

**THE IMPROVEMENT OF WASTE MANAGEMENT SYSTEM
IN THE REPUBLIC OF BELARUS**

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Today the consumption of goods is growing fast but as a result it is leading to disastrous increase of waste. Statistics says that average citizen produces more than 300 kg of waste per year. Annually more than 3 million tons of waste is gathered in Belarus, 90% of it is sent to the landfill. The strategy for integrated solid waste management in Minsk region for 2015-2029 has been worked out and has been prepared by IPO "Ecopartnership" in cooperation with foreign partners, later it was approved by the Minsk Region Council of Deputies.

Quality of water, nature protection, industrial pollution, soil degradation, residuals of the radioactive contamination from Chernobyl and waste management – these are the main topics of the following research and they are the main environmental problems facing the 21st century.

Waste management is one of the instruments of above mentioned solutions.

Extreme dependency of the national economy on industrial activities has resulted in environmental pollution. One of the examples of industrial activity is Minsk Wheel Tractor Plant, where the following research has taken place.

Waste formation is a quantity of materials or products that come to a waste stream before composting, incinerating, landfilling, or recycling. Waste formation varies as a function of affluence, however, regional and country variations can be significant as formation rates within the same city. The formation of waste in the Republic of Belarus was 49865 thousand tones in 2015 year. The amount has decreased since 2014, when it was 52529 thousand tones.

Table 1 – Waste formations of the Republic of Belarus from 2010 till 2015

	Waste formations					
	2010	2011	2012	2013	2014	2015
Waste formations (total amount),thous.tonnes	43 775	44 307	40 847	40 305	52 529	49 865
per inhabitant, kg	4 612	4 677	4 316	4 258	5 544	5 255
per unit of GDP, kg / BYR mln	266	149	77	63	68	57
per unit of GDP, kg / USD thous.	282	282	251	242	304	297

Although some of the waste problems of the past continue to exist in Belarus, waste management in Belarus has improved over the past years. There are many various classifications of solid waste. But mainly they are divided into the following: 1) Municipal Waste; 2) Domestic and Residential Waste.

Municipal waste includes waste resulting from municipal activities and services such as street waste, dead animals, market waste and abandoned vehicles. However, the term is commonly applied in a wider sense to incorporate domestic waste and commercial waste.

Domestic and Residential Waste is a category of waste comprises the solid waste that originates from single and multi-family house hold units. These wastes are generated as a consequence of house hold activities such as cooking, cleaning, repairing, hobbies, redecoration, empty container packaging, clothing, old books, paper and old furnishing.

Waste management is one of the most important environmental challenges and due to its correlation with the global economy, it has a global dimension. The quality of waste management services is a good indicator of the city governance. The way in which waste is produced and discarded is a key insight into how people live.

It is also important to emphasize the importance of sustainable development. Sustainable development is the development that meets needs of the present without compromising the ability of future generations to meet their own needs. There exist two key concepts: the concept of needs – the essential need of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment ability to meet present and future needs.

Belarusian radioactive waste management strategy. Belarus has adopted a radioactive waste management strategy for its first nuclear power plant, under the construction near Ostrovets. The strategy is based on the principles of radioactive waste management recommended by the International Atomic Energy Agency (IAEA) and regulations on nuclear and radiation safety, approved by the Ministry of Emergency Situations in September 2010. It provides an acceptable level of protection from radiation exposure for plant personnel, the local population and environment and focuses on the prevention of accidents with radiological consequences. The strategy is to be implemented till 2080. However, Belarus has extended responsibility of manufacturers and importers which aims at funding disposal and recycling systems of secondary resources. The principle covers many groups of products, for example, household appliances (fridges, freezers, water heaters, TV sets, conditioners, kitchen ranges, mixers, dishwashing machines, washing and sewing machines, copy machines, monitors, projectors, calculators, electric shavers, printers, vacuum cleaners, irons, thermometers, batteries, automobile tires, etc).

Results, their discussion and perspectives

Belarus generates around 30 million tonnes of waste annually, out of which household waste makes up 3 million tonnes. Each year, the volume is growing by 20%. Existing waste recycling stations have the capacity to recycle only 12% of household waste, while in the EU the rate of waste recycled is around 60%. The rest is dumped into landfills and/or buried. Unfortunately, the existing landfills in Belarus often do not satisfy the basic standards.

The general objective in the waste management sector is to minimize the amount of waste and to improve treatment practices by, for example, lending support to sorting, recycling and re-using solid waste.

There exist the following challenges in the solid waste sector:

- toxic compounds leak into the soil, ground water and atmosphere from dumping grounds;
- uncontrolled waste incineration creates hazardous atmospheric emissions;
- non-recirculated waste consumes non-renewable resources.

Conclusion. With the establishment of modern waste handling systems, more waste can be transformed into resources and products instead of creating the above-mentioned problems. Recycling of paper, plastics, chemicals, metals and textiles, solvents and waste are a priority area.

Sustainable waste management is a goal: all societies must strive to maintain it. Currently nearly 80% of global wastes are sent to landfill, a significant amount of which is lacking proper design or containment. The increased attention to environmental impacts of human activities and the increasing demand for energy and materials have resulted in a new perspective on waste streams. The usage of waste streams for energy and materials recovery is becoming more prevalent. Although these efforts have a small impact on waste disposal, the usage of waste streams will increase as the society becomes more aware of the options available.

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