

Editors

Nikos Mastorakis
Carol Csatlos
Konstantinos Athanassiadis
Nicolae Tane
Walter Thierheimwr
Liviu Gaceu



Advances in Environmental Development, Geomatics Engineering and Tourism

- Proceedings of the 12th International Conference on Environment, Ecosystems and Development (EED '14)
- Proceedings of the 3rd International Conference on Sustainable Tourism and Cultural Heritage (STACH '14)
- Proceedings of the 2nd European Conference of Geodesy & Geomatics Engineering (GENG '14)

Brasov, Romania, June 26-28, 2014

Scientific Sponsors



Transilvania University
of Brasov, Romania



Technical University of
Civil Engineering of
Bucharest, Romania



Faculty of Civil Engineering
Politehnica University of
Timisoara, Romania



ADVANCES in ENVIRONMENTAL DEVELOPMENT, GEOMATICS ENGINEERING and TOURISM

**Proceedings of the 12th International Conference on Environment, Ecosystems
and Development (EED '14)**

**Proceedings of the 3rd International Conference on Sustainable Tourism and
Cultural Heritage (STACH '14)**

**Proceedings of the 2nd European Conference of Geodesy & Geomatics
Engineering (GENG '14)**

**Brasov, Romania
June 26-28, 2014**

Scientific Sponsors:



Transilvania University of
Brasov, Romania



Technical University of Civil
Engineering of Bucharest,
Romania



Faculty of Civil Engineering
Politehnica University of
Timisoara, Romania

ADVANCES in ENVIRONMENTAL DEVELOPMENT, GEOMATICS ENGINEERING and TOURISM

**Proceedings of the 12th International Conference on Environment, Ecosystems
and Development (EED '14)**

**Proceedings of the 3rd International Conference on Sustainable Tourism and
Cultural Heritage (STACH '14)**

**Proceedings of the 2nd European Conference of Geodesy & Geomatics
Engineering (GENG '14)**

**Brasov, Romania
June 26-28, 2014**

Published by WSEAS Press
www.wseas.org

Copyright © 2014, by WSEAS Press

All the copyright of the present book belongs to the World Scientific and Engineering Academy and Society Press. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the Editor of World Scientific and Engineering Academy and Society Press.

All papers of the present volume were peer reviewed by no less than two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive.

ISSN: 2227-4359
ISBN: 978-960-474-385-8

ADVANCES in ENVIRONMENTAL DEVELOPMENT, GEOMATICS ENGINEERING and TOURISM

**Proceedings of the 12th International Conference on Environment, Ecosystems
and Development (EED '14)**

**Proceedings of the 3rd International Conference on Sustainable Tourism and
Cultural Heritage (STACH '14)**

**Proceedings of the 2nd European Conference of Geodesy & Geomatics
Engineering (GENG '14)**

**Brasov, Romania
June 26-28, 2014**

Editors:

Prof. Nikos Mastorakis, Technical University of Sofia, Bulgaria

Prof. Carol Csatlos, Transilvania University of Brasov, Romania

Dr. Konstantinos Athanassiadis, Scientific Associate of Alexander Technological Educational Institute of Thessaloniki, Greece

Prof. Nicolae Tane, Transilvania University of Brasov, Romania

Assoc. Prof. Walter Thierheimwr, Transilvania University of Brasov, Romania

Assoc. Prof. Liviu Gaceu, Transilvania University of Brasov, Romania

Committee Members-Reviewers:

