

Table of Contents

In-vehicle Network Security: Detecting Anomalies in CAN Bus Frames by Analyzing Data Field Sequences	1
Mohammed Karrouchi, Mohammed Rhiat, Anas Hassari, Ilias Atmane, Hanae Azzaoui, Kamal Hirech	
Material and Electrical Defects in Photovoltaic Systems-Environmental Impacts and Challenges	2
Abdel Hamid Adaliou, Mostafa El Ouariachi, Kamal Hirech	
Professional Experience, Workload, and Stress Perception among Secondary School Teachers: A Cross-Sectional Study in Tetouan, Morocco	3
Hicham Guider, Fatine Hadrya, Mohammed Amine Lafraxo, Youssef El Madhi, Abdelmajid Soulaymani, Hinde Hami	
Proximate Composition of the Local Hemp Seed (Beldiya Ecotype), Fatty Acid Profile, and Oxidation Stability of Its Oil as a Local Product from Northern Morocco	4
Youssef Rbah, Yassine Taaifi, Kamal Belhaj, Aymane Allay, Reda Melhaoui, Farid Mansouri, Hana Serghini-Caid, Ahmed Elamrani	
Substituting the PID Controller with a Recurrent Neural Network Model for the Optimization of Solar Photovoltaic Systems	5
Meryem Yahyaoui, Mohamed Karom, Hajar Chadli, Khalid Salmi, Mohammed Saber, Sara Chadli	
A Bibliometric Analysis on the Concept of Sustainable Business Models and Its Relationship with the Creation of Territorial Value	6
Sara Mansri, Rahhal Lahrach	
Towards Sustainable Performance: Corporate Social Responsibility Commitment and Challenges of Moroccan Ports.....	7
Asmae Aakaou, Rahhal Lahrach	
Evaluation of the Impact of the Inquiry-Based Approach on Students' Learning Regarding Major Water-Related Issues in Secondary Education	8
Youness Jardioui, Abdelrhani Elachqar, Fatiha Kaddari	
Assessment of Anthropogenic Impacts and Global Changes on Coastal Ecosystems of Eastern Morocco: Comparative Study of the Mouths of the Moulouya and Kert Rivers	9
Ghizlane Hamdioui, Mustapha Akodad, Mostafa Layachi, Bouchra Oujidi, Mohamed Chahban, Aalaoul Mimoun, Mourad Baghour, Hanane Ait Hmeid, Ali Skalli	

Investigating the Calco-Carbonic Balance of Drinking Water in Fes Morocco Using Principal Component Analysis and Multiple Linear Regression	10
Imane Es-Smiri, Mohammed Machkor, Iman Aoueryagel, Faiza Chaouket, Ihssane Raissouni, Dounia Bouchta	
Legal Protection of the Environment: A Comparative Law Study	11
Nadia Hamouti, Safae El Bakouhi	
Optimization of Dye-Sensitized Solar Cells: Advanced Materials and Morphologies for Efficient Photoanodes	12
Imane Lmachraa, Lamia Elmaazouzi, Khadija El Idrissi, Mohammed El Idrissi, Abdellah Zeroual, Zouhair Lakbaibi	
Sustainable Management of Environmental Challenges in Viticulture: The Role of <i>Bacillus</i> spp. in Crown Gall Biocontrol and Alleviating Abiotic Stresses	13
Hiba Yahyaoui, Majida Hafidi, Aziz Aziz, Khaoula Habbadi	
Toxic Medicinal Plants Used in Moroccan Traditional Medicine	14
Soumia Benaicha, Mostafa El Achouri	
The Role of Communication in Environmental Education: Challenges and Perspectives	15
Abdelilah Allaoui, Abdelhakim Mansoureddine	
Effect of Gelling Agent and Plant Growth Regulators on in Vitro Shooting and Rooting of <i>Stevia rebaudiana</i> Bertoni	16
Ghizlane Bouaaza, Rachid Benkirane, Hamid Benyahia	
Gum Arabic: A Sustainable Biotechnological Solution to Prolong the Shelf Life and Improve Post-Harvest Quality of Fruits	17
Ilham Zerbet, Loubna Benidire	
The Role of Educational Institutions in Promoting Awareness of Sustainable Development Issues: A Systematic Review	18
Mohamed El Hadri, Ahmed Ait Aghzzaf, Bouamama Cherai	
Study, Design, Construction and Remote Supervision of a Domestic Photovoltaic Desalination System	19
Ilias Atmane, Mohammed Rhiat, Mohammed Karrouchi, Anas Hassari, Mostapha Melhaoui, Kamal Hirech	

