

**Editors: N. Markatos, A. Stamou,
J. Beltrao, T. Panagopoulos,
C. Helmis, E. Stamatiou,
A. Hatzopoulou,**

M.D. Carlos Antunes

ENERGY, ENVIRONMENT ECOSYSTEMS and SUSTAINABLE DEVELOPMENT

Published by WSEAS Press, www.wseas.org

ISSN: 1790-5095

ISBN: 978-960-8457-88-1

**Proceedings of the 3rd WSEAS / IASME
International Conference on
ENERGY, ENVIRONMENT
ECOSYSTEMS and
SUSTAINABLE DEVELOPMENT**

Agios Nikolaos, Crete, Greece, July 24-26, 2007



**ENERGY and ENVIRONMENTAL ENGINEERING SERIES
A Series of Reference Books and Textbooks**



ENERGY, ENVIRONMENT,
ECOSYSTEMS and
SUSTAINABLE
DEVELOPMENT

Proceedings of the

3rd IASME/WSEAS International Conference on ENERGY, ENVIRONMENT, ECOSYSTEMS and SUSTAINABLE DEVELOPMENT (EEESD '07)

Agios Nikolaos, Crete Island, Greece, July 24-26, 2007

Published by World Scientific and Engineering Academy and Society Press
<http://www.wseas.org>

Copyright © 2007, 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 two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive. See also: http://www.worldses.org/review/index.html

ISSN: 1790-5095
ISBN: 978-960-8457-88-1



World Scientific and Engineering Academy and Society

EDITORS:

Professor N. Markatos, National Technical University of Athens, GREECE
Professor A. Stamou, National Technical University of Athens, GREECE
Professor J. Beltrao, University of Algarve, PORTUGAL
Professor T. Panagopoulos, University of Algarve, PORTUGAL
Professor C. Helmis, University of Athens, GREECE
Professor E. Stamatiou, Open University, GREECE
Professor A. Hatzopoulou, National Technical University of Athens, GREECE
Professor M. Dulce Carlos Antunes, PORTUGAL

SCIENTIFIC COMMITTEE:

Adrianos Retalis, GREECE
Abbas Afshar, IRAN
Ismael Al-Hinti, JORDAN
Armando Apan, AUSTRALIA
Nur Asilturk, TURKEY
John Galiotos, USA
Murat Aydin, TURKEY
Vincenzo Barrile, ITALY
Jon Burley, USA
Ucenic Camelia Ioana, ROMANIA
Christos Chalkias, GREECE
Thomas G. Chondros, GREECE
Maria Diamantopoulou, GREECE
Ibrahim Dincer, CANADA
Lidia Dionisio, PORTUGAL
Suwarno Dr, INDONESIA
Dan Dumitrascu, ROMANIA
George Filippopoulos, GREECE
Kazuhiro Fukuyo, JAPAN
Dimitrios Georgakellos, GREECE
Fehime Yesim Gurani, TURKEY
Chih-Hong Huang, TAIWAN
Kamaruzaman Jusoff, MALAYSIA
Katsuhiko Kadoguchi, JAPAN
E.Esen Kaleli, TURKEY
Jehng-Jung Kao, TAIWAN
C.M. Kao, TAIWAN
Pavlos Kassomenos, GREECE
Brigitte Klug, AUSTRIA
Dionyssia Kolokotsa, GREECE
Bjorn Kvamme, NORWAY
Richard Lacroix, GREECE
Dimitris Lagos, GREECE
Chih-Sheng Lee, TAIWAN
Yachun Li, CHINA
Hung-yueh Lin, TAIWAN
Zulati Litifu, JAPAN
Malgorzata Luc, POLAND
Nikos Lydakis - Simantiris, GREECE
George Miliareisis, GREECE
Issarachai Ngamroo, THAILAND
Janet Nichol, CHINA
Ilona Obrsalova, CZECH REPUBLIC
Bilge Onaran, TURKEY
Christos Papageorgiou, GREECE
Amritasu Sinha, INDIA
Agelos Papaioannou, GREECE
Mohsen Parsa Moghaddam, IRAN
Basem Poursaeed, IRAN
Ali Rajabzadeh, IRAN
Masoud Rashidinejad, IRAN
Fotis Rigas, GREECE
George Skodras, GREECE
Richard Snow, USA
George Stavrakakis, GREECE
Aart Sterkenburg, THE NETHERLANDS
Jacek Szmada, POLAND
Satoshi Takizawa, JAPAN
Michael Theodoridis, GREECE
Minoru Ueda, JORDAN
Martin van den Toorn, HOLLAND
Georgios Vokas, GREECE
Ting-Nien Wu, TAIWAN
Kuei-Yang Wu, TAIWAN
Efthymis Zagorianakos, GREECE
Emmanuel Antonidakis, GREECE

ADDITIONAL REVIEWERS:

Seiyed Moussa Hosseini, University of Tehran, Iran
Banafsheh Zahraie, University of Tehran, Iran
Eleftheria E. Papadimitriou, Aristotle University of Thessalonica, Greece
Oktay Bayat, Cukurova University, Turkey
Chiroiu Veturia, Institute of Solid Mechanics, Romanian Academy, Romania
Amir Hamzeh Haghiabi, Lorestan University, Iran
Oleg Makarynsky, Curtin University of Technology, Australia
Guo Yu, Dalian University of Technology, China
Siamak Bodaghpour, Khajeh Nasir Toosi Technical University, Iran
Reza Kerachian, University of Tehran, Iran
Joanna Boguniewicz, University of Pavia, Italy
Surendra P. Verma, National Autonomous University of Mexico, Mexico
Eleni Kokkinou, Technological Institute of Crete, Greece
Homayoun Moghimi, Payam Noor University, Iran
Pantelis Soupios, Technological Educational Institute of Crete, Greece
Valeriy Perminov, Belovo Branch of Kemerovo State University, Russia
Francesco Cioffi, University degli studi ' La Sapienza,' Italy
Seyyed N. Hosseini, Hamadan Azad University, Morocco
Yi-Chu Huang, National Pingtung University of Science and Technology, Taiwan
Ting- Nien Wu, Kun Shan University, Taiwan
Jimmy Kao, National Sun Yat-Sen University, Taiwan
Abdolreza Bahremand, Gorgan Univ. of Agric. Sciences & Natural Resources, Iran
Bogdan Popa, Polytechnic University of Bucharest, Romania
Zulati Litifu, Financial and Economic University of Xinjian, China
Prashant Nagarnaik, G H. Rasoni College of Engineering, India
Adel Awad, Tishreen University, Syria
Jamshid Mosavi, University of Technology, Iran
Anastasios Stamou, National Technical University of Athens, Greece
Bin Xu, Hunan University, China
Kwok-wing Chau, Hong Kong Polytechnic University, China
Chen Hong-kai, Chongqing Jiaotong University, China
Zbigniew Zembaty, Opole University of Technology, Poland
Naresh Singhal, University of Auckland, U.S.A
Nikos Lydakis-Simantiris, Technological and Educational Institute of Crete, Greece
Grigorios Kyriakopoulos, Hellenic Naval Academy, Greece
Darko Goricanec, University of Maribor, Slovenia
Samir Kumar Das, International Institute of Information Technology, India
Alaa El –Nahry, National Authority for Remote Sensing & Space Sciences, Egypt
Budi Setiawan, Bogor Institute of Agriculture, Indonesia
Hj Kamaruzaman Jusoff, University Putra, Malaysia
Filippos Vallianatos, Technological Educational Institute of Crete, Greece
Zafeiria Roumelioti, National Observatory of Athens, Greece

Preface

This book includes the proceedings of the 3rd IASME / WSEAS International Conference on Energy, Environment, Ecosystems and Sustainable Development (EEESD'07) held in July 24-26, 2007 in Agios Nikolaos, Crete, Greece. The EEESD conference is organized annually by the World Scientific and Engineering Academy and Society (WSEAS), in cooperation with International Association of Mechanical Engineers (IASME), Universities and Research Centers. In 2007 the EEESD international conference was organized by WSEAS in collaboration with IASME and the Computer Science Laboratory of Hellenic Naval Academy. Several other universities laboratories contributed with special sessions and plenary lectures as one can see below. In 2008 it will be organized by WSEAS and Universidade do Algarve in Algarve, Portugal (June 11-13, 2008).

The papers submitted focused on a variety of topics. In regular sessions, papers addressed topics such as environment and sustainable development, sustainable management, applied chemistry, applied thermodynamics, ecosystems, cleaner energy systems, renewable energy systems, energy conservation and generation, energy technology transfer, pollution, soil and agricultural issues, landscape design, simulation and modeling, process engineering and more.

Prominent lecturers provided key-note speeches for the conference. Moreover, special sessions were organized, and invited lectures were given by well-known researchers.

For this EEESD conference, Professor N. Markatos (School of Chemical Engineering, National Technical University of Athens, Greece) and Assoc. Professor A. Stamou, (School of Civil Engineering, National Technical University of Athens, Greece) were the Chairmen in the track of Energy, Professor C. Helmis (University of Athens, Head of the Department of Applied Physics, Faculty of Physics, Greece) and Professor F.Rigas (School of Chemical Engineering, National Technical University of Athens, Greece) were the Chairmen for the track of Environment. For the track of Ecosystems, the Chairmen were Professor Jose Beltrao, (University of Algarve, Portugal), Professor T. Panagopoulos (University of Algarve, Portugal) and Professor Eleni Stamatiou (Open University of Greece, Greece) while for the track of Sustainable Development, the Chairmen were Professor Alice Hatzopoulou (National Technical University of Athens, Greece) and Dr. J.Georgi (Open University of Greece, Greece).

