
In Serbia, batteries that are handed over for recycling within devices (laptops, telephones, remote controls, etc.) are collected and exported, because incentives for electrical and electronic devices are in place. Some specialized electrical equipment stores and consumer goods stores have special boxes where citizens can leave batteries, but those stores pay for their export and it is a small amount of batteries.

Incentives for the export of batteries for further treatment have not been established for operators in Serbia, and significant costs are incurred in the export process:

- OBTAINING A PERMISSION FROM THE COMPETENT MINISTRY
- WASTE CHARACTERIZATION - WASTE TESTING REPORT AT AN AUTHORIZED LABORATORY
- TRANSPORT OF THIS TYPE OF WASTE
- EXPORT DOCUMENTATION AND WASTE RADIOACTIVITY TESTING
- PURCHASE OF UN CERTIFIED PACKAGING FOR WASTE STORAGE
- TRAINING OF EMPLOYEES FOR HAZARDOUS WASTE MANAGEMENT
- WASTE DISPOSAL

The procedure of collecting, transporting, storing and exporting waste batteries for further treatment is extremely complex and expensive, with a total cost of between 2.4 and 4 euros per kilogram of waste. Therefore, the project of collecting batteries from citizens is sustainable only with a proposed way of providing funds, in order to cover all costs arising from the entire process.

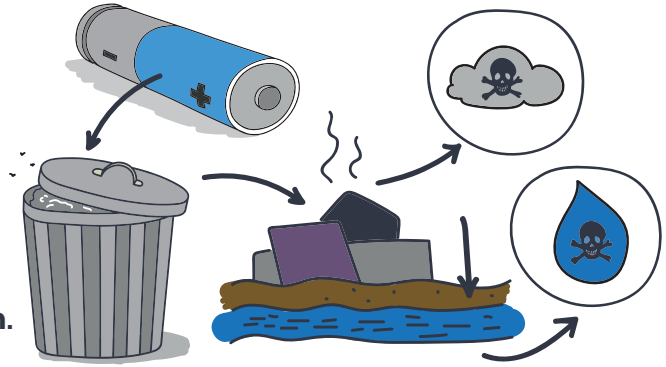
Quantities of batteries placed on the market of the Republic of Serbia in the period from 2010 to 2018



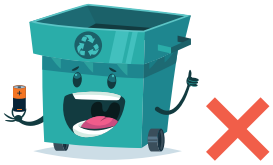
Based on the results of the analysis and data on the projected quantities of used batteries and accumulators, it would not be sustainable to build capacities for the treatment of waste batteries in the coming period. The best option in the short term is to export such waste.

According to the data of the Environmental Protection Agency, **between 70 and 100 tons of light bulbs are recycled annually in Serbia, which is only 5% of the amount of light bulbs placed on the market**. When it comes to batteries, in 2020, **17,173 kilograms of waste batteries were exported** to Germany for recycling.

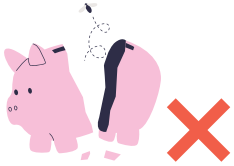
According to unofficial data, **every citizen of Serbia uses 1 kilogram of batteries a year**. They are usually disposed of in containers for municipal waste, and then end up in landfills, where **due to high toxicity they lead to environmental pollution** and can easily reach the food chain. This is why batteries, as well as light bulbs, are hazardous waste that poses **a significant threat to environment and human health**.



What are the main reasons for the underdevelopment of the collection network for batteries and light bulbs?



Lack of containers for collection and lack of battery treatment plants



Lack of financial incentives for battery treatment

Lack of a system for separate collection of batteries, accumulators and light bulbs from households

Lack of specific sites for the collection of this waste, except in individual cases

Legislation that defines the management of waste batteries and light bulbs

The law instructs producers and importers, whose product becomes hazardous waste after use, to **take over that waste after use**, without reimbursement of costs and to act in accordance with this law and other regulations. Producers, importers, distributors and sellers of products that affect the increase in the amount of this waste **are responsible for the waste** generated by their activities. However, **most waste batteries are disposed of without special treatment**. Another problem is the fact that **there is only one company that exports batteries for recycling**, while there is no organized collection and disposal system, nor incentives from the state, as is the case with light bulbs.