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*Book of Abstracts*



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## Introduction

The past two years have dramatically challenged the global landscape, affecting the economic and social life of billions of people.

As soon as policymakers were the right levers to address Covid-19's impact on the labor markets and foster sustainable growth other difficult challenges are threatening the peace and stability worldwide. Moreover, Europe has now turned into the unwilling protagonist of a conflict that has been described as the most significant war in almost 80 years.

Further complicating the global economic outlook is significant energy uncertainty. Already facing moderate inflation since the global financial crisis, energy security is confronted by the uncertainty generated by the parts involved in the conflict and in between major economies competing to safeguard their energy supply.

Although we all currently find ourselves in challenging moments, I am optimistic that, at some unconfirmed time ahead, we find ourselves ready to move on with our lives, as hopefully, the peace and dialog will prevail on turmoil and war. I can but wish for us all an even better future, perhaps somewhat different from that we have known. Along with our colleagues at the European Center of Sustainable Development, we are humbly set to make the ICSD Conference part of the global response to this extraordinary challenge.

On a brighter note, it was gratifying to learn of the great number of excellent presentations - many recording important efforts in their respective fields of research, despite the various limitations and threats due to the current emergency.

The 10<sup>th</sup> ICSD 2022 is organized by the European Center of Sustainable Development, from:

**Wednesday 07 to Thursday 08 September, 2022**

**10<sup>th</sup> ICSD2022** is an excellent opportunity to present your projects and discuss the latest results in the field of Sustainability Science. The general aim of the conference is to promote international collaboration in Sustainability Science and related disciplines.

The Conference theme is *Creating a unified foundation for the Sustainable Development: research, practice and education*. This theme emphasizes the strong foundation that is provided by using research to inform our everyday practices, policies, and research approaches.

On behalf of the Scientific Program Committee, I have great pleasure in presenting this important event of the Scientific Community.

The Conference topics are distributed in the range of the following streams within the ICSD2022 program:

- 1. Economic Sustainability:**
- 2. Environmental Sustainability:**
- 3. Socio-Cultural Sustainability:**

All abstracts were reviewed by members of the ICSD2022 Steering Committee for rating of abstract quality and presentation content.

Selected papers are also published at the European Journal of Sustainable Development.

Further details in accordance with the instructions of the ICSD2022 are provided on the [Call for Papers](#) page at: [www.ecsdev.org](http://www.ecsdev.org)

I would like to thank you for your scientific contribution to the International Conference on Sustainable Development and look forward to having the opportunity to showcase and disseminate your research.

I am hopeful and confident that a good number of colleagues will return next year to continue our well settled tradition.

Special thanks also to the organizing committee, and all the people that worked hard, to bring in light this considerable event.

Yours sincerely

[Professor Gian Paolo Caselli](#)

Chair, 10<sup>th</sup> ICSD2022 Steering Committee

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# Conference Program



# 1. The Use of the EU Product Environmental Footprint (PEF) Methodology to Measure and Communicate the Environmental Performance of Your Products

Anna-Maria Spicher, Dr. Alicia Boyano Larriba, Michael Knaute, Pierre Rostan

## ABSTRACT:

The European Commission proposes the Product Environmental Footprint (PEF) and Organisation Environmental Footprint (OEF) methods as a harmonized way of measuring the environmental footprint of products and organizations. The methods were tested between 2013-2018 by more than 280 volunteer parties. The Commission is now implementing a transition phase to include new methodological developments. These will aim to further diffuse the methods worldwide. It also aims to monitor and further develop Product Environmental Footprint Category Rules (PEFCRs) as well as to explore how to incorporate them in upcoming policies and initiatives. As part of this phase a set of EF capacity building and information events are implemented by Green Soluce - Studio Fieschi - ALDA on behalf of the Directorate General for the Environment. The work aims at raising awareness on the principles, characteristics and opportunities underlying the EF methods and at conducting sessions to discuss different aspects of the methods and their application. The proposed conference will include a brief history of the described Environmental Footprint Project and an overview of current implementation as well as ongoing policy initiatives. It will aim at presenting and going in-depth in several topics related to the EF methods (e.g., PEFCR development and update).

