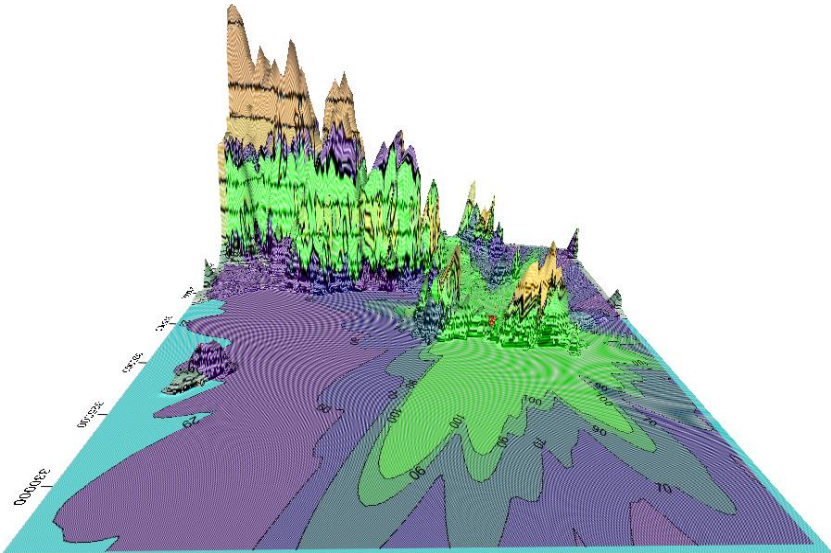


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URBAN AIR POLLUTION

From theory to practice



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PREFACE

Urban areas are major sources of air pollution. Industrial and traffic sources are the main contributors of urban air pollution. The World Health Organization has estimated in 2014 that air pollution causes the death of more than 8 million people per year in the world, among that there are more than 70% people death per year in developing countries, and millions of people are found to be suffered from various respiratory illnesses related to air pollution in large cities. Exposure to ambient air pollution is associated with a wide range of disease outcomes, including cardiovascular diseases in adults such as stroke and ischemic heart disease which are responsible for most of disease burden, and respiratory conditions such as chronic obstructive pulmonary disease, lung cancer, acute lower respiratory infections in children under 5 years old.

Developed countries have made extensive efforts to improve the air quality. They have enough human and financial resources to develop clean air plan and successfully implement their clean air plans. Many abatement measures are implemented and their air emission have been reduced such as using cleaner energy, applying new air quality regulations, moving the industrial activities to the developing countries, etc. However, air quality in developing countries has deteriorated considerably, thus exposing millions of people to harmful concentrations of pollutants because in developing countries, the urban air quality management has not been adopted due to a variety of difficulties.

Therefore, the objectives of this book “Urban Air Pollution: From the theory to practice” is to provide the readers with different tools from simple approach to complex approach for management of air quality in urban area, especially in developing countries. The book presents concise theory for

conducting air emission inventory, design air quality monitoring system, air quality modeling and how to develop a clean air plan and implement successfully a clean air plan. Then, many case studies were carried out by application above theory into practical projects.

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LIST OF ACRONYMS

AEI :	Air Emission Inventories
ADT:	Average Daily Traffic
APA :	The ASEAN Ports Association
AQ:	Air Quality
AQG:	Air Quality Guidelines
AQM:	Air Quality Management
ASEAN:	Association of Southeast Asian Nations
BTNMT:	Ministry of Natural Resources and Environment
CAP:	Clean Air Plan
CASC:	Clean Air for Smaller Cities in the ASEAN Region Project
CEM:	Centre for Environmental Monitoring
CHE:	Cargo Handling Equipment
CLRTAP:	Convention on Long-range Transboundary Air Pollution
CO:	Carbon Monoxide
CO ₂ :	Carbon Dioxide
CTC:	Can Tho City
CTIA:	Can Tho International Airport
DoNRE:	Department of Natural Resources and Environment
DOT:	Department of Transportation
EF:	Emission Factor
EI:	Emission Inventory
EU:	European Union
EMEP/EE A:	European Monitoring and Evaluation Programme/European Environment Agency
GC:	Gas Chromatography
GDP:	Gross Domestic Product
GHG:	Greenhouse Gas
GIS:	Geographic Information System
GIZ:	German International Cooperation
HC:	Hydrocarbon
HCMC:	Ho Chi Minh City
HDV:	Heavy Duty Vehicle

IER:	Institute for Environment and Resources
IPCC:	Intergovernmental Panel on Climate Change
ISO:	International Standardization Organization
Kt:	Knots
LDV:	Light Duty Vehicle
LPG:	Liquefied Petroleum Gas
MoNRE:	Ministry of Natural Resources and Environment
NKBT:	Ninh Kieu and Binh Thuy
NMVOC:	Non-methane Volatile Organic Compound
NOx:	Nitrogen Oxides
OGV:	Ocean Going Vessel
PEMSEA	The Partnership in Environmental Management for the Seas of East Asia
PM:	Particulate Matter
QCVN:	Technical Regulation
SIC:	Standard Industrial Classification
SO2:	Sulphur Dioxide
Terminal 1:	Terminal of Tan Thuan
Terminal 2	Terminal of Tan Thuan 2
TCVN:	National Standard
TSP:	Total Suspended Particulate
TVP:	Total Vapor Pressure
UNEP:	United Nations Environment Programme
UNECE:	United Nations Economic Commission for Europe
US:	United States
USD:	United States Dollar
US EPA:	United States Environmental Protection Agency
VEA:	Vietnam Environment Administration
VND:	Viet Nam Dong
VOC:	Volatile Organic Compound
WHO:	World Health Organization