Bharat Doshi

Gang Yao

Lu Peng

Y. Baudoin

F. Rigas

S. Sohrab

A. Stamou

A. I. Zouboulis

Z. A. Vale

M. Heiermann

I. Kazachkov

A. M. A. Kazim

A. Kurbatskiy

S. Linderoth

P. Lunghi

J. Van Mierlo

Pavel Loskot

N. Afgan

F. Akgun

Fernando Alvarez

Mark J. Perry

Biswa Nath Datta

Panos Pardalos

Gamal Elnagar

Luis Tavares Rua

Igor Kuzle

Maria do Rosario Alves Calado

Gheorghe-Daniel Andreescu

Jiri Strouhal

Morris Adelman

Germano Lambert-Torres

Jiri Klima

Goricanec Darko

Ze Santos

Ehab Bayoumi

Robert L. Bishop

Glenn Loury

Patricia Jota

S. Ozdogan

Najib Altawell

Yang Zhang

Cristina Barbu

Mehdi Seyyed Almasi

Ali Dashti Shafiei

Karim Shirazi

Oprita Razvan

Roman Mihai Daniel

Francesco Rotondo

Alena Bumbova

Reza Fathipour

Arvind Dhingra

Ali Salehipour

Mueen Uddin Awan

Arion Felix

Valeriy Perminov

Catalin Croitoru

Petr Hajek

Claudio Guarnaccia

Berrichi Faouzi

Petr Mastny

Mohamed Mohamed Bizanti

Daniela Cristina Momete

Rajveer Mittal

Dumitru-Alexandru Bodislav

Mohamed Zahran

José A. Orosa

Mário Cesar do Espirito Santo Ramos

Maria Bostenaru Dan

Usama Awan

Carmen Grecea

Sorin Herban

Badea Gheorghe

Coșarcă Constantin

Badea Ana-Cornelia

Didulescu Caius

Dumitru Paul

Ioel Veres

Ahadollah Azami

Monica Dumitrascu

Ahmet Arslan

Kemal Tutuncu

Humar Kahramanli

Ahmet Ertek

Pablo Fdez-Arroyabe

Diana-Elena Alexandru

Corina Carranca

Ana Maria Tavares Martins

Walid Oueslati

Adrian Baltalunga

Vasile Zotic

Ancuta Rotaru

Arash Barjasteh

Hwee San Lim

José Nunes

Gabriel Badescu

Yamagishi Hiromitsu

Lamyaa Taha
Saad Bakkali
Chatrapatty Bhugwant
Miguel Angel Vigil Berrocal
Mihaela-Carmen Muntean
Andrei Madalina-Teodora
Irene Zananiri
Mohamed Salih Dafalla
Rodica Badescu
Giri Kattel
Evangelos Markopoulos
Alina Adriana Minea
Amir Jahanikia
Atefeh Salehi
Cornelia Aida Bulucea
Huashui Zhan Zhan
Ibrahim Canak
Ida Idayu Muhamad
Ioana Adrian
Jose Alberto Duarte Moller
Jose Manuel Mesa Fernández
Lamberto Tronchin
Lucija Foglar
Luigi Maxmilian Caligiuri
Luis Loures
Luís Miguel Moreira Pinto
Mohd Ruslim Mohamed
Panida Sampranpiboon
Pavel Padevet
Rosli Abu Bakar
Rusu Teodor
Thomas Panagopoulos
Umer Asgher
Adrian Savu
Constantin Coșarcă
Daniela Cristiana Docan
Dumitru Paul Daniel
Gheorghe Mugurel Radulescu
Hugo Rodrigues
Nistor Sorin
Radulescu Mihai

Table of Contents

Keynote Lecture: Contribution to Sustainable Development Education in an Engineering High School: Design of Small Scale “Green House” and Example of Experiments <i>Philippe Dondon</i>	10
Plenary Lecture 1: Aspects Regarding Environment Conditions Improvement in Industrial Zones <i>Niculae Boteanu</i>	11
Plenary Lecture 2: Cultural Village - A Form of Exploitation of Spiritual and Cultural Wealth of the Romanian Village <i>Mirela Stoican</i>	12
Study of a Small Scale Solar Tracking System for a Green House Model <i>Ph. Dondon, L. Miron</i>	13
Modeling Soil Erosion by Water on Agricultural Land in Cenei, Timiș County, Romania <i>George Narcis Pelea, Ioana Alina Costescu, Erika Beilicci, Teodor Eugen Man, Robert Beilicci</i>	20
Intelligent Data Analysis and Modeling for the Determinants of Carbon Dioxide Emissions <i>Hsiao-Tien Pao, Yi-Ying Li, L. X. Zheng, Hsin-Chia Fu</i>	26
Monitoring Vertical Displacements by Means of Geometric Levelling for Sky Tower Building from Floreasca City Center, Bucharest <i>Cătălin Ionut Vintilă, Andreea Carmen Rădulescu, Petre Iuliu Dragomir</i>	31
Using InSAR Technology for Monitoring vertical Deformation of the Earth Surface <i>Aurel Sărăcin, Constantin Cosarcă, Caius Didulescu, Adrian Savu, Aurel Negrilă</i>	41
An Integrative Systemic Framework for Sustainability when Environment and Tourism are Connected: Capacitation of the Volunteers to the FIFA Football World Cup in Brazil <i>Carlos Hiroo Saito</i>	49
Recycling of Some Industrial Waste to Produce New Building Materials <i>Cătălin Badea</i>	58
Reliability Performance Assessment in Modeling Photovoltaic Networks <i>Gabriela Tonț, Dan George Tonț</i>	63
The Use of Netafim Hydrocalc Program Version 2.21, for Designing Drip Irrigation Arrangements <i>Ioana Alina Costescu, Mircea Constantin Orlescu, Rareș Hălbac-Cotoară-Zamfir, Emanuel Hațegan, George Narcis Pelea</i>	69
Palaeobiogeographical and Paleoenvironmental Study of the Middle-Upper Jurassic Corals in East-Central Iran carbonate Platform <i>Kaveh Khaksar</i>	75

