

8. Съедобные карандаши для экологически чистого искусства. ВКонтакте [Electronic resource]. – 2018. – Mode of access: <https://vk.com/@veselyikarandashtulasedobnye-karandashi-dlya-ekologicheskii-chistogo-iskusstva>. – Date of access: 23.10.2022.

9. Экологичный офис от Leitz Recycle. Miss Office [Electronic resource]. – 2021. – Mode of access: <https://www.missoffice.org/news/ecology/42659/>. – Date of access: 23.10.2022.

10. 9 арт-проектов: как искусство привлекает внимание к экологическим проблемам. Recycle [Electronic resource]. – 2019. – Mode of access: <https://recyclemag.ru/article/iskusstvo-privlekaet-vnimanie-ekologii>. – Date of access: 23.10.2022.

11. Фотопроект: в Петербурге 6 важнейших проблем экологии показали на модных (и очень красивых!) снимках. Собака [Electronic resource]. – 2018. – Mode of access: <https://www.sobaka.ru/city/society/81214>. – Date of access: 23.10.2022.

12. Как русалки помогают избавить мир от пластика. Recycle [Electronic resource]. – 2017. – Mode of access: <https://recyclemag.ru/article/kak-rusalki-pomogayut-ochistit-mir-ot-plastika>. – Date of access: 23.10.2022.

13. Seven days of garbage – in pictures. The Guardian [Electronic resource]. – 2014. – Mode of access: <https://www.theguardian.com/environment/gallery/2014/jul/16/seven-days-of-garbage-in-pictures>. – Date of access: 23.10.2022.

## **UDC 504.75.05**

### **DEVELOPMENT OF ENVIRONMENTALLY FRIENDLY TRANSPORT**

**E. R. DARASHKEVICH, A. U. KOVALENKO**

Scientific supervisor – Batishcheva N. V.

Belarus State Economic University

Minsk, Belarus

Every year, the population expands and, as a consequence, the need to use more resources increases. This leads to an increase in waste, toxic gas emissions, global warming, water pollution, deforestation, land degradation, etc. Environmental protection today is not given enough attention, that's why we have chosen one of the current environmental issues – the problem of ecology of road transport, as the need of society for mobility will enlarge due to globalization and several other reasons.

The purpose of this research is to analyse and evaluate the benefits of using eco-transport for society and the environment, as well as to formulate possible solutions for reducing the environmental impact of motor transport and greenhouse gas emissions.

We should generate electricity from wind, solar, hydro, geothermal, and other non-carbon-based sources. The challenge is how to realize these visions on

a massive scale without destroying our energy-dependent economy. In calculating the costs, we should remember that unchecked climate change will cost much more if we continue to burn fossil fuels.

Overall, the total amount of harmful substances emitted by automobiles annually exceeds the figure of 20 million tons. It is noteworthy that in terms of damage to the environment, motor transport leads in all types of negative impact: air pollution – 95 %, noise – 49.5 %, impact on the climate – 68 %. Environmental problems connected with the use of traditional motor fuel in vehicle engines are relevant not only for Belarus, but for all countries of the world. Many countries of the world have adopted strict requirements for the greening of motor vehicles.

It should be noted that the proportion of emissions of pollutants into the atmospheric air from mobile sources in the country is more than 60 %. Traffic flows in the dynamic environment of urban districts are still a problem since they have a significant effect on corresponding greenhouse gas emissions affecting the air quality and health of the population. At the same time, a positive trend is the reduction of emissions from mobile sources by 5.2 % compared to the 2015 level, and by 9.6 % compared to the 2010 level, amounting to 1,192,900 tons in 2021 in physical terms [1].

We would like to highlight three important aspects of eco-vehicle use:

- Economic – The results of the comparison of fuel and charging costs for an electric vehicle at an ECS station point in favour of electricity. Electric cars turn out to be much cheaper to maintain: a motorist will spend 24.60 BYR (fuel type-95) per 100 km for fuel, and 5.80 BYR (charging type-slow) for charging an electric car for the same 100 km. Transmission and motor in case of repair will require much less money. Electric cars are built with less complex mechanical parts. This means that repairs will be 22 % cheaper [2]. According to Transport and Environment (T&E), the average electric van in Europe costs 25 percent less to operate than a diesel van, despite much higher initial costs.;

- Social – Providing affordable mobility and developing the concept of “shared consumption” – it is based on collective use and carries the idea that paying for temporary access to a service or product is more convenient than fully owning that service;

- Environmental – The engines built into electric cars run on electricity rather than fossil fuels, thereby reducing the amount of harmful emissions into the atmosphere. A typical electric car produces 50 % fewer greenhouse gas emissions than the average European car. Prospects for the introduction of electric transport in the Republic of Belarus in terms of environmental protection:

- Reduction of pollutant emissions into the atmosphere and greenhouse gas emissions from motor transport;

- Reduction of noise levels;
- Improving the quality of the environment in cities;
- Contributing to the achievement of the main objectives of sustainable development of Belarus;
- Increasing the level of commitment of the population of Belarus to the environmental model of behavior by abandoning the use of vehicles with internal combustion engines and the use of electric cars.

It is worth noting that Belarus has become a full-fledged party to the Paris Agreement on Climate Change (the first CIS country and the 30th in the world), committing itself to reduce greenhouse gas emissions by 28 % by 2030.

In conclusion, we can make the following recommendations to reduce the environmental impact of automobile transportation and to downsize greenhouse gas emissions:

1. Developing the infrastructure for electric transport. If there is a well-developed network of charging stations for electric cars, car owners will be willing to buy such kind of transport.
2. Introduction of administrative responsibility for parking in electric vehicle spaces for owners of cars not powered by electricity (petrol, diesel, gas, etc.).
3. Production of budget electric cars produced domestically.
4. Replacing agricultural machinery running on petrol or diesel fuel with electric vehicles.
5. Development of such environmentally friendly modes of urban transport as trams and trolleybuses. If we plant a lawn along the streetcar tracks, they will not be as exposed to the heat, and the microclimate will improve.
6. Regulation of the number of urban transport, to optimize the routes of urban transport. For example, replace several short routes with one longer one, or opening new metro stations.

These measures have great potential to improve public health in urban areas while mitigating climate change.

### **References:**

1. Ministry of Natural Resources and Environmental Protection: Emissions of pollutants into the atmosphere in Belarus have decreased significantly / Corr. BELTA [Electronic resource]. – Mode of access: <https://www.belta.by/society/view/minprirody-vybrosy-zagrjaznjajuschih-veschestv-v-atmosferu-v-belarusi-suschestvenno-sokratilis-522464-2022/>. – Date of access: 15.10.2022.
2. Which car is better to buy: electric or gasoline? / AVILON [Electronic resource]. – Mode of access: <https://avilon.ru/articles/avtomobil-ili-electrocar/>. – Date of access: 15.10.2022.