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ANALYSIS OF THE EXISTING ASPECTS OF THE PROBLEM OF PROCESSING AND USE OF VEHICLE TIRES

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ABSTRACT

In this article, we summarized the problem of car tire recycling, found the need to systematize the existing experience in evaluating the effectiveness of project solutions, justify the social effectiveness of the project. For this purpose, the construction of tire recycling plants plays an important role.

KEYWORDS

Car, quality, specification, production, service, operation.

Introduction

Recycling is the production of products, performance of work, provision of services, including the reuse of waste, the use of waste in order to return it to the production process, preparation for processing, as well as the extraction of useful components for their reuse [1-7].

Saving resources is an integral part of environmental protection. At present, improper use of natural resources has led not only to their reduction, but also to significant air pollution [8-14].

The emergence of serious problems in the field of ecology is associated with the development of technological progress, population growth, as well as rational and improper use of natural resources [15-19].

Currently, all industrialized countries have defined environmental protection as one of the most important areas of human struggle [20-27].

One of the important environmental problems of urban areas is the storage of domestic and industrial waste, which should be a source of strong pollution around the natural habitat of a person.

The landfills, which are increasing every year, are not only polluting the fertile lands, but also threaten to destroy the water bodies due to the sewage carrying many infections and dangerous elements for nature. Directly for this reason, the disposal of household waste should be as relevant and developed in our time as industrial, so that the generated waste (waste) does not harm the soil, atmosphere and water should not collect and pollute [28-32].

Table 1. Decomposition conditions of household waste [5]

Material	Breakdown time
Food waste	From 10 days to 1 month
News paper	From 1 month to 1 season
Cardboard boxes	Up to 1 season
Paper	2 years
Big horns	up to 10 years
Wooden boards	up to 10 years
Iron fittings	up to 10 years
Iron banks	up to 10 years
Old shoes	up to 10 years
Pieces of brick	up to 100 years
Car batteries	up to 100 years
Falga	up to 100 years
A tin can	Until 90 years
Electric batteries	up to 100 years
Rubber tires	More than 100 years
Plastic bottles	More than 100 years
Aluminum banks	500 years
Glass	More than 1000 years

According to statistics, the world's automobile industry slightly increased from 2018 to 2020. In 2020-2022, the number of cars produced decreased slightly. Figure 2.1 shows the car production schedule for 2018-2023 [33-41].

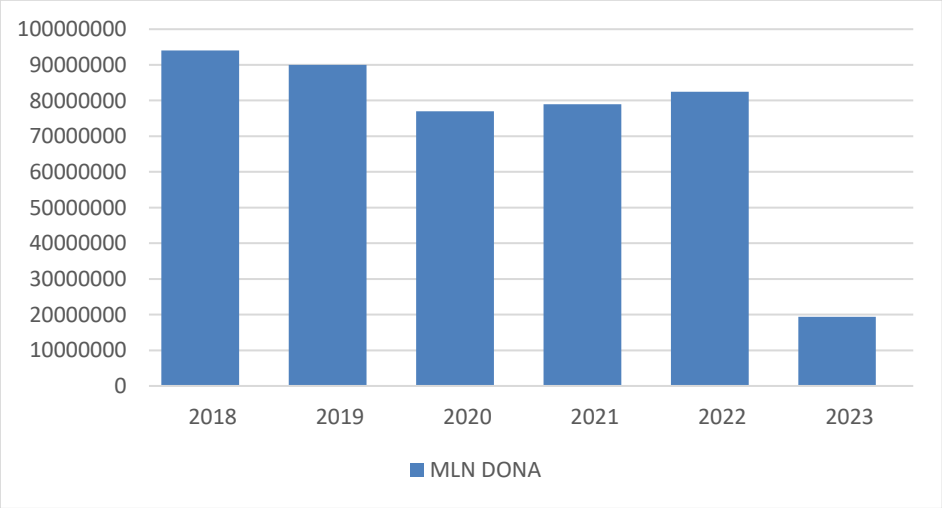

Figure 1 - Global automobile production process in 2018-2022.

According to the information of the State Statistics Committee of Uzbekistanaccording to, the city of Tashkent is the leader in terms of the number of passenger cars belonging to individuals in the region - 525,028. The second place was taken by Samarkand region with 392,475 cars, and the third place was taken by Fergana region with 325,009 cars.

To date, the world experience of recycling old car tires shows that to effectively and correctly solve the problem of recycling, a number of legal acts should be adopted at the legislative and state level. A clear example is the legislative activity of the United States, where more than 48 states have passed laws requiring the introduction of up to 20% recycling of used tires in asphalt concrete pavements [42-49].

The range of used tires and products made from them is large. The construction industry uses them to produce noise barriers, insulating materials, lighting fillers, and bridge supports. Currently, such a direction as regulation of landfills (engineering) is considered promising. The oil sorbent obtained from old tires is widely used to eliminate oil spills on the surface of water and soil, and to clean wastewater from petroleum products.[3]

In Figure 2, we present the structure of the global tire market by country in 2019.

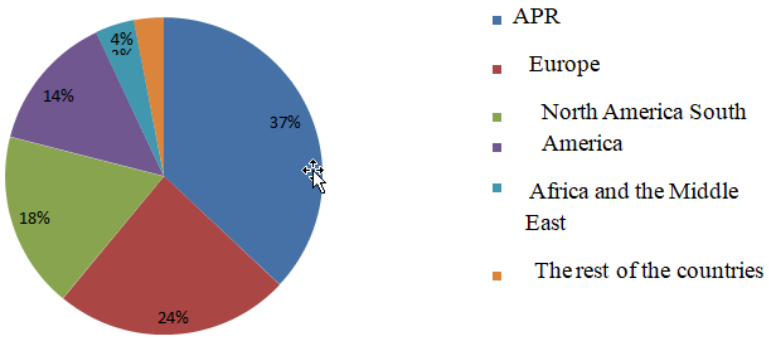

Figure 2. The structure of the world tire market in 2019. [5]

Despite the harmful emissions to the environment, the most popular in Europe is the thermal recycling of tires for energy. The leaders in this direction are Romania and Poland, where 70-90 percent of used tires undergo thermolysis. Mechanical recycling is the second most popular tire recycling industry. In Estonia, 100% of tires are used in crushed rubber, in Denmark - 96%, in Finland - 81%. However, the processing fee is already included in the initial price of the tires [13]. The United States and Japan are leaders in tire recycling, with the United States recycling rate of about 77% of waste tires. In the USA and Western Europe, the system of state grants is widely used for the introduction of innovative technological equipment. As a result, the share of waste tire recycling in the EU member states has increased. At the same time, a certain program was implemented to increase the share of repair of tires produced by RTI (truck and aircraft tires), as well as to stop the export of used tires to landfills. succeeded. Table 3 provides a comparative analysis of tire waste management in different countries as of 2021.[3]

Conclusions

In the research of the article, we summarized the problem of car tire recycling, we determined the need to systematize the existing experience in evaluating the effectiveness of project solutions, justify the social effectiveness of the project. For this purpose, the construction of tire recycling plants plays an important role.

The relevance of this problem was determined by the purpose of the project. We have seen that the environmental problems of each region can be solved by building a tire recycling plant.

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