The Plenary Speeches of EEESD'07 were:

- *Best modeling practices in the application of the Directive 2000/60 in Greece* by Assc. Professor Anastasios I. Stamou, National Technical University of Athens, Greece.
- *Towards a better understanding of the mean and turbulent structure of the Atmosphere over the sea*

by Prof. Costas G. Helmis, National and Kapodistrian University of Athens, Greece.

- *Institutions and the protection of the manmade and natural environment-The case of the Greek Ombudsman*

by Prof. Eleni Stamatiou, Hellenic Open University, Greece.

- *Green Diesel from Fischer-Tropsch Synthesis: Challenges and Hurdles*

by Prof. Nicolas Abatzoglou, Universite de Sherbrooke, Quebec, Canada.

- *A Dynamic System for the Evaluation of Forest Fire Risk With Emphasis to Mountainous Terrain*

by Prof. George Stavrakakis, Technical University of Crete, Greece.

- *A GIS-based decision support system for revegetation of lands contaminated from mining activities*

by Prof. Daoliang Li, China Agricultural University, China.

- *Impact of European Aquis on Education and Praxis in Environmental Management*

by Assoc. Professor Calin I. Ciufudean, _ Stefan Cel Mare _ University of Suceava, Romania.

- *Future changes in climate mean and extremes affecting agriculture in Europe*

by Prof. M. Petrakis, National Observatory of Athens, Greece.

- *Foundations of Excellence in Workforce Energy Education and Training in Houston, Texas*

by Prof. John K. Galiotos, Houston Community College, USA.

- *The Energy Sustainability Roadmap of Greece*

by Prof. Christopher J. Koroneos, Aristotle University of Thessaloniki, Greece.

- *Deregulated Electricity Market issues in South-Eastern Europe*

by Prof. Thales M. Papazoglou, Technological Educational Institute of Crete, Greece.

- *Inorganic Pre-Polymerised Coagulants: Current Status and Future Trends*

by Prof. A. I. Zouboulis, Aristotle University, Greece.

- *A new Concept for the Geometry of Biological Structures beyond the Cell Level. The role of Irrational Numbers*

by Prof. Vassilis Gekas, Technical University of Crete, Greece.

We would like to thank all members of the organizing laboratories for their contribution to the organization of the conference.

The contents of this Book is also published in the CD-ROM Proceedings of the Conference. Both will be sent to the WSEAS collaborating indices after the conference: www.worldses.org/indexes.

Also the papers of this book is permanently available to all the scientific community via the WSEAS E-Library. Another additional feature of EEESD'07 was that the WSEAS society provided the participants with a username and password without an expiry date for on-line access in the WSEAS Conference proceedings (1996 -...). WSEAS also distributed to all the participants the CD-ROM Proceedings of the EEESD 2006 (Athens, Greece, July 2006).

Expanded and enhanced versions of papers published in these conference proceedings also going to be considered for possible publication in one of the WSEAS journals that participate in the major International Scientific Indices (Elsevier, Scopus, EI, Compendex, INSPEC, CSA see: www.worldses.org/indexes) these papers must be of high-quality (break-through work) and a new round of a very strict review will follow. (No additional fee will be required for the publication of the extended version in a journal).

We cordially thank all the people of WSEAS for their efforts to maintain the high scientific level of conferences, proceedings and journals.

**ENERGY, ENVIRONMENT, ECOSYSTEMS and
SUSTAINABLE DEVELOPMENT (EEESD '07)
TABLE OF CONTENTS**

Building Waste Sorting Stations for Sustainable Environment <i>Calin Ciufudean, Constantin Filote</i>	1
Current Status and Perspectives for the Production of Refuse Derived Fuel (RDF) Using Waste Vinyl and Sewage Sludge <i>K. J. Park, B. J. An</i>	5
Control of Nitrate Pollution using Optimization Techniques in Combination with Numerical Models <i>George P. Karatzas, Maria P. Papadopoulou, Dimitrios Mirasgentis</i>	10
Strategic Environmental Assessment at Policy Level: A Case Study of Industrial Restructuring Policy in Shandong Province <i>Xueliang Yuan, Jon Kellett</i>	16
Method for Assessment of Potentially Pollution of Slag from Iron and Steel Industry <i>Ecaterina Matei, Cristian Predescu, Mirela Sohaciu, Andrei Berbecaru</i>	22
Coliforms as Indicators of Efficiency of Wastewater Treatment Plants <i>S. Antunes, L. Dionisio, M. C. Silva, M. S. Valente, J. J. Borrego</i>	26
Web-based DSS for Economic Evaluation of Municipal Solid Waste Management <i>Guo Xiangyun, Joanna Kulczycka, Karol Koneczny, Li Daoliang</i>	30
Forecasting Municipal Solid Waste Generation based on Grey Fuzzy Dynamic Modeling <i>Zhu Xiang, Li Daoliang</i>	36
An Overview of the Impact of Tropospheric Ozone on the Nutritional Value of Edible Plants used in the Mediterranean Diet <i>Antonia Psaroudaki, George Stavrakakis</i>	42
One-Step SO₂ Removal from the Simulated Flue Gas on Platinum Anode in Acidic Solution <i>Umran Tezcan Un, A. Savas Koparal, Ulker Bakir Ogutveren</i>	51
Neighbourhood-friendly Solutions in Waste Recycling <i>Constantin Filote, Calin Ciufudean</i>	56
<i>Tetragonia Tetragonoides</i> – A Potential Salt Removing Species. Response to the Combined Effects of Salts and Calcium <i>M. A. Neves, M. G. Miguel, C. Marques, T. Panagopoulos, J. Beltrao</i>	60
Essential Oils of <i>Rosmarinus Officinalis</i> L., Effect of Harvesting Dates, Growing Media and Fertilizers <i>M. G. Miguel, C. Guerrero, H. Rodrigues, J. Brito, F. Duarte, F. Venancio, R. Tavares</i>	65
Vegetation Cover for Sustainable Olive Grove Management <i>Thomas Panagopoulos, Maria Alcinda Neves</i>	71
Tree Species Distribution in Ayer Hitam Forest Reserve, Selangor, Malaysia <i>P. Lepun, Faridah Hanum I, Kamaruzaman Jusoff</i>	75
Environmental Legislation and Governance Process for the Conservation of Biodiversity	82