Information System for Real Estate and Utility Network	80
<i>Savu Adrian, Didulescu Caius, Ana Cornelia Badea, Gheorghe Badea</i>	
Chemical and Environmental Problems of Utilization of Trinitrotoluene	88
<i>Olga Kovalchukova, Konstantin Kobrakov</i>	
Indicators for Water Scarcity Designation in European Agricultural Areas affected by Drought	95
<i>Olga Vizitiu, Catalin Simota, Irina Calciu, Mircea Mihalache</i>	
Wind Energy - The Efficiency Analysis of Some Modern Foundation Solutions for Wind Turbines	104
<i>Alexandra Ciopec, Ciprian Costescu, Ioan Petru Boldurean</i>	
Aspects of Cadastral Data Management Using GIS and 3D Software	110
<i>Ana Cornelia Badea, Gheorghe Badea, Didulescu Caius, Savu Adrian</i>	
Improving the Railway Bridges Monitoring Techniques	116
<i>Andreea Carmen Rădulescu, Vintilă Cătălin Ionut, Petre Iuliu Dragomir</i>	
Modern Technologies for Management of Historic Sites	125
<i>Aurel Florentin Cătălin Negrilă, Constantin Coșarcă, Caius Didulescu, Aurel Sărăcin, Adrian Savu</i>	
The Environment - A Factor of Sustainable Development and of Tourism's Competitiveness in Romania	132
<i>Adina Liana Camarda, Adriana Elena Daniș</i>	
Landslides – Phenomena that Influence Negatively the Environment – Consolidation Solution of an Unstable Slope	138
<i>Alexandra Ciopec, Monica Mirea, Cristina Voicu</i>	
Clay Bound Building Materials Environment Friendly	143
<i>Cătălin Badea, Silvia Smeu, Andrei Gal, Liana Iureș, Sorin Dan</i>	
Effect of Various Growth Mediums on the Germination and Growth of <i>Jatropha Curcas</i>	147
<i>Sadia Iqbal, Nikos Mastorakis</i>	
Evaluation of Structure Deformation Using Geodetic Methods	157
<i>Sorin Herban, Carmen Grecea, Georgiana Rusu, Adrian Alionescu</i>	
Eco-Design for Product Life Cycle Management	163
<i>Simona Sofia Duicu</i>	
Cadastre 2020 – A New Perspective of Romanian Cadastral System	168
<i>Cosmin Constantin Mușat, Clara-Beatrice Vilceanu, Anca-Maria Moscovici</i>	
Study of Land Management and Soil Type Influences on Runoff using Advanced Hydroinformatic Tools	174
<i>Erika Beilicci, Robert Beilicci, Teodor Eugen Man, George Narcis Pelea</i>	

An Environmental - Friendly Technology for the Realization of Road Foundation Layers <i>Florin Belc, Paul Marc, Alin Buzuriu</i>	179
Un-used Arable Land Evaluation in Romania for Low Indirect Impact Biofuel Production <i>Irina Calciu, Mircea Mihalache, Sorina Dumitru, Olga Vizitiu</i>	184
Friendly Environmental Concrete Made with Industrial Waste <i>Jebelean Eugen, Liana Iures, Catalin Badea, Sorin Dan</i>	191
Mine Monitoring using 3D Scanning <i>Maria-Roberta Gridan, Floarea Maria Brebu, Alina Corina Bălă</i>	195
Predictive Land Use Modelling in Litovelské Pomoraví PLA <i>Vilém Pechanec</i>	199
Sustainable Development and the Need to Implement a System of Quality Management in (The Country of) Barsa <i>Mirela Stoican, Adina Liana Camarda, Mihaela Rusu, Cristinel Sonea</i>	208
Diversity Management in Energy Companies <i>Nicolae Coroiu, Petru Ioan Tigan</i>	215
Sustainability Issues and Ecological Architecture <i>Ruxandra Crutescu-Gherasim</i>	220
Operation Behavior of Road Pavements in the Hypothesis of Bound Road Layers <i>Ciprian Costescu, Alexandra Ciopec, Paul Marc</i>	226
A Fast and Robust Protocol for Reconstruction and Re-Enactment of Historical Sites <i>Sanaa I. Abu Alasal, Madleen M. Esbeih, Eman R. Fayyad, Rami S. Gharaibeh, Mostafa Z. Ali, Ahmed A. Freewan, Monther M. Dahash</i>	230
Effects on Tourism and Sustainable Development of Economic Evolution In South East Romania <i>Mihaela Rusu, Mirela Stoican, Adina Liana Camarda</i>	237
Reinforced Soil Slopes <i>Florin Belc, Luiza Roman, Octavian Roman, Alin Buzuriu</i>	242
Cultural Village - A Form of Exploitation of Spiritual and Cultural Wealth of the Romanian Village <i>Mirela Stoican</i>	246
Authors Index	252

