

Preface

The transport is traditionally connected with the speed of economic growth. The European economy has been undergoing radical changes in recent years. The effects of the financial worldwide crisis and the slowing down of economies of many enterprises have become visible. Companies have faced the need to seek for new ways of costs reduction. It is worth remembering, that price of the finished product offered by manufactures or distributors depends also on the level of incurred logistics costs. Transport expenditures might constitute in many cases over the 50% of total logistics cost.

Frequent and prompt deliveries require more means of transport, whereas the absence of co-operation among companies and processes coordination results in involving many carriers. These actions cause the traffic, worsening of the road safety, or also a growth of harmful substances emission. Enterprises are part of the wider system. There is direct correlation between way of organizing transport processes and situation in the transport system of the region. Therefore it is necessary to take into account a strong correlation between the organization of transport processes in enterprises and the environment in which they operate.

Improvement of transport processes should be done using the concept of sustainable development. It is capable to meet current needs, in such a way that it does not eliminate the possibility of implementing the same or other purposes by the entity in the future. It involves balancing of three areas: economic, ecological and social development.

The aim of this monograph is to present the emerging environmental issues in organization and management of transport. The scope of book includes solutions which show the different stakeholders viewpoints on sustainability. It points out how the transport operations organized and conducted in the companies and regions might be consistent with the concept of sustainable development. The scope of monograph takes into consideration trade-off relations between actors directly and indirectly involved in transport networks. Therefore, authors present, in individual chapters, innovative approach to eco-friendly organization and coordination of transport processes, as well as management of transport networks.

In this monograph the emphasis is placed on four main areas:

1. shift from traditional transport to a sustainable one (on the way to sustainability in the transport sector);
2. collaboration models for sustainable transport;
3. information systems and information management supporting sustainable transport;
4. intermodal transport and models for CO₂ reduction.

The aim of the first chapter is to provide the review of current issues in European Transport Policy. The emphasis is placed on the development of the sustainable transport system. Authors identify main barriers for the sustainability of transport operations and describe main challenges for development of sustainable transport system.

The next chapter aims to overview of interconnectivity issues in the area of passenger transport in the context of sustainable transport development in the EU. At present the European Transport Networks' role as integrated international networks is compromised by poor interconnectivity. Authors present tools and solutions for improvement of interconnectivity.

The chapter "A structured approach for assessing sustainable best practices in supply chains" contains solutions for the evaluation process of select supply chain practices that can help to reduce the negative impact of transport, while improving long-term economic performance.

The final chapter in the first part focuses on sustainable development through implementation of logistics and spatial policy. Region EmiliaRomagna is presented as the case of successful implementation of such policy. Special attention has been paid to one of the tools of logistics and spatial policy of this region—Ecologically Equipped Industrial Areas.

The second part of the book presents models for coordination of transport processes especially within small and medium size companies. The emphasis is placed on the role of collaboration among companies in order to reduce the number of ineffective routes and to increase the load factor of particular vehicles.

Author in the chapter "Coordination model of transport processes based on sustainable development concept" presents new business model for vertical and horizontal cooperation between logistics services clients (consignees, consignors) and logistics services providers (SMEs). The aim of cooperation is to increase the load factor and to reduce transport costs. Moreover the model allows exploiting co-modality concept, understood as use of different modes separately and in combination, in order to obtain an optimal and sustainable utilization of resources. Author identifies interfaces between activities of enterprises and the transport system of the region, taking into account the economic, social and environmental impacts.

The idea of sustainable development emphasizes the rationalization of the demand for transport services. The key element in rationalization of freight transport is increased use of vehicle capacity. In the case of small and medium size

enterprises, initiatives that aim to aggregate the demand for transport services are promoted. The chapter presents an information tool which facilitated integration of small and medium size enterprises to fulfil the goals of sustainable development policy.

Authors in subsequent chapter introduce the simulation approach in logistics as an effective work method. Then they describe the functionality of a running simulation tool, the variables it considers, the logic of the simulation algorithm, the quantitative indicators it produces.

The third part of the book focuses on the information technologies, which play an important role in transport management. The big number of different systems applied in particular European countries causes problems in interoperability and information exchange.

The opening chapter in this part presents the “one common framework” which allows interoperability between companies and communication to authorities and transportation network responsible. It supports better utilization of the available transportation infrastructure, provides appropriate security, and supports compliance requirements. The common framework approach lowers the cost for companies to electronically connect in transport and logistics.

In the next chapter authors addressed issues related to ICT support for intermodal transport chain development. The chapter describes approaches of intermodal transport chain development tools and gives an outlook about the necessary next steps.

The execution of UE Transport Policy requires the development of number of plans like e.g. the Sustainable Urban Mobility Plans. Authors of the successive chapter have proposed a standardized methodology to develop Sustainable Transportation Plan that includes an information system and decision support system. Also, a decision support system based on socio-economic indicators, mobility, energy and environmental indicators has been design and integrated to aid in the evaluation and strategies selections.

The last part of the monograph covers two important topics, namely development of the intermodal transport and CO₂ reduction. The intermodal transport is recently strongly promoted by European Commission. Therefore, the presentation of the best practices can be found in chapter entitled “Supporting intermodal transport solutions in selected European countries—case studies”. Authors present the role of public authorities in creation of efficient transport infrastructure for intermodal haulages.

Chapter “Development of intermodal train concepts as a method for sustainable regional development” presents the problems which arise by establishment of the more environmental friendly freight transport solutions in order to address regional goals like accessibility, economic development and reducing emissions. Authors highlight the economical dimension and present a methodology how to design new, cost-effective freight train services.

The subsequent chapter examines innovative and alternative transport systems for freight transportation and benchmarks them in accordance to their fitness to application in ports and terminals. The chapter overviews new technologies and

transport systems under development, which are not applied to practice yet. This chapter gives an overview of currently emerging innovative systems for freight transportation in port regions. All stages of development, from visions to market ready solutions have been researched. Technologies which are applicable for the usage in ports and terminals have been filtered and assessed against economic, social and environmental criteria in the benefit analysis.

The final chapter presents model for road traffic CO₂ emissions control by means of tradable permits. The chapter overviews the theoretical aspects of tradable permits, compares tradable permits and tax schemes and explains options of initial allocation systems. The opportunities and threats of the potential introduction of tradable permits for fuel at the micro- and macro-economic level are assessed. A model for road traffic emissions control by means of tradable permits is presented for the case of Slovenia.

This monograph provides a broad scope of current issues important for the development of the sustainable transport system in local, regional and international scale. Authors of individual chapters describe the practical examples of number of EC initiatives, mainly in the 6th and 7th Framework Programme. The advantage of this book is holistic approach to organization and management of sustainable transport systems.

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