Dimitra Manou, George Desypris

Estimates for Rehabilitation Potential of Dust Sources in the Agro-pastoral Ecotone in North China <i>Yingyi Chen, Daoliang Li</i>	87
Innovative Postharvest Techniques for Sustainable Handling of Horticultural Products <i>Dulce Antunes, Graca Miguel, Alcinda Neves</i>	93
Stochastic Processes and Insect Outbreak Systems: Application to Olive Fruit Fly <i>Markos Avlonitis, Dimitris Tragoudaras, Michalis Stefanidakis, Charalambos Papavlasopoulos</i>	98
Ecosystem and Floristic Diversity of Tropical Peat Swamp Forest, Pahang, Malaysia <i>Che Hashim Hassan, Mohamed Zin Yusop, Grippin Akeng, Khali Aziz Hamzah, Kamaruzaman Jusoff</i>	104
The Impact of Golf Course Development on a Constantly Changing Mediterranean Landscape <i>Thomas Panagopoulos, Marina Vidic, Bibiana Rodrigues Ramos</i>	110
Recovering Derelict Industrial Landscapes in Portugal: Past Interventions and Future Perspectives <i>Luis Loures, Thomas Panagopoulos</i>	116
Aesthetic and Ecological Stream Reclamation Using Bioengineering Techniques <i>Bibiana Rodrigues Ramos, Thomas Panagopoulos</i>	122
Urban Parks and Sustainable Development – The Case Study of Portimão City, Portugal <i>Luis Loures, Raul Santos, Thomas Panagopoulos</i>	127
Relationship between Forest Fragmentation and Management of Nature Reserves in Flanders <i>Eva M. De Clercq, Robert R. De Wulf</i>	132
Use of the Sugarcane Pulp Residue as a Soil Organic Amendment and its possible use as a Horticultural Substratum <i>J. Brito, I. Chada, P. Pinto, C. Guerrero, J. Beltrao</i>	137
Evaluation of the BT based Insecticide RET-BT in the Control of Lepidopterous Caterpillars on Golf Courses <i>C. Guerrero, D. Pereira, L. Neto</i>	141
Evaluation the use of <i>Fytofoam</i> on the Water Management, Turfgrass Germination and Reestablishment in Golf Courses <i>C. Guerrero, C. Antunes, M. Pereira</i>	145
Salt Removal Potential of <i>Portulaca Oleracea</i> Golden Purslane <i>Ahmad Hamidov, Valentina Khaydarova, Shahnnoza Sharipova, Clara Costa, Jose Beltrao</i>	151
Remediation of Saline Soils using <i>Apocynum Lancifolium</i> and <i>Chenopodium Album</i> <i>Ahmad Hamidov, Valentina Khaydarova, Muhammadkhon Khamidov, Alcinda Neves, Jose Beltrao</i>	157
Energetic Valorisation of Hazardous Wastes from Wood Industry <i>P. Canizares, L. Rodriguez, J. Nunez, P. Rivera, J. L. Duran</i>	165
Flame Stabilization in a Porous Burner at the Interface of Two Sections of Alumina Spheres <i>Mario Toledo, Valeri Bubnovich</i>	168
Uncertainty Analysis of CO2 Emissions from Cement Production <i>Dimitris Tsamatsoulis</i>	172
Combining Experimental and Theoretical Methods to Quantify Indoor Particulate Emissions: Application in an Office Microenvironment <i>Christos H. Halios, Costas G. Helmis</i>	178