*Keywords: Environmental Footprint, Life Cycle Assessment, European Commission, Pan-European Harmonization, Methodology, Sustainability*

**Anna-Maria Spicher** works as a consultant for sustainable urban development at Green Soluce from CBRE.

She has an academic background in urban ecological transition and sustainability challenges. She has worked with the organization entrusted with the development of all real estate connected to the Olympic games of 2024 and has consulted them on the environmental and digital heritage of the Olympic infrastructures. At Green Soluce from CBRE she is accompanying clients on sustainable urban real estate, with a focus on ESG/CSR strategies and carbon trajectories..

**Alicia Boyano Larriba**, is a Policy Officer at the European Commission Directorate-General for the Environment. She has a degree in renewable energies, Applied Economics and engineering as well as a Ph.D. of Philosophy. She has worked as a researcher at the TU Berlin and the University College London for EU-ETS policy and LCA assessments. She has a total of 9 years of experience working at the European Commission as a Scientific officer for the development of scientific based evidence. Her missions included the development of sustainable policy tools for the construction sector as well as the participation in several technical expert groups. Since 2020 she is working as a policy officer for the Directorate General of the Environment. Alicia has a European and international outlook as she has worked in Spain, Germany, Belgium, the UK and Egypt.

**Michael Knaute** is Director CSR at Green Soluce. Michaël graduated from Kedge Business School in France. He has extensive experience in sustainability, particularly in the financial sector. Former auditor (Andersen), CEO of a microfinance group (OXUS), investment director in one of the first

sustainable banks in Europe (Triodos), co-founder of a forum on sustainability (Convergences), Michaël has more recently developed a new expertise in sustainable urban planning and urban innovation within the Paris innovation agency (Paris&Co), on issues of real estate, mobility, logistics or circular economy. Michaël has an international outlook, as he worked in several European, Asian and African countries. Michaël manages CSR and Sustainable Finance activities at Green Soluce. With a strategic and operational vision on sustainable cities and sustainable finance, Michaël can support urban actors on a wide range of topics, from governance to change management, from ESG and SRI/CSR performance to innovation management, from social impact to multi-stakeholder project management.

**Pierre Rostan**, Green Soluce from CBRE Following his dual curriculum of engineering at ENSTA Paris and environmental economics and sustainable development at Agro ParisTech, Mr; Pierre Rostan is passionate about innovative urban projects and their environmental issues, with both aspects of project development at heart. Versatile, Pierre knows how to think and deploy sustainable development support at both strategic and operational levels and navigates easily between the different scales of intervention. He has accompanied a number of clients on forming their employees on environmental matters. He also has experience in designing mayor national and European programs such as Horizon 2020 or LIFE.



## 2. The Good Water Governance (GWG): Evidence from The Italian Case

Adriana Bruno, Matteo Pozzoli, Sabrina Pisano

### ABSTRACT:

In 2018, the UN published a report: “Sustainable Development Goal 6 Synthesis Report on Water and Sanitation 2018” that reviewed progress with SDG 6 at global and regional levels. A big governance issue has been underlined in that report, specifically a much-needed capacity to plan and manage water resources. The aim of this paper is to analyze how water policies are constructed according to a structured content text analysis. The core aspect of this process focuses on how documents are inscribed to produce phenomena. Specifically, as research site we have considered the regions situated on the “Italy SEZ (Special Economic Zone)”; these are regions in the south of Italy which are listed as making important steps towards putting GWG into practice. This paper offers a general understanding about the status of water governance. As main findings will be useful to policy makers for enabling and accelerating progress towards achieving SDG 6.