Keynote Lecture

Contribution to Sustainable Development Education in an Engineering High School: Design of Small Scale “Green House” and Example of Experiments



Professor Philippe Dondon
ENSEIRB MATMECA - IPB
Domaine Universitaire
TALENCE, FRANCE

E-mail: philippe.dondon@enseirb-matmeca.fr

Abstract: Since Rio de Janeiro conference (1992), Kyoto protocol and agenda 21 definitions, the necessity of a harmonious development is now admitted by a majority of scientific and political personalities. Even if sustainable development is a complex concept, which concerns a wide range of social, scientific, economical and environmental issues, each of us is able to do something for humanity evolution, in particular in the education field. Thus, our project started through an individual questioning of a few teachers, two years ago: What can we include in our research field and/or pedagogical thematic to have a concrete action in sustainable development, while respecting the mains scientific fields of our engineering school? The "small scale green house" project was born. In this talk, we present the main steps of the model design; According to technical standards, a scaled hand made "green" house was first built with genuine and scaled power plants, others accessories like hydrogen fuel stack, solar tracking system, solar tower were added to make the model realistic and functional for experiments. Once finished, some concrete and various didactical experiments were performed. We give here example of thermal losses investigations, carbon assessment, and solar tracking system electronic design. The transdisciplinary aspects of this work are highlighted and finally, some future evolutions are suggested.

Brief Biography of the Speaker: Ph. Dondon was born in 1960. He is a graduate from the High School of Electronic Engineers ENSEIRB Bordeaux, France. After his electronic engineer diploma in 1983, he worked 5 years as product manager and computer aided manufacturing (C.A.M) in the French radio-communication systems company T.R.T. Back to the IMS Microelectronic Laboratory of Bordeaux, he received his Ph D in microelectronic analogue design in 1992. He is now teaching electronic at ENSEIRB- MATMECA and has several interests in electronic circuits and electronic for sustainable development fields of research.

Plenary Lecture 1

Aspects Regarding Environment Conditions Improvement in Industrial Zones



Associate Professor Nicolae Boteanu

University of Craiova
Romania

E-mail: boteanu.nicolae@gmail.com

Abstract: Environmental pollution may be of natural and artificial. Artificial pollution was caused by the development of urban settlements, under the influence of anthropogenic factor. Initially there were fewer polluting products, by organic nature and easily degradable by micro-organisms in the environment (bacteria and fungi). As industrial development, population growth and modernization of technology, pollution had expanded, pollutants have increased and occurred readily biodegradable waste (detergents, synthetic pesticides, radioactive waste). When the amount of pollutants exceeds the capacity of neutralizing of the environment, ecosystems undergoes alteration to their destruction, resulting in the emergence of zones without life. The Kyoto Convention (2002) had established rules and terms of supervision of the determining the greenhouse gases (carbon dioxide, methane, nitrogen oxides, sulphur dioxide, ozone and chlorofluorocarbons). The strategy provided for Atmospheric Protection, according to United Nations Economic Commission for Europe, Geneva (2004) and Commission of the European Communities, Brussels (2005), is focus also on the reduction of emissions of nitrogen dioxide, sulphur dioxide and other air pollutants that lead to environmental acidification. Reducing emissions from combustion plants can be achieved through: primary measures, which are integrated measures to reduce emissions at source or during combustion, including fuel feed measures and measures of combustion changes; secondary measures (as final ones), which controlling the emissions to air, water and soil.

Brief Biography of the Speaker: Nicolae Boteanu is currently an Associate Professor in Mekatronics, Transportation Systems and Environment in the Electrical Engineering Faculty of the University of Craiova, Romania. He is graduate from the Electrotechnics Faculty of Craiova and he received the Ph.D degree from the University of Petrosani. In Publishing House he is author of four books in mekatronics, transportation systems and environmental engineering areas. Research work is focused on improved solutions for control and optimization of transportation systems and command of mekatronics structures. He has extensive experience in both experimental and theoretical research work, certified by over 40 journal and conference research papers and 20 research projects from industry. He had participated in 4 WSEAS International Conferences, presenting papers and attending the scientific meetings. He has also 2 papers published by NAUN International Journals.