Emission and Partitioning of Mercury at Various Combustion Sources	183
<i>Kyu-Shik Park, Sang-Hyeob Lee, Jung-Hun Kim, Daniel Min Seo, Jang-Soo Moona, Yong-Chil Seo</i>	
Environmental Comparison of the Use of Bio-Diesel and Gasoline for Transportation – The Case of Athens	189
<i>Christopher J. Koroneos, Evanthia A. Nanaki</i>	
Modeling UV Radiation Absorption in a Flat-Plate Photocatalytic Reactor	201
<i>S. A. Cuevas, C. A. Arancibia-Bulnes</i>	
Electrochemical Formation of Semi-conducting Oxides for Solar Energy Conversion	205
<i>Irena Mickova, Abdurauaf Prusi, Ljubomir Arsov</i>	
Thin Layers of Polyaniline/TiO₂ Nano-particles Using Electrochemical Deposition	210
<i>Martin Arsov, Irena Mickova, Ljubomir Arsov</i>	
Combine Desalination - Cooling Plant in Nisyros Island Utilizing Geothermal Energy	213
<i>Christopher J. Koroneos, Apostolos L. Polyzakis, Dimitrios C. Rovas</i>	
Green Diesel from Fischer-Tropsch Synthesis: Challenges and Hurdles	223
<i>Nicolas Abatzoglou, Ajay Dalai, Francois Gitzhofer</i>	
Mini Device for Environmental Forensics	233
<i>Calin Ciufudean, Pinzariu Ciprian</i>	
Response of the Distribution of Forest Constructive Species of Northeastern China to the Climate Changing	237
<i>Limin Dai, Wenfang Leng, Hong S. He</i>	
Geographical Relations Dynamics (1) on an Interactive 3D CG Digital Globe	243
<i>Minoru Ueda</i>	
Shunt Active Power Filter Wind Energy Conversion System	249
<i>K. Tan, H. Tumbelaka, S. Islam, M. A. S. Masoum</i>	
The Impacts of Wind Power on Power Systems Operation	254
<i>Paula Ferreira, Madalena Araujo, M. E. J. O'Kelly</i>	
A Study on the Market Characteristics of Wind Power System Using Learning Curves in Korea	260
<i>Sungwook Hwang, Jongryul Won, Junghoon Kim</i>	
The Effect of Volatile Organic Compounds Emission caused by Decoration Paintings on the Indoor Air Quality	264
<i>Chih-Hong Huang, Yu-Chou Wu</i>	
Analysis of the Wind Field at the Broader Area of Chania, Crete	270
<i>D. Deligiorgi, D. Kolokotsa, T. Papakostas, E. Mantou</i>	
Quantification of Diffuse Dust Emissions from Open Air Sources on Industrial Sites	276
<i>Therese Badr, Jean-Luc Harion</i>	
Operational Context Analysis as a part of Design Related Study and Research	281
<i>Taeke M. De Jong</i>	
Inorganic pre-Polymerized Coagulants: Current Status and Future Trends	292
<i>A. I. Zouboulis, N. D. Tzoupanos, P. A. Moussas</i>	
Protected Supervised Control in Bioenergetic Devices	301
<i>Bohumil Sulc, David Klimanek, Jan Hrdlicka</i>	
Isopropyl Alcohol Combustion on Ferrite Catalyst NiFe₂O₄	307

Yao-Jen Tu, Jie-Chung Lou, Herbert Vogel, Alfons Drochner

A New Concept for the Geometry of Hierarchically Higher Biological Structures beyond the Cell Level. The Role of Irrational Numbers <i>Vassilis Gekas, Christine Mandakas</i>	313
Case Study on the Critical Physical Agents in the Cement Industry <i>Casto Di Girolamo</i>	320
Using Geostatistical Analysis and Spectral Signature for Identifying Shale Distribution and Type in El-Salhia Project, Ismaillia, Egypt <i>A. H. El Nahry</i>	325
A Framework on Urban Design Strategies for Sustainability of Cultural and Historical Dimension in Urban Landscape <i>Selma Celikyay, Sirin Donmez, Nurhan Kocan, Emine Ikiz, Pinar Aydin, Sevgi Gormus Cetinkale</i>	330
Evaluation of the Microbiological Quality of Natural Waters <i>M. S. Valente, L. Dionisio, P. Pedro, J. J. Borrego</i>	335
A DSS for Agricultural Land Use, Water Management and Environmental Protection <i>B. Manos, Th. Bournaris, J. Papathanasiou, Ch. Moulogianni</i>	340
Demand & Supply Analysis of China's Water Resources and its Sustainable Utilization in the First Half of the 21st Century <i>Hongbing Deng, Bofu Zheng, Gang Wu, Guohua Liu, Keming Ma, Jingzhu Zhao</i>	346
Stand-Alone Solar Desalination Plant <i>F. Piccininni, G. S Virk, T. Scialpi</i>	351
Ocean Waves – A Preliminary Study <i>M. Vieira, G. X. Silva, A. Carvalho, J. C. Quadrado, V. Mendes</i>	357
Renewable Power Production of Moderate Temperature Geothermal Heat Using Air Conditioning Hardware <i>Joost J. Brasz</i>	361
Daily Irrigation Water Demand Prediction using Adaptive Neuro-Fuzzy Inferences Systems (ANFIS) <i>G. Atsalakis, C. Minoudaki</i>	368
Strategic and Operational Environmental Planning of Aquatic Resources in Thessaly Basin in Greece <i>E. Koutseris, P. Dioudis, Ag. Filintas</i>	374
Research and Application of Algorithm Based on Core Characteristic Extraction of Watermelon Seeds by Automated Separating System <i>Yong Sun, Yun Bai, Lihong Gang, Qiangguo Pu, Nikos Mastorakis</i>	381
Best Modeling Practices in the Application of the Directive 2000/60 in Greece <i>A. I. Stamou, K. Nanou-Giannarou, K. Spanoudaki</i>	387
The State of the Aquatic Environment as Deducted from Bioassays-Quantitated Ecosystem Risks <i>Aart Sterkenburg, Hannie Maas, Arthur De Groot, Esther Van Der Grinten</i>	397
Geographical Relations Dynamics (2) - Energy, GHG, and Food with the World Trade In 2030 - <i>Minoru Ueda</i>	402
Sustainable Development through the Resource Use - Regional Innovation System <i>Carmen Nastase, Mihai Popescu</i>	408
Management of the Natural Environment of Nisyros Volcano Towards Sustainable Development	413