*Keywords: Structured policy, SDG 6 goals, Good governance; Water Management*

**Adriana Bruno** is Ph.D. in Public Management from University of Salerno (2014). She was phd visiting student to the University of Edinburgh (UK) with prof. Irvine Lapsley, her supervisor, from 2012 until 2013, to the IPSAR (Institute of Public Sector Accounting Research). She wrote a Phd thesis on the implementation of accrual accounting in regional government, recently published for Springer. Before her arrival at the University of Naples Parthenope, she was post doc at the University GSSI of l’Aquila. She was also Research Fellow at the Department of Economics and Management at University of Ferrara (Italy) involved in a research project about the Integration of Performance Management and Risk Management in partnership with the Department of Internal Affairs (Dipartimento della Funzione Pubblica), University of Rome Torvergata and University of Bari. From 2016 until 2018 she has been consultant for the National Agency of Evaluation of Research (ANVUR) for 2 years, her activity was related to the desk analysis of Performance Plan of Universities and Research Centers.

**Matteo Pozzoli**, Ph.D., is an Associate Professor of Business Administration at the University of Naples Parthenope, Italy, where he teaches “Financial Reporting” and “Sustainable Disclosure and Reporting”. He has a bachelor’s degree in business economics in public administration. His fields of research concern corporate reporting, business valuations, third sector entities management. He is Member of the Small and Medium Practices Advisory Group (SMPAG) at the International Federation of Accountants and Member of the Corporate Reporting Policy Group (CRPG) at the Accountancy Europe (formerly FEE). He is an editorial board member of international journals and a peer reviewer. He serves as member of European Accounting Association (EAA) and Italian Academy of Business Administration (AIDEA) He has contributed to numerous professional and scientific publications.

**Sabrina Pisano**, Ph.D., is Associate Professor of Business Administration at “Parthenope” University, Italy. She has been a Visiting Researcher at Leonard Stern School of Business of the New York University. She teaches “Accounting and annual report” and “Human resources administration and economics”. She is interested in the following topics: annual report, voluntary disclosure, corporate social responsibility, corporate governance. She has participated as a Speaker in several international conferences, including the annual congresses of European Accounting Association (EAA), the European Institute for Advanced Studies in Management (EIASM) and the workshop on Accounting and Regulation. She published articles in: Journal of Management and Governance, Journal of Intellectual Capital, Corporate Governance: The International Journal of Business in Society, Socio-Economic Planning Sciences.

### 3. Groundwater-Dependent Ecosystems at Risk – Global Hotspot Analysis and Possible Implications

Andreas Link, Léonard al-Hokayem, Christopher Conrad, Markus Berger, Muhammad Usman, Matthias Finkbeiner

#### ABSTRACT:

The pumping of groundwater leads to groundwater depletion in many places over the world while causing substantial groundwater level declines. Those could negatively affect ecosystems through reduced groundwater discharge to related ecosystems such as river flows, lakes, springs and groundwater-fed wetlands. Until present day, no global screening of groundwater dependent ecosystems (GDEs) is available. This work aims to perform a global screening highlighting occurrence probabilities of GDEs. To achieve this goal, GDE probability indices are compiled on a grid cell level and complemented by risk indices reflecting the potential risks of groundwater abstractions for adverse effects on GDEs. All indices are derived via the review, usage and overlap of suitable ready-to-use global geospatial datasets and indicators and intend to cover systems reliant on the surface expression of groundwater (e.g. wetlands, lakes and streams) and those reliant on the subsurface presence of groundwater (e.g. deep-rooting plants). The results are presented in 0.5° \* 0.5° grid resolution. The outcomes build the basis for identifying regions with high potential risks for GDEs which could be prioritized for future research. Additionally, possible implications for sustainability-related tools such as Water Footprinting and Life Cycle Assessment are discussed.