Plenary Lecture 2

Cultural Village - A Form of Exploitation of Spiritual and Cultural Wealth of the Romanian Village



Professor Mirela Stoican
Transilvania University of Brasov
&
Bioterra University of Bucharest
ROMANIA
E-mail: jercalai@yahoo.com

Abstract: Under the impact of intense urbanization processes occurring in the second half of the twentieth century, rural areas experienced large structural changes. Expansion of urban areas, migration to the city of villagers, the introduction of new techniques and technologies in the processing of land, infrastructure development are all key elements in the transformation of traditional rural values.

Romanian rural tourism is represented by a multitude of symbols: crafts, dance, music and costumes, gourmet products, ancestral customs and traditions. By combining these symbols and recovery in tourism, the Romanian village can become a cultural village with real meanings of medium and long term development. This paper aims to highlight the relevance of cultural tourism in rural areas, and how to exploit the intangible heritage of Bucovina Cultural Village Ciocănești.

Brief Biography of the Speaker: I have a Bachelor Degree, obtained at Petre Andrei University of Iasi, Faculty of Economics. I have obtained Master's Degree in Performance Management in Alimentation, Tourism and Consumer Protection at Bioterra University of Bucharest and I obtained the doctorate in 2012 in the General Economic Theory field, major in Political Economy and Economic Doctrines.

Currently I am an associate lecturer phd. of Transilvania University of Brasov, and the Faculty of Alimentation and Tourism, at Bioterra University of Bucharest, at Focsani Studies Center, at the Faculty of Agroturistic Management.

I attended in numerous international conferences as chairmen, including a WSEAS conference in 2011, plenary speaker in 2013. In the WSEAS, since 2012, I am a Review.

The fields of research are the theory of human capital, investment in human capital, innovational economy, quality management in tourism, and rural tourism. I am the author of over 35 papers in the field of human capital theory, quality management in tourism and published in international and national specialized journals.

Authors Index

Abu Alasal, S. I.	230	Dondon, P.	13	Moscovici, A.-M.	168
Adrian, S.	80, 110	Dragomir, P. I.	31, 116	Muşat, C. C.	168
Ali, M. Z.	230	Duicu, S. S.	163	Negrilă, A.	41, 125
Alionescu, A.	157	Dumitru, S.	184	Orlescu, M. C.	69
Badea, A. C.	80, 110	Esbeih, M. M.	230	Pao, H.-T.	26
Badea, C.	58, 143, 191	Fayyad, E. R.	230	Pechanec, V.	199
Badea, G.	80, 110	Freewan, A. A.	230	Pelea, G. N.	20, 69, 174
Bălă, A. C.	195	Fu, H.-C.	26	Rădulescu, A. C.	31 116
Beilicci, E.	20, 174	Gal, A.	143	Roman, L.	242
Beilicci, R.	20, 174	Gharaibeh, R. S.	230	Roman, O.	242
Belc, F.	179 242	Grecea, C.	157	Rusu, G.	157
Boldurean, I. P.	104	Gridan, M.-R.	195	Rusu, M.	208, 237
Brebu, F. M.	195	Haşegan, E.	69	Saito, C. H.	49
Buzuriu, A.	179, 242	Herban, S.	157	Sărăcin, A.	41, 125
Calciu, I.	95, 184	Ionut, V. C.	116	Savu, A.	41, 125
Camarda L.	132, 208, 237	Iqbal, S.	147	Simota, C.	95
Ciopec, A.	104, 138, 226	Iureş, L.	143, 191	Smeu, S.	143
Coroiu, N.	215	Jebelean, E.	191	Sonea, C.	208
Cosarcă, C.	41, 125	Khaksar, K.	75	Stoican, M.	208, 237, 246
Costescu, C.	104, 226	Kobakov, K.	88	Tigan, P. I.	215
Costescu, I. A.	20, 69	Kovalchukova, O.	88	Tonţ, D. G.	63
Cotoară-Zamfir, R. H.	69	Li, Y.-Y.	26	Tonţ, G.	63
Crutescu-Gherasim, R.	220	Man, T. E.	20, 174	Vîlceanu, C.-B.	168
Dahash, M. M.	230	Marc, P.	179, 226	Vintilă, C. I.	31
Dan, S.	143, 191	Mastorakis, N.	147	Vizitiu, O.	95, 184
Daniş, A. E.	132	Mihalache, M.	95, 184	Voicu, C.	138
Didulescu, C.	41, 80	Mirea, M.	138	Zheng, L. X.	26
Didulescu, C.	110, 125	Miron, L.	13		