

3rd International Conference on Environmental Design (ICED2022)

IOP Conference Series: Earth and Environmental Science
Volume 1123

Athens, Greece
22 – 23 October 2022

ISBN: 978-1-7138-6529-2
ISSN: 1755-1307

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence.
Licence details: <http://creativecommons.org/licenses/by/3.0/>.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2023)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Preface

Peer Review Statement

20 Years (2001-2020) of GIS-Based Forest Cover Loss in the Natura 2000 Sites of Dobruja Region, Romania	1
<i>Andra-Cosmina Albulescu, Daniela Larion</i>	
Valorization of Greek – Naxos Emery in Environmental Friendly Applications.....	11
<i>K V Kakavas, V D Binas, D Kasiteropoulou, D N Christodoulou</i>	
Pinus Nigra Extractives Analysis for Green Growth	16
<i>M A Chavenetidou, K V Kakavas, D Birbilis</i>	
Assessing 3D Printing Processes as Enablers of Circular Economy	24
<i>Harry O. Psihoyos, Yannis Mouzakitis, Emmanuel D. Adamides, George N. Lampeas</i>	
Cross-Linking the Peroxidase: From Potato Peel Valorization to Colored Effluents Treatment	33
<i>M Svetozarević, N Šekuljica, A Dajić, M Mihajlović, Z Popovski, D Mijin</i>	
Lighting Products as Part of the Circular Economy and Strategies that Affect It. a Literature Overview.	40
<i>C J Grigoropoulos, S C Zerefos, A Tsangrassoulis, L T Doulos</i>	
The Contribution of Footpaths to the Protection and Utilization of the Natural Environment by Using the VIKOR Method for Their Ranking	46
<i>C Daoutis, A Kantartzis, A Stathi, G Arabatzis</i>	
Evaluating Landslides' Triggering Precipitation Thresholds, in Regions Affected by Wildfires, Using Public and Open Access Data. the Case of North Peloponnese, Greece	54
<i>C Nefros, C Loupasakis, G Kitsara</i>	
Biodiesel Production from High Free Fatty Acid Byproduct of Bioethanol Production Process	62
<i>Nikolaos Kokkinos, Grigoria Theochari, Elissavet Emmanouilidou, Daniela Angelova, Vesislava Toteva, Anastasia Lazaridou, Sophia Mitkidou</i>	
The Infrastructure Contribution to the Regional Development and the Environmental Protection: Typologies of Regional Units Based on Forest Operations Engineering.....	71
<i>Vereniki Louka, Garyfallos Arabatzis, Apostolos Kantartzis</i>	
Critical Success Factors Towards Resilient Agri-Food Supply Chains	81
<i>M Kontopanou, G T Tsoulfas</i>	
Magnetic Declination and Climate Change.....	89
<i>Kampolis Dimitrios</i>	
Global Warming, Thermal Engines' Efficiency and GHG Emissions: The Vicious Circle of Climate Change.....	99
<i>Elias Yfantis, Andreas Paradeisiotis, Constantina Ioannou, Ioannis Nikolaou</i>	
Climate Change and SMEs: Green Transition, European Institutional Framework & Necessary Adaptations to Increase the Competitiveness of SMEs in the Region of Western Greece	109
<i>Maria Margosi</i>	

Accuracy of Topographical Instruments and Unmanned Aerial Systems for Mapping and Surveying Environmental Projects	117
<i>G. Kolkos, A. Stergiadou, A. Kantartzis, A. Tselepis</i>	
Energy Valorisation of the Residual Biomass from Greenhouses in the Framework of a Circular Economy.....	127
<i>Kleio Gioulounta, Ioannis Kosmadakis, Costas Elmasides, Vasileios Diamantis, Arsenis Piskilopoulos, Iosif Amiridis, Katerina Stamatelatou</i>	
Use of New Indices for the Quantification of Climate Change Based on Air Temperature Variability.....	136
<i>K Zacharaki, A Tseliou, N Rapsomanikis, E Zervas</i>	
New Temperature Indices for the Estimation of Temperature Variability. Application in Athens's Greater Area.	146
<i>K Zacharaki, A Tseliou, N Rapsomanikis, E Zervas</i>	
Sustainable Stormwater Management at Urban Expansion Areas of Potential Significant Flood Risk	155
<i>D Markou</i>	
The Effect of Local Climatic Conditions on the Building Integration of Photovoltaics.....	164
<i>Nikolaos Skandalos, Vasileios Kapsalis, Dimitris Karamanis</i>	
Passive House Design in Temperate Continental Climate for Increasing Indoor Comfort Conditions	173
<i>A I Dumitrașcu, C G Corduban, T M Hapurne, I Bluic</i>	
Strategy of Integrated Refurbishment of Post-War Housing Stock in Serbia Using Exoskeletons	181
<i>B Levic, Lj Djukanovic</i>	
Environmental and Ecological Approach in the Restoration of Historical Monuments	190
<i>S. Al Adgham, M. Saba, G. Sabalbal, W. Arairo, J. Absi</i>	
Assessing the Construction and Demolition Waste Volume for a Typical Mediterranean Residential Building.....	197
<i>A Karanafti, K Tsikaloudaki, T Theodosiou</i>	
BIM Methods and CDE in Professional Education for Sustainable Design and Production.....	205
<i>P H Gonzalez Alfaro, N Dimovski, L Lamartina, P J de Sá</i>	
The Image of the Urban Space. Social Semiotics Readings, Data, and Assumptions	214
<i>V Pamporis, A Micheli</i>	
Sustainability Through Passive Energy Biomimetics Systems in Architecture. Comparative Analysis of Case Studies.	224
<i>C Dikou, N Kourniatis</i>	
Assessment of Thermo-Hygrometric Environment of Historic Museum Building in Constantine-Algeria.....	234
<i>S Benharkat, N Benhassine, S Sahnoune, A Ouis</i>	
Cultural and Natural Heritage as a Driver of Sustainable Landscape Development	244
<i>J Šćekić, M Nikolić, E Vaništa Lazarević, J Marić</i>	
THE GREEN LINE a Biodiversity Corridor Along the Past and Present Athens Railway Network	252
<i>N Kogia, M Papafotiou</i>	