*Keywords: Groundwater-dependent ecosystems, groundwater abstraction, water footprint, life cycle assessment*

**Andreas Link**, Technical University of Berlin (Chair of Sustainable Engineering), studied environmental engineering (M.Sc.) at the Technical University of Berlin. Afterwards, he worked in a start-up environment within the field of CSR ratings and as sustainability consultant promoting sustainable water practices for the food industry. Since 2018, he is employed as a research associate at the chair of Sustainable Engineering with a working focus on water footprinting and applied LCA. His main research interests refer to global modeling approaches on the fate of atmospheric moisture and the effects of groundwater abstraction (fresh up to highly saline waters) on groundwater dependent ecosystems (GDEs).

**Léonard al-Hokayem** (M. Sc.), University of Halle (Institute of Geoecology and Geography), is a research associate and doctoral candidate at the University of Halle. After completing his master thesis which focused on the detection of groundwater-dependent ecosystems (GDEs) in the Mediterranean region, he has continued his research and is currently pursuing a PhD within the field of GDEs. One of his main research interests refers to the potential of remote sensing techniques for the detection of GDEs.

**Christopher Conrad**, University of Halle (Institute of Geoecology and Geography), holds a professorship for geoecology at the University of Halle since 2019. His main research interests refer to areas such as land use systems or remote sensing techniques.

**Markus Berger**, University of Twente (Faculty of Engineering Technology (ET), Multidisciplinary Water Management (MWM)), holds a professorship within the field of multidisciplinary water management at the University of Twente. Before being a professor, he worked multiple years as a team leader at the Chair of Sustainable Engineering (Technical University of Berlin). His core research areas refer to the fields of Water Footprinting and Life Cycle Assessment.

**Muhammad Usman**, University of Halle (Institute of Geoecology and Geography), is a researcher within the field of hydrology and geohydrology with extensive experience in hydrological modeling.

**Matthias Finkbeiner**, Technische Universität Berlin (Chair of sustainable Engineering), completed his studies in geoecology at the University of Bayreuth in 1995 and a subsequent PhD within the field of LCA at the University of Jena. He additionally holds a Master of Business Administration. In his professional life, he was first a project manager, senior consultant and later vice director at PE International GmbH and then became head of the Environmental Product Development Department at the Mercedes Benz Car Group of Daimler. Since 2007, Matthias Finkbeiner is professor and head of the Chair of Sustainable Engineering at the Institute of Environmental Technology at Technische Universität Berlin, and since 2015, executive director of the Institute of Environmental Technology.

## 4. Sustainability Framework for Revealing and Analysing the Co-benefits of Nature-based Solutions to Urban Water Challenges

Mária Szalmáné Csete, Anıl Yıldırım Poyraz

### ABSTRACT:

The traditional approach towards urban water infrastructure elements is forced to change by the severe impacts of climate change. Nature-based solutions (NBS) addressing urban water challenges have recently prevailed for their potential to provide multiple co-benefits. However, the evaluation processes of NBS implementations usually lack the inclusion of co-benefits. This paper aims to assess the performance of flood-oriented NBS applications in delivering various co-benefits. To do this, we introduced a categorization of the identified challenges for the selected projects from NATURVATION Atlas. Eight challenges are associated with environmental, social and economic co-benefits. The governance features and costs were analysed as well as the expected co-benefits of the selected projects. The examined NBS projects indeed contributed to environmental sustainability. More than half of them achieve social benefits, and additional economic benefits can be found in less than a fifth of them. The participation of certain governmental bodies and civil society elements is more likely to bring co-benefits. The analysis implies that projects with multiple benefits require larger budgets. By raising the awareness of the importance of the inclusion of different societal challenges in the planning and implementation phase, the participating actors can promote the multiple benefits approach within the NBS projects.