Dimitrios Zouzas, Karen St. Seymour, Leonidas Stamatopoulos

Risk Assessment of Contaminated Sites: a Proper Screening Methodology for Sustainable Policies? <i>A. G. Capodaglio, A. Callegari</i>	419
Integration of Romanian Tourism into the National Policy for Sustainable Development <i>Gavriletea Marius Dan, Dumbrava Partenie, Kiraly Krisztina</i>	425
Airborne Hyperspectral Sensing of Bamboo in Berangkat Forest Reserve, Kelantan, Malaysia <i>Kamaruzaman Jusoff</i>	431
Institutions and the Protection of the Manmade and Natural Environment - The Case of the Greek Ombudsman <i>Eleni Stamatiou</i>	438
Development of an Indicator of Objective Aesthetic Impact of Wind Farms. Application to Three Wind Farms <i>Ana D. C. Torres Sibille, V. A. Cloquell Ballester, Richard Darton</i>	445
Sustainability and Public Works <i>Alice Hatzopoulou, Stefanos Gerasimou</i>	451
Sustainable Supply Chains – A framework for best Practice Assessment Results of the Pilot Study, BestLog Project <i>Wojciech Piotrowicz, Richard Cuthbertson, Gerd Islei</i>	455
GIS Analysis of Lightning Strikes within a Tornadoic Environment <i>Richard Snow, Mary Snow, Nicole Kufa</i>	465
A GIS-Based Decision Support System for Revegetation and Reclamation of Opencast Coal Mine Spoils <i>Daoliang Li</i>	471
A GIS-Based Support System for Environmental Impact Assessment of Rehabilitation of Coal Mine Dump <i>Yongpeng Zhao, Daoliang Li</i>	480
Soils Nitrates GIS Mapping, Irrigation Water and Applied N-Fertilizer Effects in Soils Nitrogen Depletion in a Drip Irrigated Experimental Field in Thessaly Basin <i>Ag. Filintas, P. Dioudis, E. Koutseris, A. Papadopoulos</i>	486
Exergy Analysis of NEKA-IRAN Heat Recovery Steam Generator at Different Ambient Temperatures <i>D. Ghorbanzadeh, B. Ghashami, S. Masoudi, Sh. Khanmohammadi</i>	492
Distribution Feeder Reconfiguration for Complex Power Loss Minimization <i>K. R. Niazi, M. R. Farooqi, C. M. Arora, S. L. Surana</i>	498
Computation of Transmission System usage for Power Wheeling Burden Evaluation <i>E. De Tuglie, M. Dicorato, F. Torelli, M. Trovato</i>	507
Optimal Allocation of Heat Exchangers in an Aircraft Open Loop Bootstrap System <i>Bogdan Horbaniuc, Gheorghe Dumitrascu</i>	513
The Irreversible Power Cycles Preliminary Design <i>Gheorghe Dumitrascu, Bogdan Horbaniuc</i>	519
Genetic Algorithm Applied to Optimal Location of FACTS Devices in a Power System <i>J. Nikoukar, M. Jazaeri</i>	525
Electromagnetic Environment of the Overhead Transmission Lines in Low and High Frequency <i>Marilena Ungureanu, Adrian Constantin Rusu</i>	531