Investigation of the Thermal Environment in Schoolyards Under Mediterranean Conditions. Contribution to Bioclimatic Conditions Improvement with the Application of Mild Interventions – the Case Study of a School Within the Urban Environment.....	262
<i>Lydia-Despoina Gkaidatzis, Areti Tseliou, Garyfallia Katsavounidou, Efthimios Zervas</i>	
The Environmental Impact of the New Version of the Interior Lighting European Norm in Lighting and Circadian Design	270
<i>I Tservartsidis, C Skandali, L T Dousos</i>	
Energy Upgrading of Buildings in Greece with Eco-Materials: An Investigation of Public Awareness.....	280
<i>F Antoniou, F Demertzidou, P Mentzelou, D Konstantinidis</i>	
The Impact of Lighting Trespass on Nearby Buildings and Their Inhabitants Which Derives from Municipal Stadiums. Early Results from a Post Occupancy Evaluation Survey	289
<i>E Ntarara, K Syngkirdi, V P Androvitsaneas, L T Dousos</i>	
Circadian Stimulus Calculators as Environmental Building Design Tools: Early Results of a Critical Review	298
<i>A Kotsenos, E N Madias, F Topalis, L Dousos</i>	
The Sustainable Design of Atrium at the Times of Adaptation to the Impacts of Climate Change; The Case of Mediterranean Cities	304
<i>Marina Panagiota P Nastou, Stelios C Zerefos</i>	
Current Research Trends into the Effect of Climate Change on Civil Engineering Infrastructures: A Bibliometric Review.....	312
<i>M Kalogeraki, F Antoniou</i>	
An Examination of Use of Alternative Reference Sources in Colour Rendering of Environmental Lighting Applications.....	322
<i>A Dimitrakis, E-N Madias, A Kotsenos</i>	
Design and Development of a Sustainable Environmentally Friendly and Human Centric Luminaire	330
<i>E-N Madias, E Patrikios, C Grigoropoulos, L Dousos</i>	
Design and Sustainable Construction in the Contemporary Work of Norman Foster	340
<i>M F F Pantoja, R H F Póvoas, J C Pantoja, A C M N Sales</i>	
Façade Lighting of Hotel Buildings: Integration in the City and Their Impact on Light Pollution.....	350
<i>G. Skiadopoulos, C. Sigala, A. Papalambrou, Th. Balafoutis, N. Kakogiannis, L. T. Dousos</i>	
Ventilation Requirements and Energy Aspects: The Case of Hospitals.....	359
<i>Giorgos Panaras, Risofile Gropca, Giannis Papadopoulos</i>	
Housing and Energy Consumption in Greece. Households' Experiences and Practices in the Context of the Energy Crisis	369
<i>E. Chatzikonstantinou, N. Katsoulakos, F. Vatavali</i>	
Flow Simulation of Self-Consolidating Concrete Through V-Funnel for Sustainable Buildings	379
<i>K C Onyelowe, D-P N Kontoni, A M Ebied</i>	
“Verd De Proximitat BCN”: Monitoring and Evaluation Plan for the Operation and Impact of Green Roofs and Façades in the City of Barcelona	387
<i>Gabriel Pérez Luque, Julià Coma Arpon, Marcelo Reyes Rogget, Gerard Marias Gonzalez</i>	