Study, Design, Construction and Supervision of a Hydrogen Production System Using Photovoltaic Renewable Energies	20
Ilias Atmane, Mohammed Rhiat, Mohammed Karrouchi, Anas Hassari, Mostapha Melhaoui, Kamal Hirech	
Opportunities and Challenges in Integrating Augmented and Virtual Reality in Environmental Education	21
Hajar Zekeik, Mohamed Chahbi, Anass Saddati, Mohammed Lamarti Sefian, Imane Bakkali	
Effect of Doping Rare-earth Elements on the Structural and Dielectric Properties of $Sr_2RETi_2Nb_3O_{15}$ Compounds (RE = Gd, Sm, Nd)	22
Karim Chourti, Ilyas Jalafi, Fatima Chaou, Amine Bendahhou, Soufian El Barkany, Mohamed Abou-Salama	
Contribution to the Study of the Effect of a Biofertilizer Derived from Co-digestion on Quinoa Cultivation (<i>Chenopodium quinoa</i>)	23
Chaymae Boukhaffa, Zaineb Boulida, Ibtiassam Mzabri, Abdelbasset Berrichi, Nouredine Kouddane, Hassan Erraji	
The Effect of Climate Change and Drought on Aleppo Pine (<i>Pinus halepensis</i>) Forests in the Geopark Mgoun, High Atlas of Morocco	24
Youssef Gharnit, Abdelaziz Moujane, Khalid El Haddany, Aziz Hasib, Abdelali Boulli, Aboubakre Outourakhte	
Optimization of the Grafting Technique in Argan (<i>Argania spinosa</i> L. <i>Skeels</i>) and Carob (<i>Ceratonia siliqua</i> L.) in the Eastern Region of Morocco	25
Zaineb Boulida, Chaymae Boukhaffa, Ibtiassam Mzabri, Abdelbasset Berrichi	
Advanced Printed Sensors for Environmental Applications: A Path Towards Sustainable Monitoring Solutions	26
Nikolaos Papanikolaou, Doha Touhafi, Jurgen Vandendriessche, Danial Karimi, Sohail Fatimi, Gianluca Cornetta, Abdellah Touhafi	
Environmental Education Through Clubs and Climate Resilience in Morocco: A Statistical Analysis of Activation Factors.....	28
Amine Hmid, Driss Abbadi	
Identification of Pedagogical Innovation in Environmental Education in Science Programmes in Morocco.....	29
Omar El Ouidadi, Mohammed Aboutajdyne, Youssef El Guamri	

Removal of Bisphenol A (BPA) from Aqueous Solutions Using Cellulose-Based Materials as Adsorbents	30
Meryem Abida, Hayat El-Hammi, Loubna Jabir, Omar Azougagh, Nor Mohammed, Issam Jilal, Abderrahmane El Idrissi, Mohamed Abou-Salama, Soufian El Barkany	
Online Learning and Communication Skills: Case of Faculty of Letters and Human Sciences, Dhar El Mahraz Students.....	31
Fatima Zahra El Karmaoui, El Ouali El Blaidi, Ahmed El Hammoumi	
A Multilevel PV Inverter Control with Minimal Total Harmonic Distortion (THD)	32
Abdelhak Lamreoua, Anas Benslimane, Kamal Hirech, Jamal Bouchnaif, Mostafa El Ouariachi	
Wireless Diagnostics: Study of Real-time Monitoring and Analysis of Vehicle States	33
Mohammed Karrouchi, Mohammed Rhiat, Ilias Atmane, Assia Sadiqi, Hanae Azzaoui, Kamal Hirech	
Checklist of Known Moth Flies (Diptera: Psychodidae: Psychodinae) from Morocco with Distributions	34
Imane Saidoun, Mohamed Amin El Mouden, Mourad Beni-Eich, Samia Boussaa, Boutaïna Belqat	
Integrating Digital Twins and Ai For Enhanced Water Resource Management and Environmental Sustainability	35
Nadir Ehmimed, Mohamed Yassin Chkouri, Abdellah Touhafi	
Investigating the Effectiveness of the National Flood Protection Plan (NFPP) in Mitigating the Inundation Events in Morocco.....	36
Badr Layan, Mahmoud Zemzami, Mohamed Ben Abbou, Lahcen Benaabidate, Brahim Bougdira, Sedik El Yadari	
Coping Strategies Adopted by Nursing Students to Effectively Manage Academic Burnout.....	37
Mohamed Suiyhi, Anouar Alami, Youssef El Madhi	
Green Guidance: Reconciling Individual Career Pathways and Sustainability Challenges, Exploratory Study with Guidance Counselors in Morocco	38
Mohamed Haba, Amal Azeroual	
Public Transport and Sustainable Development: Building a Greener Future for Agadir	39
Lamia Achrih, Youssef Tachfine	
Climatic Variability in the Upper Section of the Larbaâ River, Taza Province: Droughts Periods and Exceptional Precipitations	40
Brahim Bougdira, Nessraddine Adouk, Badr Layan, Sedik El Yadari	

