

## ECONOMY OF THE CLOSED CYCLE AS A MEANS FOR SOLVING THE WASTE PROBLEM

---

**K. Davidovskaya, M. Rogalchuk**

*Belarusian State University, ISEI BSU,  
Minsk, Republic of Belarus  
marina.rogalchuk@gmail.com*

The severity of the waste problem is related to the global scale of their formation. According to international experts, 1.3 billion tons of municipal waste are collected annually in the world. In terms of value, the volume of the municipal waste market in Organization for Economic Cooperation Development (OECD) countries alone is estimated at about \$ 120 billion. Today, the use of the activities of companies is increasing.

*Keywords:* household waste, resources, recycling, secondary material resources, solid municipal waste.

Waste is actively included in the economic circulation, sold and purchased, become products, raw materials, goods. According to Greenpeace experts, 35-40% of urban waste is made up of materials, processing can be economically profitable.

In Europe, a fundamentally new philosophy of attitude to household waste is developing, which can be called "wasteless". Already, in the EU countries a "Swedish model" is being realized, according to which it is impossible to dispose of those waste that can be burned, and it is impossible to burn those waste that can be recycled. In addition, since 2015, in the EU countries, from the linear model of economic development (extracted resources - manufactured products - thrown to the landfill after the end of the life cycle) go to the circular model (extracted resources - manufactured products - reused or recycled). As a result of this approach, the level of waste recycling was: in Germany - 99.6%, Austria - 99.3%, Belgium - 98.7%, France - 69%, Italy - 52%, Spain - 45%.

The solid municipal waste (SMW) problem is very relevant for Belarus. According to the report on sanitation of settlements, in 2015, 21.4 million cubic meters were taken to the burial sites. meters SMW, 80% of which are waste products. The entire volume of waste was sent to a burial site located on 165 polygons and 1706 mini-ranges. The design capacities of the existing landfills are practically exhausted. According to expert estimates, the range of SMW per capita is in the range of 320 to 380 tons, and the annual volume of SMW production is from 3.5 to 4 million tons, of which only 15.6 percent are sorted. The national strategy for the management of SMW and secondary material resources for the period until 2035 provides for the reduction of polygons to 130, the recovery of secondary material resources should be about 25%, the maximum percentage of energy use - 38.5%. In addition, the program for the separate collection of SMW is being implemented in the republic. There was an erroneous, in our opinion, opinion that a panacea for all problems with waste is their separate collection. Alas, this is not so. As foreign experience shows, it is necessary to create a waste recycling industry, including SMW, for which an appropriate infrastructure is needed. In addition, a revision of the waste management policy is required. In this regard, the concept of transition to a circular economy should be developed. Implementation of this concept will allow to reduce the amount of waste to a minimum, which will be a serious contribution to the creation of a sustainable, resource-efficient and competitive economy.

### BIBLIOGRAPHY

1. Боровский, Е. Э. Промышленные и бытовые отходы: Проблемы экологии / Е. Э. Боровский. – М. : Чистые пруды, 2007. – 32 с. : ил. – (Библиотечка газеты «Первое сентября», Серия «Химия»; вып. 5 (17).
2. Сметанин, В. И. Защита окружающей среды от отходов производства и потребления [Текст] : учеб. пособие для вузов по спец. 656600 «Защита окружающей среды» / В. И. Сметанин – М. : Колос, 2000. – 232 с. : ил. – (Учебники и учебные пособия для высших учебных заведений).
3. Бытовые отходы: эпоха потребления // Экологический вестник России. – 2007. – № 12. – С. 22–29.
4. Фокин, А. Не допустить экологической катастрофы / А. Фокин // Российская Федерация сегодня. – 2010. – № 6. – С. 17.