Energy Consumption in Greek School Buildings as a Function of the Climate Zone.....	396
<i>I Karali, S Giannarou, E Zervas</i>	
Opinion of Construction Professionals for the Implementation of Sustainable Construction Strategies	406
<i>S Laridou, S Giannarou, E Zervas</i>	
Energy Efficiency of Greek School Buildings and Cost of Bioclimatic Interventions.....	416
<i>T Galanaki, S Giannarou, E Zervas</i>	
Development of Transport in Albania and Opportunities for a Sustainable Transport	423
<i>P Cacaj</i>	
Evaluating Transport Sustainability in Metropolitan Athens Through a Cable Car Proposal as a Partial Alternative to the Announced Metro Line 4.....	433
<i>Iris Papadopoulou, Dionisis Tzanetatos</i>	
Prediction and Environmental Appraisal of Traffic Noise Intensity by Auto-Regressive Integrated Moving Average Technique	442
<i>D-P N Kontoni, J Ihemeje, K C Onyelowe, A M Ebied</i>	
The Future of Public Transport in the Era of Sharing Economy: The View of Transport Operators.....	451
<i>Varvara Gouni, Fotini Kehagia, Dimitrios Nalmpantis</i>	
Assessing the Environmental Impacts of Renewable Energy Sources with Emphasis on Wind Energy	461
<i>S Gkalonaki, K Karatzas</i>	
Evaluation of the Functionality, Safety, and Environmental Impact of the New Pop-Up Bicycle Lane on Konstantinos Karamanlis Avenue in Thessaloniki, Greece	470
<i>Dionysios Kinis, Georgios Palantzas, Dimitrios Nalmpantis</i>	
A Review on Best Practices Using Hydrogen Fuel-Cell Electric Vehicles in Public Transport	480
<i>Attila Akac, Konstantina Tsatsiou, Angelos Angelakakis</i>	
Evaluation of Alternative Mobility Scenarios in the post-COVID-19 Period with the Use of Multi-Actor Multi-Criteria Analysis (MAMCA).....	490
<i>Theodoros Chrysanthidis, Dimitrios Nalmpantis</i>	
“Transforming a Power Plant into an Educational Centre: Agia Small Hydroelectric Power Plant”	500
<i>Panagiotis J. Bourbourakis, Georgios J. Tsikalakis</i>	
Road Investment and Safety in Middle- And High-Income Countries in the Framework of Sustainability	510
<i>F Kehagia, M Giannaki</i>	
Analysis of the World Scientific Production on Energy Poverty, Fuel Poverty and Energy Vulnerability	520
<i>Zoe Iliopoulou, Nikolaos Rapsomanikis, Eftimios Zervas</i>	
Mechanical Characterization and Environmental Assessment of Stabilized Earth Blocks.....	530
<i>W Arairo, M Saba, M El Bachawati, J Absi, K J Kontoleon</i>	
Geopolymer: A New Sustainable Repairing Material for Concrete Cracks.....	538
<i>C. Frangieh, M. Saba, D. Karmaoui, Z. Lafhaj</i>	

Characterization of Porous Geopolymers Mortars for the Production of a Sustainable Material.....	547
<i>A. Ghauch, M. Saba, T. Sayet</i>	
Investigation of the Fire Effect on the Behavior of Corrugated Steel Plate Shear Walls Considering Environmental Aspects.....	553
<i>D-P N Kontoni, A Ghamari, S Mahmudi</i>	
Polymer-Functionalized Nanoparticles as Agents for the in Situ Remediation of Oil-Contaminated Soils.....	563
<i>C Ntente, A Strekla, Z Iatridi, M Theodoropoulou, G Bokias, C D Tsakiroglou</i>	
Simulation of Self-Compacting Concrete (SCC) Passing Ability Using the L-Box Model for Sustainable Buildings.....	573
<i>K C Onyelowe, D-P N Kontoni, A M Ebid</i>	
External Cost of Pollutant Emissions in Turkey	580
<i>T Büke, A Ç Köne</i>	
Determination of Aspirin in Municipal Wastewaters of Nur-Sultan City, Kazakhstan.....	586
<i>A Satayeva, T Kerim, A Kamal, J Issayev, V Inglezakis, J Kim, E Arkhangelsky</i>	
Barometric Pressure as a Correction Factor for Low-Cost Particulate Matter Sensors	594
<i>I. Christakis, K. Moutzouris, O. Tsakiridis, I. Stavrakas</i>	
Waste Collection and Treatment Networks with Source Separation from Mobile Green Points (MGP): Citizens Awareness and Spatial Planning for the Collection of Clean Recyclable Materials.....	602
<i>Konstantinos Tsimnadis, Grigoris L. Kyriakopoulos, Garyfallos Arabatzis, Efthimios Zervas</i>	
Biomass as Adsorbent – a Depollution Cost Effective Material in a Promising Market	612
<i>S D V Giakoumatos, O N Kopsidas</i>	
Integration of LCA and LCC for Decision Making in Biocomposite Production	622
<i>N. Gkoloni, Ch. Golenis, V. Kostopoulos</i>	
Modelling of NMVOC Emissions from Solvents Use in Greece	629
<i>I Sebos, L E Kallinikos</i>	
The Application of the Bow Tie Approach in the Risk Assessment of a Municipal Solid Waste Management System	638
<i>K Georgousoglou, Y Mouzakitis, E D Adamides</i>	
Waste Management Strategies Effects on GHG Emission: Case Study of Serbia	648
<i>M Mihajlović, A Dajić, M Svetozarević</i>	
Modelling the Atmospheric Dispersion of Ammonia in an Industrial Area in Northern Greece	654
<i>I Petrou, K Psistaki, I M Dokas, A K Paschalidou</i>	
The Impact of Solids Retention Time on Greenhouse Gases Emissions from Biological Wastewater Treatment Processes	664
<i>Liana Kemmou, Georgios Samiotis, Ilias Ristanis, Elisavet Amanatidou</i>	
Investigation of the Particulate Air Pollution and the Ratio of PM2.5 to PM10 Concentrations in the Atmosphere Over the Lignite Mining and Lignite-Fired Power Plants Region of Western Macedonia, Greece.....	674
<i>V Evangelopoulos, P Begou, P Kassomenos, S Zoras</i>	