A Study on the Electricity Savings by Reinforcing Energy Efficiency Standards for Refrigerators in Korea <i>Sungwook Hwang, Jongryul Won, Junghoon Kim, Jungin Lee, Jihye Kim, Byungha Lee</i>	537
Energy – Time Dichotomy in the Optimal Control of the Electrical Drives <i>Corneliu Botan, Vasile Horga, Florin Ostafi</i>	541
Reformer - Anode Assemblies in Medium Temperature Solid Oxide Fuel Cells <i>Jerzy Jurewicz, Nicolas Abatzoglou, Gessie Brisard</i>	547
Geographical Distribution of Energy Consumption in Western Japan <i>Kazuhiro Fukuyo</i>	556
The Electrodynamics of a Pair of PV Modules with Connected Building Resistance <i>Himanshu Dehra</i>	562
Monitoring of Dielectric Losses at Capacitor-Type Bushings <i>Dorel Nedelcut, Dumitru Sacerdotianu</i>	567
Analysis in Situ of Pt Colloidal Nanoparticles Deposited onto Nafion 117 Membrane for PEMFC Applications <i>B. Escobar Morales, X. Mathew, S. A. Gamboa, U. Pal</i>	573
Energy Consumptions Analysis in a Rehabilitated Small-Scale Substation from a District Heating System <i>Rodica Frunzulica, Andrei Damian</i>	577
Assessment of Energy-Saving Opportunities of Cement Industry in Iran <i>Sourena Sattari, Akram Avami</i>	584
On Thermic Exposure of Piezo-Thermoelastic Plates <i>Adriano Montanaro</i>	593
France's Remote Sensing Strategy for Sustainable Development <i>Richard N. Lacroix, Eleni Stamatiou</i>	597
Green Architecture and Sustainable Development: Applications & Perspectives <i>Richard N. Lacroix, Eleni Stamatiou</i>	602
A Monitoring Campaign of Soil Moisture along a Hillslope Transect of the Experimental Basin of Corleto <i>B. Onorati, S. Manfreda, V. Telesca, D. Carriero, G. Celano, M. Fiorentino</i>	606
The Macrolocalization Features of Plastic Deformation on the Pre-Fracture Stage <i>Vladimir I. Danilov, Lev B. Zuev</i>	612
A New Evaluation Methodology Applied to the Hazardous Pipelines with the Aim to Determine a Safety Index Supporting Land-Use Planning Strategies <i>R. V. Gagliardi, V. Torretta, F. Conti, S. Stella, G. Bello</i>	617
Production and Properties of Insulation Mats Made from Sea Grass <i>Carsten Pedersen, Erling Ransby</i>	625

Authors Index

Abatzoglou, N.	223, 547	Daoliang, L.	30, 36	Huang, C.-H.	264
Akeng, G.	104	Darton, R.	445	Hwang, S.	260, 537
Alcinda Neves, M.	71	De Clercq, E. M.	132	Ikiz, E.	330
An, B. J.	5	De Groot, A.	397	Islam, S.	249
Antunes, C.	145	De Jong, T. M.	281	Islei, G.	455
Antunes, D.	93	De Tuglie, E.	507	Jazaeri, M.	525
Antunes, S.	26	De Wulf, R. R.	132	Jurewicz, J.	547
Arancibia-Bulnes, C. A.	201	Dehra, H.	562	Jusoff, K.	431, 75, 104
Araujo, M.	254	Deligiorgi, D.	270	Karatzas, G. P.	10
Arora, C. M.	498	Deng, H.	346	Kellett, J.	16
Arsov, L.	210, 205	Desypris, G.	82	Khamidov, M.	157
Arsov, M.	210	Di Girolamo, C.	320	Khanmohammadi, Sh.	492
Atsalakis, G.	368	Dicorato, M.	507	Khaydarova, V.	151, 157
Avami, A.	584	Dionisio, L.	335, 26	Kim, J.	260, 537, 183
Avlonitis, M.	98	Dioudis, P.	486, 374	Klimanek, D.	301
Aydin, P.	330	Donmez, S.	330	Kocan, N.	330
Badr, T.	276	Drochner, A.	307	Kolokotsa, D.	270
Bai, Y.	381	Duarte, F.	65	Koneczny, K.	30
Bello, G.	617	Dumitrascu, G.	513, 519	Koroneos, C. J.	213, 189
Beltrao, J.	151, 157	Duran, J. L.	165	Koutseris, E.	486, 374
	137, 60	El Nahry, A. H.	325	Krisztina, K.	425
Berbecaru, A.	22	Escobar Morales, B.	573	Kufa, N.	465
Borrego, J. J.	335, 26	Farooqi, M. R.	498	Kulczycka, J.	30
Botan, C.	541	Ferreira, P.	254	Lacroix, R. N.	597, 602
Bournaris, Th.	340	Filintas, Ag.	486, 374	Lee, B.	537
Brasz, J. J.	361	Filote, C.	56, 1	Lee, J.	537
Brisard, G.	547	Fiorentino, M.	606	Lee, S.-H.	183
Brito, J.	137, 65	Frunzulica, R.	577	Leng, W.	237
Bubnovich, V.	168	Fukuyo, K.	556	Lepun, P.	75
Callegari, A.	419	Gagliardi, R. V.	617	Li, D.	87, 471, 480
Canizares, P.	165	Gamboa, S. A.	573	Liu, G.	346
Capodaglio, A. G.	419	Gang, L.	381	Lou, J.-C.	307
Carriero, D.	606	Gekas, V.	313	Loures, L.	116, 127
Carvalho, A.	357	Gerasimou, S.	451	Ma, K.	346
Celano, G.	606	Ghashami, B.	492	Maas, H.	397
Celikyay, S. C.	330	Ghorbanzadeh, D.	492	Mandakas, C.	313
Cetinkale, S. G.	330	Gitzhofer, F.	223	Manfreda, S.	606
Chada, I.	137	Guerrero, C.	145, 141	Manos, B.	340
Chen, Y.	87		137, 65	Manou, D.	82
Ciprian, P.	233	Halios, C. H.	178	Mantou, E.	270
Ciufudean, C.	56, 233, 1	Hamidov, A.	151, 157	Marques, C.	60
Cloquell Ballester, V. A.	445	Hamzah, K. A.	104	Masoudi, S.	492
Conti, F.	617	Hanum I, F.	75	Masoum, M. A. S.	249
Costa, C.	151	Harion, J.-L.	276	Mastorakis, N.	381
Cuevas, S. A.	201	Hashim Hassan, C.	104	Matei, E.	22
Cuthbertson, R.	455	Hatzopoulou, A.	451	Mathew, X.	573
Dai, L.	237	He, H. S.	237	Mendes, V.	357
Dalai, A.	223	Helmis, C. G.	178	Mickova, I.	210, 205
Damian, A.	577	Horbaniuc, B.	513, 519	Miguel, G.	65, 93, 60
Dan, G. M.	425	Horga, V.	541	Min Seo, D.	183
Danilov, V. I.	612	Hrdlicka, J.	301	Minoudaki, C.	368

