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- TEXTBOOK -

TRANSPORT AND ENVIRONMENT

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Aims of the Text

The aims of this text are to give to students a complete knowledge on the subject of transport and environment. The text is mainly oriented to the theme of atmospheric and acoustic pollution, and is focusedon the tools needed for the evaluation of such a transport impacts. To have a major comprehension of the theory, a case study is contained in the last part of the text, allowing for the appraisal of the impact of various circulation configurations on the air and acoustic climate in a particular European city - the Portuguese city of Evora.

Author

The papers have been prepared to support courses related to transport and the environment, primarily for students in the Faculty of Traffic, Transport and Communications in the University of Sarajevo, However the papers will also support equivalent courses at the Politecnico di Torino and at the University of Southampton. The papers may also be considered for further revision and publication in due course.

Author

VOLUME ORGANIZATION

This volume is divided into four sections:

- Overview of the main environmental impacts due to the transport systems
- Atmospheric pollution analysis
- Acoustic pollution analysis
- Case study: city of Evora (Portugal)

The main karacteristic of textbook

The Textobook of **TRANSPORT AND ENVIRONMENT** including 216 pages, 80 tables, 75 figures (dijagrams, histograms, and fotos), 34 formules.

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OVERVIEW

The principal impacts of the transport systems on the environment are overviewed in the following table:

Road and Rail transport	AIR Noise and air pollution WATER Acid rain, pollution of groundwater LAND Land lost for infrastructure LANDSCAPE Fragmentation of habitats

OVERVIEW

continued:

Water transport	AIR Air pollution do to harbour activities WATER Water pollution do to accidental and operational spills LAND Dredging problem LANDSCAPE Construction of channels

OVERVIEW

continued:

Air transport	AIR Global warming at higher levels and stratospheric ozone depletion WATER Acid rain LAND Construnction of airports LANDSCAPE Disruption of ecological areas

ATMOSPHERIC POLLUTION

- In the first part of this section, detailed informations are given about vehicles emissions
- The composition of the veichles emissions is analysed from the beginning of the combustion process to the pollutant formation
- Later on, the emission models, divided in average models and istantanuous models, are discussed and the procedures for estimating emissions from stationary, accelerating and decelerating vehicles are anaysed

ACOUSTIC POLLUTION

- The first part of this section analyses the various sources of environmental noise, special attention is given to the variables influencing the production and the dispersion of noise
- Then, a wide overview of noise indicators is presented and the acoustic character of noise propagation is definied along with the various sources of noise
- The last part of this section is dedicated to illustrate the various models related to both road and railway noise

CASE STUDY:CITY OF EVORA (PORTUGAL)

The final part is dedicated to a case study which aims to provide an applicable evaluative approach to traffic's impact on the acoustic climate and impact on the air

The evaluation and the relevant simulation of the environmental effects of the various means of circulating transport in the city chosen as an example permit the operation of the instruments discussed in the first two parts of this volume