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Editorial: Sustainable transport systems

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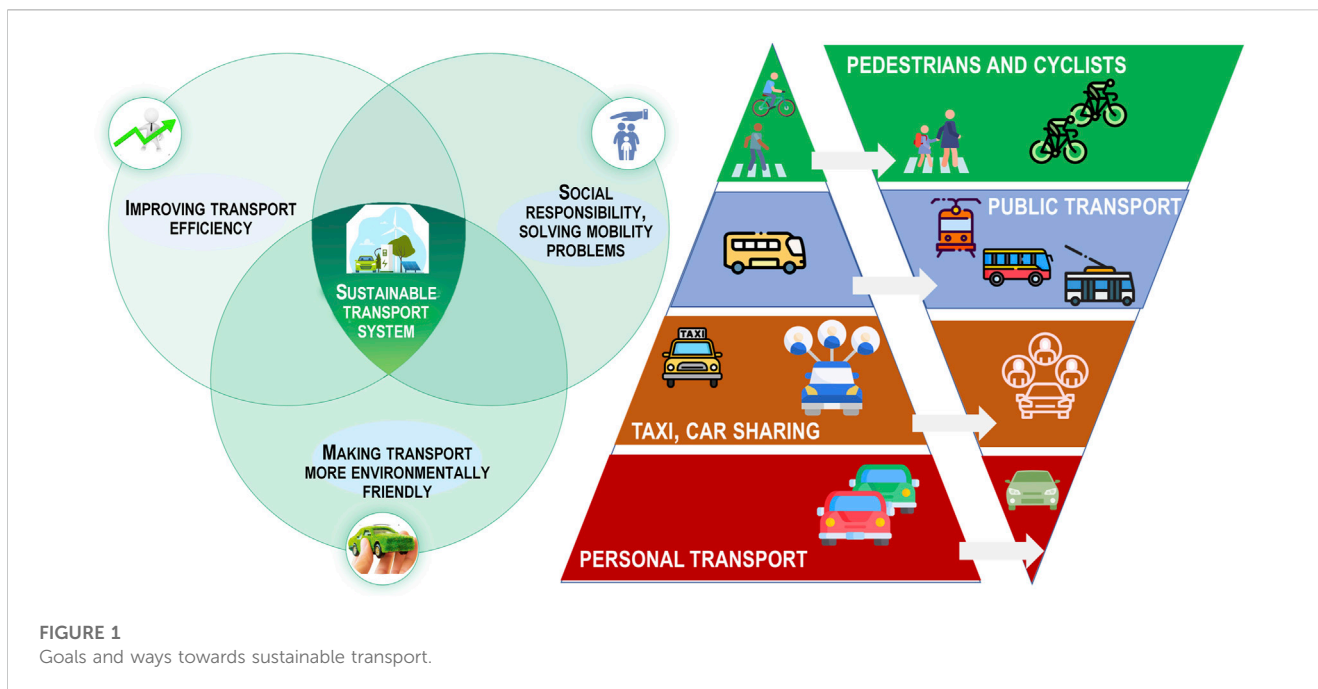
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Editorial on the Research Topic Sustainable transport systems

Transport is an important and essential part of the industrial and social infrastructure. Economic development, national security insurance, and the improvement of the population's quality of life are possible only under the condition of sustainable and efficient work of transport systems at any level (global, local, urban). Therefore, technical, organizational, and technological actions are being taken today to improve processes in transport systems and to make them more intelligent. Significant problems in transport systems caused by the acceleration of urbanization and motorization impede the mobility of urban residents preventing them from the use of transport services. In addition, it is necessary to maintain an acceptable level of habitat quality, environmental cleanliness, and sustainability. Today, the widespread introduction of smart mobility is relevant since it ensures the accessibility of working and resting destinations and the preservation of natural ecosystems. Given the fact that both vehicles and infrastructure are becoming increasingly complex, improving the reliability, safety, and environmental friendliness of transport systems is becoming an important direction. Since the reliable functioning of all subsystems of a smart city (production, healthcare, education, etc.) is ensured by smart mobility and depends on its quality and sustainability, the development of innovations in transport is one of the priority tasks at present (Figure 1).