*Keywords: Nature-based Solution, Climate Change, Urban Water Challenges, Flood Protection, Co-benefits, Sustainability Assessment Framework*

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**Anıl Yıldırım Poyraz** is a PhD student in Environmental Economics and Sustainability Department of Budapest University of Technology and Economics (BME). He is participating in teaching and research activities at the same university. He obtained BSc in civil engineering in 2012. He worked in infrastructure project design and supervision after his graduation. Following his MSc education in water resources engineering branch of civil engineering department in Middle East Technical University (Ankara), he enrolled a PhD in Climate Change and Sustainability -a joint programme of three universities in Lisbon- in 2018. He completed the courses and started a new PhD in Budapest. His research topics are climate change adaptation, nature-based solutions, urban water management and sustainable cities. For list of publications: <https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=authors10074246>

## 5. Approaching Tensions in Business Model Innovation for Sustainability: An Ordonomic Meta-framework on Tensions

Felix Carl Schultz

### **ABSTRACT:**

Business model innovation for sustainability (BMIfS) has recently seen a surge in academia and practice. This article introduces an ordonomic BMIfS meta-framework to further stimulate the growing research interest on how available approaches to tensions in BMIfS can be purposefully reconciled to improve the management of BMIfS. The ordonomic BMIfS meta-framework proposes an opportunity to mediate between the normative desiderata of integrative approaches and 'practical' instrumental ones to tensions, which feature prominently in the literature. Within this meta-framework, both approaches play equally important but categorially different roles. This article contributes by proposing to actively shape the 'boundary conditions' in BMIfS processes to prevent tensions manifesting in irreconcilable tradeoffs.

*Keywords: business model innovation for sustainability, sustainable business model, sustainable business model innovation, tension, governance*

**Felix Carl Schultz** is a research associate and lecturer in business ethics and a PhD candidate at Martin-Luther-University Halle-Wittenberg. His research focuses on circular economy, business ethics, and sustainable innovation. Previously, he worked as strategic management consultant at the international management consultancy A.T. Kearney for several years. He was visiting student at the University of St. Gallen in Switzerland and EWha Womans University Seoul in South Korea.

## 6. Correlates of Trust and Engagement in Environmental Activism

Emmanuel Adugu

### ABSTRACT:

The relationship between trust and pertinent development issues such as environmental activism, pro-environmental behavior and climate change have not been widely investigated. Even when they are investigated, the focus is on developed countries, especially the United States. In the available literature, there is virtually no research that is focused on the correlates of trust and engagement in environmental activism, especially in the context of African countries. In that regard, this article fills the lacunae using nationally-representative data focusing on the following research questions: 1. To what extent do trust measures (intimate trust, distant trust, trust vs being careful, take advantage of vs be fair), together with institutional confidence, democratic satisfaction, democratic aspiration, globalization, social network embeddedness, socio-demographics, country of residence, etc. determine engagement in environmental activism? 2. Are there some commonalities in relation to the predictors of generalized trust and environmental activism? Data for the paper is based on Wave 6 of the World Values Survey, focusing on the following nine African countries: South Africa, Nigeria, Ghana, Rwanda, Zimbabwe, Libya, Egypt, Morocco and Tunisia. Based on the binary logistic regression models, generalized trust, distant trust (outside familiar circles) institutional confidence, media use, age and country of residence (Ghana, Zimbabwe and Rwanda) are significantly and positively associated with participation in a demonstration for an environmental cause, whereas democratic satisfaction, globalization, gender equality, being male, residing in South Africa and Nigeria are negatively and significantly associated with participation in a demonstration for an environmental cause. Institutional confidence and distant trust are the main consistently common predictors of both environmental activism and generalized trust.

*Keywords: Trust, environmental activism, democratic deficit, institutional confidence*

**Emmanuel Adugu**, Ph.D. is a research methodologist and lecturer at the Department of Government, Sociology, Social Work and Psychology at the University of West Indies, Cave Hill Campus. He is an Ohio State University-trained Development Sociologist and a certified Survey Research Methodologist. His research and publication profile focus on: climate change in the context of sustainable development; automation/future of work and social trust; civic engagement; digital activism; political consumption; and action research designs.