Authors Index

Mirasgentis, D.	10	Popescu, M.	408	Tan, K.	249
Montanaro, A.	593	Predescu, C.	22	Tavares, R.	65
Moona, J.-S.	183	Prusi, A.	205	Telesca, V.	606
Moulogianni, C.	340	Psaroudaki, A.	42	Toledo, M.	168
Moussas, P. A.	292	Pu, Q.	381	Torelli, F.	507
Nanaki, E. A.	189	Quadrado, J. C.	357	Torres Sibille, A. D. C.	445
Nanou-Giannarou, K.	387	Ransby, E.	625	Torretta, V.	617
Nastase, C.	408	Rivera, P.	165	Tragoudaras, D.	98
Nedelcut, D.	567	Rodrigues Ramos, B.	122, 110	Trovato, M.	507
Neto, L.	141	Rodrigues, H.	65	Tsamatsoulis, D.	172
Neves, A.	157, 93, 60	Rodriguez, L.	165	Tu, Y.-J.	307
Niazi, K. R.	498	Rovas, D. C.	213	Tumbelaka, H.	249
Nikoukar, J.	525	Rusu, A. C.	531	Tzoupanos, N. D.	292
Nunez, J.	165	Sacerdotianu, D.	567	Ueda, M.	243, 402
Ogutveren, U. B.	51	Santos, R.	127	Un, U. T.	51
O'Kelly, M. E. J.	254	Sattari, S.	584	Ungureanu, M.	531
Onorati, B.	606	Savas Koparal, A.	51	Valente, M. S.	335, 26
Ostafi, F.	541	Scialpi, T.	351	Van Der Grinten, E.	397
Pal, U.	573	Seo, Y.-C.	183	Venancio, F.	65
Panagopoulos, T.	116, 127, 122 71, 110, 60	Seymour, K. St.	413	Vidic, M.	110
Papadopoulos, A.	486	Sharipova, S.	151	Vieira, M.	357
Papadopolou, M. P.	10	Silva, G. X.	357	Virk, G. S.	351
Papakostas, T.	270	Silva, M. C.	26	Vogel, H.	307
Papathanasiou, J.	340	Snow, M.	465	Won, J.	260, 537
Papavlasopoulos, C.	98	Snow, R.	465	Wu, G.	346
Park, K. J.	5	Sohaciu, M.	22	Wu, Y.-C.	264
Park, K.-S.	183	Spanoudaki, K.	387	Xiang, Z.	36
Partenie, D.	425	Stamatiou, E.	597, 438, 602	Xiangyun, G.	30
Pedersen, C.	625	Stamatopoulos, L.	413	Yuan, W.	16
Pedro, P.	335	Stamou, A. I.	387	Yusop, M. Z.	104
Pereira, D.	141	Stavrakakis, G.	42	Zhao, J.	346
Pereira, M.	145	Stefanidakis, M.	98	Zhao, Y.	480
Piccininni, F.	351	Stella, S.	617	Zheng, B.	346
Pinto, P.	137	Sterkenburg, A.	397	Zouboulis, A. I.	292
Piotrowicz, W.	455	Sulc, B.	301	Zouzias, D.	413
Polyzakis, A. L.	213	Sun, Y.	381	Zuev, L. B.	612
		Surana, S. L.	498		