Recognizing the importance of research on *sustainable transport systems* due to the increasing motorization and urbanization of places, in this special volume of Frontiers in Built Environment, we received articles highlighting the latest scientific and practical achievements in this area. Also, there are case studies describing the implementation of new methods and technologies to improve the sustainability and safety of transport systems in different countries. At the same time, we have paid special attention to the problem of the negative impact of transport on the environment and possible actions to reduce this impact. Our special volume includes five research articles.

In the first article, [Harumain et al.](#) presented data on the active use of transport depending on the socio-demographic background. The study was conducted in Bangsar and Shah Alam (Malaysia) using stratified random sampling and a questionnaire as a baseline data Research Topic instrument. A total of 325 respondents were interviewed



after which the questionnaires were processed, and the binomial logistic regression model and analysis of variance were used for statistical data analysis. As a result, it was found that the distance from home to a public transport station was statistically influenced by the level of education and professional status. According to the authors, the results of the study will be useful to workers in sectors such as urban planning, transport, health, and education. In addition, the promotion of active transport will be facilitated by the study of the results of the study by employees of organizations that make decisions in the field of development of the transport system [Harumain et al.](#)

In the second article, [Nawir et al.](#) explore how transport affects the economic development of the region. Using the example of the development of the city of Tarakan (Indonesia), the authors explore the possibility of integrating economic policy into a single policy for managing land transport. The authors use a descriptive-qualitative method to interpret existing phenomena based on empirical data. As a result of the study, the authors conclude that the efficiency of providing the city with public transport services will effectively meet the needs of citizens for mobility and ensure the growth of the economic sector of the community due to more efficient specialization of certain areas in a certain type of activity. In addition, prioritizing the development of public transport will contribute to the implementation of sustainable development goals and reduce the negative impact on the environment [Nawir et al.](#)

In the third article, [Shepelev et al.](#) propose a new method for solving the problem of air pollution caused by fine particulate matter caused by the increase in traffic intensity. The authors propose a hybrid model based on the YOLOv4 convolutional

neural network as an initial module for extracting the temporal characteristics of a dynamic dataset of mobile sources, and long-term short-term memory modules are used to predict the volume of outliers, which will provide a prediction accuracy of 80%–96% when using a limited number of measurements [Shepelev et al.](#)

In the fourth article, [Shepelev et al.](#) discuss building an urban monitoring system that can track traffic flow in real time and calculate traffic-related emissions. The authors studied the movement of vehicles at signalized intersections, considering their geometry. A statistically reliable lane capacity model built by the authors based on the results of the regression analysis of the initial data will allow determining the most problematic sections of the urban road network. The authors used fuzzy logic methods to predict lane capacity. The authors point out that the study will allow for building a general model of the urban road network for monitoring traffic flows, which will help to ensure their redistribution, reducing peak loads [Shepelev et al.](#)

In the fifth article, [Petrov et al.](#) consider the urban transport system's safety as the means to ensure its sustainability. According to the authors, despite the measures to promote the policy of saving people (for example, the concept of zero mortality), there are problems with an adequate assessment of the level of road safety, which is one of the most difficult management tasks in this area. The authors of the article introduce the scientific audience to a new progressive method for quantifying the quality of existing safety systems (in the example of Russian cities). The authors propose to use the entropy method to assess the orderliness of urban traffic safety systems. The authors propose a methodology for assessing the orderliness of road safety systems for Russian

cities with different populations and also present the results of such an assessment.

Author contributions

IM, PB, KS, LF, and GP contributed to the concept and design of the study. PB prepared abstracts for each article received in the Research Topic. IM wrote the first draft of the manuscript, including the conceptual provisions of the Research Topic. KS performed the conceptualization of the subject area, prepared the description for the graphical annotation, and proofread the manuscript. LF and GP performed the transformation of textual information into a graphic series and prepared illustrative drawings in the introductory part of the editorial. All authors read and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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