## 7. Food Products Sold at Vending Machines Communicate Their Sustainability?

Alberto Bertossi, Stefania Troiano, Francesco Marangon

### ABSTRACT:

Food sector is highly unsustainable. One way to make it more sustainable is to orient consumers towards those diets that respect the people, the planet, and the society. Recently, consumers have started to evaluate food under these perspectives paying attention of verbal and graphical sustainable claims shown on packaging. Although research studies that investigate which sustainable claims are displayed on packaging of food products already exist, no study has focused on vending. The aim of this study is to analyze whether and which type of sustainable claims food products sold at vending machines show on their packaging through a content analysis. The research has been performed in four public/private locations within a town in the North-East of Italy. The results obtained from the analysis of 171 food products raise a question: where is the sustainability? From the analysis emerged that, in general, food products sold at vending machines heavily lack of sustainable verbal and graphical information. Lack of information may increase the level of skepticism and distrust of consumers, who will be less willing to purchase these products. However, the opposite of this is also true. Therefore, sustainable information is precious for sustainable development of food sector.

*Keywords:*

**Alberto Bertossi** is a post-doc researcher of the University of Udine, Italy. Within the Department of Economics and Statistics (DIES), his research focuses on vending sector, how to make it more sustainable, and how to orient consumers towards more sustainable consumptions.

**Stefania Troiano** is Associate Professor of Agricultural Economics and Appraisal. She holds a PhD in Rural Economy in Central Eastern Europe Countries from the Ca' Foscari University of Venice. Her main research areas are environmental and resource economics, non-market valuation, agricultural and food economics, rural economics.

**Francesco Marangon** is Full Professor of Agricultural Economics and Rural Appraisal at the Department of Economics and Statistics of the University of Udine. His research activity, of an agricultural and environmental economic nature, is aimed at the economic analysis of agro-forestry activities both company and territorial level, to the agro-environmental community policies and their local impact, to the planning and management of areas protected nature, the monetary evaluation of environmental benefits and damages, the economy of sustainable tourism, the sustainability of agri-food consumption. He is the author and editor of some monographs and over 200 articles in national and international journals.



## 8. Organic Farming Development in EU – Tendencies and Perspectives in the Context of European Green Deal

Wioletta Wrzaszcz

### ABSTRACT:

Agriculture is strategic sector for each country's economy because the need of food security assurance. From the end of 2019 – the European Green Deal introduction, European agriculture is obliged to undertake additional activities to improve the quality of the environment and prevent climate change. This strategic document forces the European agricultural practices change towards wider environmental sustainability. One of the most important issues is organic farming development. Taking into account the European Green Deal implementation, the aim of the paper is to indicate the tendencies and perspectives for organic farming and its environment development in EU, putting particular attention to Poland. The period of the study covered the years 2004-2020, and the data came from Agricultural and Food Quality Inspection and Statistics Poland studies, as well as Eurostat. Indicator analysis methods were used and trends were established. The study showed the development of organic farming in Poland and in other countries of the EU, taking into account the farms' number and the agricultural land in organic system. However, the period 2004-2020 was not homogeneous. The further development of organic farming will be an important challenge, taking into account European Green Deal purposes connected with organic sector development.

*Keywords: Organic farming, organic agricultural land, agriculture, European Green Deal, EU, Poland*

**Wioletta Wrzaszcz**, PhD. is a researcher at the Institute of Agricultural and Food Economics – National Research Institute, in the General Economics. She is doing research into agricultural holdings sustainability. She is focused on key issues of the environmental, production and economic aspects of farms' management. Her key qualifications: a knowledge of the agri-environmental topics; measurement of farms' sustainability; farms' analysis, knowledge of the Farm Accountancy Data Network. She was the main research project manager (2010-2012): "Level of sustainability of the individual farms in Poland (on the basis of the FADN data). During 2012-2013, she was the member of experts' team, that was responsible for the evaluation of agriculture sustainability in Poland on the basis of Statistics Poland data. She was involved in the realization of International 7 FP (2013-2016): "Farm-level Indicators for New Topics in Policy Evaluation (FLINT)". 12.2015-04.2016: the member of experts' team preparing the opinion for the European Parliament; "The Post-Quotas EU Sugar Sector", contract No: IP/B/AGRI/IC/2015-159. From 05.2016 – the member of the OECD Network for Farm-Level Analysis. Dr Wioletta Wrzaszcz is the author of about 90 reviewed scientific papers. She is the reviewer of scientific national and international journals, e.g. USA Journal: "Economic World".