Photocatalytic Treatment of Metronidazole-Containing Wastewater	684
<i>Perizat Abdirova, Yerkanat N. Kanafin, Stavros G. Poulopoulos</i>	
A Preliminary Study of Chemical Parameters of Water in the Albanian Part of Lake Ohrid at the End of the Spring Season	690
<i>E Dalo, R Sadikaj, M Shyqueriu, H Sahiti</i>	
Optimization of the Remediation of Oil-Drilling Cuttings by Combining Artificial Neural Networks with Knowledge-Based Models.....	695
<i>K Kalari, K F Christodoulis, D Nikolakopoulou, N Bali, M Theodoropoulou, P Economou, C D Tsakiroglou</i>	
Removal of Phenanthrene from Wastewater with Low-Cost Adsorbents.....	705
<i>A Stavrinou, M A Theodoropoulou, C A Aggelopoulos, C D Tsakiroglou</i>	
Degradation of the Persistent Organic Pollutant-Lindane in Fixed-Bed Photoreactor Packed with Immobilized Zinc Oxide and Iron Oxide-Doped Zinc Oxide Photocatalysts.....	715
<i>M V Karavasilis, M A Theodoropoulou, C D Tsakiroglou</i>	
Predicting Coastal Dissolved Oxygen Values with the Use of Artificial Neural Networks: A Case Study for Cyprus	725
<i>E Hadjisolomou, K Antoniadis, L Vasiliades, M Rousou, I Thasitis, R Abualhaija, H Herodotou, M Michaelides, I Kyriakides</i>	
Urban Traffic Air Pollution - Case Study City of Vranje, Serbia.....	734
<i>Jovana Dzoljic, Vladimir Popovic, Srdjan Jovkovic, Jovan Misic</i>	
Parametric Study of the Remediation Efficiency of Oil-Drilling Cuttings by Ozonation	742
<i>K F Christodoulis, D. Nikolakopoulou, M. Karavasilis, M A Theodoropoulou, C D Tsakiroglou</i>	
Zeolite Supported TiO ₂ for the Degradation and Mineralization of Sulfamethoxazole Under UV Light Irradiation	749
<i>S Mergenbayeva, Zh Abitayev, M Batyrbayeva, J Vakros, S G Poulopoulos</i>	
Evaluating the IPAT Formula in Greece Over the 1960-2019 Period with Respect to CO ₂ Emissions	756
<i>D Kaika</i>	
Decompose Worldwide Energy Demand and Its Decoupling from Global Economic Growth.....	765
<i>Demetrios S Brilakis, Demetrios Tsesmelis, Eftimios Zervas</i>	
Assessment of Hydrodiplomacy Effectiveness Under Climate Change: The Case Study of the Transboundary River Basins of Greece	774
<i>D K Stefanopoulou, C Skoulidakis</i>	
Valuing Natural Ecosystems: The Case of National Park Kotychi-Strofilia in Peloponnese, Greece	784
<i>V. Dimopoulos, C. Tourkolias, S. Mirasgedis</i>	
Environmental Taxes in the European Union and Their Use as a Means of Environmental Restoration.....	793
<i>S Tsiantikoudis, S Galatsidas, A Paschalidou, E Zafeiriou, G Arabatzis</i>	

Author Index