The Impact of Augmentative and Alternative Communication (AAC) Strategies on the Integration of Autistic People into Society Within the Framework of Sustainable Development (SD)	41
Fatima El Ghazouani, Lamiae Hajji	
The Effect of an Eco-friendly Additive on the Electrodeposition of Zn-Ni Alloy Coating for Application in the Automotive Industry	42
Kamelia Blyid, Cosmin Mihai Cotrut, Rida Allah Belakhmima, Mohamed Ebn Touhami	
Exploring Fungus Gnats (Diptera: Bolitophilidae, Keroplatidae and Mycetophilidae) in the Bouhachem Natural Park Project: Literature Data and New Records	44
Mohamed Amin El Mouden, Imane Saidoun, Mourad Beni-Eich, Boutaïna Belqat	
The Mediating Role of the Ambidexterity of Green Innovation on the Relationship Between Green Intellectual Capital and the Environmental Performance of Moroccan Exporting Firms	45
Abdessamad Ouled Ben Tayeb, Nourreddine Guehair	
Modelling Impacts of Climate Change on Habitat Suitability of <i>Lavandula stoechas</i> in the Tanger-Tetouan-Al Hoceima Region (North of Morocco)	46
Moussa Jaouani, Zineb Attar, El Abboudi Jamila, Ghallab Abdelilah, Hamid Boubekraoui, Rabah Saidi, Abdelfettah Maouni	
Study of the Effect of Graphene on the Mechanical Behaviour of Cementitious Materials	47
Fayza Arabi, Hicham Bouali	
Green Technologies and Biophilic Design in Therapeutic Spaces for Children	48
Rania Akrimi	
The Right to Environmental Education in Moroccan Higher Education	49
Rachid Hjadi, Kamal Hirech	
Environmental Quality of Oued Taza, Morocco: A Multivariate Approach Using Physicochemical Parameters, Indicator Bacteria and Taxonomic Diversity of Populations	50
Ben Abbou Mouhamed, Bougarne Loubna, Layan Badr, Mehdaoui Imane, Mahmoud Rachid, Majbar Zineb, El Idrissi Youssef, Rais Zakia, El Haji Mounia	
Fecal Contamination and Environmental Influence in Bivalve Molluscs: A Case Study of Ras El Ma, Morocco	51
Hamza Ngadi, Mostafa Layachi, Ghizlane Azizi, Sara Esseffar, Abdelmajid Moumen	
Environmental Impacts of Artificial Intelligence	52
Sanae Khali Issa, Lamiae Khali Issa, Ahmed Raissouni, Hicham Berbar	