## 9. Multi Stakeholder Waste Management Innovation on CSR Waste Energy for Community (Wasteco) Pertamina Hulu Mahakam BSP

Lalu Muhammad Azwar, Elis Fauziyah, Ahmad Yuli, Kris Radityorini

### ABSTRACT:

The purpose of this paper is to provide an overview of the waste management innovations implemented by PT Pertamina Hulu Mahakam BSP Field as part of its CSR program. In 2020, 67.8 tons of waste were generated, with household domestic waste accounting for 37.3%, traditional markets for 16.4%, urban areas for 15.9%, and other sectors for 14.6 percent. In general, waste is still managed in the conventional way: reduce, reuse, and recycle. This tends to pose issues at the Final Disposal Site. Waste management innovation involves converting waste into methane gas, which can be used by the community as a substitute for LPG. This paper's approach adopts a qualitative descriptive methodology with an aggregative analysis approach to the concept of social innovation from Wasteco's CSR program, which ran from 2019 to 2021. 214 homes had already made use of this program innovation. This program helps families save finances, stimulates the formation of new social institutions, and contributes to environmental improvement.

*Keywords: CSR, Waste Management, Methane Gas, Multi Stakeholder*

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**Elis Fauziyah** is Senior Officer of Communication Relation & Community Involvement and Development PT Pertamina Hulu Mahakam.

**Ahmad Yuli** is Communication Relation & Community Involvement and Development Officer in PT Pertamina Hulu Mahakam.

**Kris Radityorini** is Community Involvement and Development Officer at PT Pertamina Hulu Mahakam.

## 10. Assessment of Household Solid Waste Management Techniques in Selected Informal Settlements in Minna, Niger State, Nigeria

Abubakar Dauda Dada, Pinar Ulucay Righelato

### ABSTRACT:

In developing countries, the per capita generation of the solid waste in urban residential areas is much less compared with the developed countries; however the capacity of the developing countries to collect, process, dispose, or reuse the solid wastes in a cost effective manner is significantly limited compared with the developed countries. Despite the measures put in place by government of various states across the country, waste management is still a challenge to be tackled in urban residential areas and specifically in informal settlements. Poor waste management highly contributes to air and land pollution as well as climate change and directly affects many ecosystems and species. Landfill approach in solid waste management leads to the release of methane, a very powerful greenhouse gas linked to climate change. Within this framework, the research conducts a field study on the current household solid waste management in a few selected informal settlements in Minna to identify which solid wastes management steps' i.e storage at source, separation, on-site storage, collection, transportation, treatment, reuse, recycling, and disposal are known to the residents, which ones are used on site and why some are not known or practiced by the resident. The problems and constraints of the solid waste management system are identified to find a sustainable management concept for the informal settlements in the area. The research postulated that majority of the residents are concerned and affected by the poor state of their environment due to lack of an appropriate solid waste management approach. Very few of the residents knew little about the stages of waste management system such as recycling and composting. Based on the results some locally effective solid waste management strategies have been suggested.

*Keywords:*

**Abubakar Dauda Dada**, Born in 1985 to the family of Engr Dauda Dada and Maimuna Dauda Dada in Niger state of Nigeria. Abubakar Dauda Dada received his Bachelors of Technology in Architecture in 2010 at Federal University of Technology in Minna. He completed his internship at Musti Systems Consultant and worked as an architect at Altintarch Consultant Company between 2012-2014. Upon the accomplishment of his Masters of Technology degree in Architecture at the Minna Federal University of Technology, he started working as a part-time lecturer at Niger State Polytechnic Zungeru from in 2013. Since 2014, he has been working as a full-time lecturer at the same institution where he is also the faculty examination officer. Currently, he is a PhD student at the Department of Architecture at Eastern Mediterranean University.