Modeling and Control of an Aerogenerator Utilizing DFIG and Multi-Level Converter Technology	53
Soukayna Tantani, Mohamed Bezza, Sara Sghiouri	
Optimizing Stability and Performance with a New MPPT Algorithm for Photovoltaic Applications	54
Mohammed Rhiat, Mohammed Karrouchi, Anas Hassari, Ilias Atmane, Mostafa El Ouariachi, Kamal Hirech	
Education and Environmental Challenges: Balancing Risks and Opportunities	55
Kamal Hirech	
Sustainable Journey of Cotton: From Farm to Fabric	56
Barnali Gupta Banik	
ESD in Teacher Education at ESEFO: Ecological Content and Practices	57
Abdelkader Hammaoui	
Education for Sustainable Development: From Awareness to Ecological Values	58
Abdelkader Hammaoui	
Teaching Against the Anthropocene: Environmental Humanities and Education for a Sustainable Future	59
Larbi Touaf	
Fibers, Ciment, and Lime in Earth Construction Materials: A Review	60
Hicham Elmoudnia, Paulina Faria, Rachid Jalal, Mohamed Waqif, Latifa Sa âdi	
Adaptive Climate Education: Harnessing Neural Architecture Search for Tailored Regional Learning Paths	61
Asmae Lamgari, Salma Elhaimer	
Analysis of Natural and Artificial Lighting Performances for a Multi-functional Laboratory Using Smart Spectrometer and DIALux Evo Simulation	62
Malika Ouhadou, Abderrahman El Boukili, Abdellah Benami, Choukri Messaoudi	
Evaluation of Environmental Education at a Moroccan Higher Education Institution: A Case Study of the Higher School of Education and Training in Oujda, Morocco	63
Imane Hida, Ranya Boumediene, Rihab Ait Hassi, Mohamed El massaoudi, Kamal Hirech	
Impact of Al ₂ O ₃ on Biochar Quality in Biomass Pyrolysis Using a Fixed-Bed Reactor	64
Anass Choukoud, Hammadi El Farissi, Abdessamad Beraich, Yousra Belbachir, Abdelmonaem Talhaoui	

Design, Synthesis, in Vitro and in Silico Characterization of 2-Quinolone-L-alaninate-1,2,3-triazoles as Antimicrobial Agents.....	65
Oussama Moussaoui, Riham Sghyar, El Mestafa El Hadrami, Said Chakroune	
Preparation of a Bentonite Matrix Composite for Heavy Metal Removal	66
Mohamed El Farkhani, Mohamed El Miz, Said Dadou, Yassine El Miz, Mohamed Azzouzi, Imad el Bojaddayni, Nouredine Benchat, Mohammed Koudad	
The Influence of Environmental Education on Awareness and Sustainable Behaviors: Bridging Gaps Between Schools and Social Circles	67
Ranya Boumediene, Imane Hida, Rihab Ait Hassi, Kamal Hirech	
Advancing Green Transition Through a Micro-grid with an Optimized Energy Management System.....	68
Anas Hassari, Mohammed Rhiat, Kamal Hirech	
AI-Driven Predictive Maintenance for Sustainable Photovoltaic Systems and Environmental Protection	69
Abdel Hamid Adaliou, Mostafa El Ouariachi, Kamal Hirech	
Composting of Olive Mill Pomace: Process Monitoring and Evaluation of Final Product	70
Qaiser Javed, Mohammed Bouhadi, Igor Palčić, Dominik Anđelini, Danko Cvitan, Nikola Major, Tvrtko Karlo Kovačević, Smiljana Goreta Ban, Dean Ban, Tomaž Rijavec, Aleš Lapajne, Marko Černe	
Enhancing Sustainable Development Through Photovoltaic System Optimization	71
Anas Hassari, Kamal Hirech, Mohammed Rhiat, Abdellah Touhafi	
Moroccan Wearable Artificial Kidney: An Ecological Revolution in Hemodialysis	72
Abdelaziz Sidi Baba, Hasnae Zahim, Abdellah Boualam, Mohamed Zamd, Abdellah Ait Taleb, Naoufal Mtioui Chkairi, Benyounes Ramdani	
Cannabis Sativa: A Multifunctional Resource for Environmental Sustainability	73
Chaymae Benkirane, Aymane Allay, Mariya Barkaoui, Malika Abid, Farid Mansouri	
Genetic Variability and Morphological Characterization of the Local Cannabis “Beldia” from Northern Morocco	74
Chaymae Benkirane, Majida Charif, Christina M. Müller, Farid Mansouri, Mohammed Bellaoui, Hana Serghini-Caid, Ahmed Elamrani, Malika Abid	