**Pinar Ulucay Righelato** is a full time professor and director at the Housing, Education, Research and Advisory Center ; the Executive Member of Urban, Research and Design Center of Eastern Mediterranean University. She is in the editorial team of Mimarca (published by Chamber of Turkish Cypriot Architects) and JURD (Journal of Urban Research and Development published by EMU). Born in Nicosia, Cyprus. she was granted a commonwealth scholarship to study Architecture at the University of Strathclyde in the United Kingdom in 1988. Her 25 years of experience in the field of architecture includes both practical work gained in the UK, Turkey, and Cyprus as well as academic skills gathered at various institutions of Cyprus. Her Master's degree in Ecological Design and Ph.D. degree in European Spatial Planning were both funded by Eastern Mediterranean University where she worked as a research assistant and part-time instructor for many years. In the year 2011, she was awarded a European Union scholarship to enhance her knowledge and experience in sustainable building design at the Center for Alternative Technology in Wales. Her research interests include architectural education, sustainable design, housing studies and urban policy.

## 11. Mathematical Analysis of the Environmental Impact of Throwaway Fashion

Mukta Mithra Raj, Priti Bajpai

### ABSTRACT:

The Fast Fashion industry is the second largest polluter in the world. The clothes we wear are impacting the environment during and after use. The amount of clothes discarded each year has increased tremendously. A staggering quantity of the collective apparel ends up in landfills. Most of the textiles are not disposed of in an eco-friendly way, causing the release of pollutants and greenhouse gases. In some countries, discarded clothes are incinerated to avoid pile up in landfills. Incineration releases toxins from the dyes and chemicals used in the clothing. This study focuses on analyzing the money spent on each sector (Landfill, Incineration, Re-use and Recycle) and minimizing the costs involved in a particular sector by first forming a mathematical model and then solving it using Diophantine Equations. Waste management of textile waste has become an issue of major concern since the consumption of fast fashion is skyrocketing each year. Disposal methods like incineration and landfill are taking a heavy toll on the environment. The paper also makes some recommendations on how the environment can be saved by reducing the costs. This study aims to create awareness among consumers of the environmental impact their purchases are causing.

*Keywords: Diophantine Equation, Fast Fashion, Environmental Impact*

**Mukta Mithra Raj** is currently pursuing Bachelor of Engineering in Computer Science at Birla Institute of Technology and Science, Pilani, Dubai Campus. In addition to the core subjects, she has taken Number Theory under the guidance of Dr. Priti Bajpai. She has undertaken courses in Environmental Development and Climate Change due to her interest in Environmental Sustainability. She likes to solve real-life problems by applying what she has learned in the dynamic university environment. She believes in implementing the skills she has attained to create awareness about activities that harm the environment and bring about a change.

**Priti Bajpai** is working as Professor of Mathematics and Dean of Student Welfare at Birla Institute of Technology and Science, Pilani, Dubai Campus. Her research areas of interest are Number Theory, Quantitative Analysis, and Ancient Indian Mathematics. She is passionate about teaching and learning Mathematics and enthusiastic about innovations. She motivates and finds learning opportunities for her students. She extends her support and care to students at all levels. Furthermore, she organizes and attends student activities and interacts with students outside the classroom. Her friendly and approachable nature helps her share a good rapport with students.

## 12. Lignin-Derived Electro-Spun Fiber for Filtration Applications

Chi-Wing Tsang, Dawson Wai-Shun Suen, Wai-Kit Wong, Kin-Hei Lui, Sher Kin Tang

### ABSTRACT:

Lignin, which can be extracted from wood waste, is one of the most abundant biopolymers on the earth and its biodegradability, renewability, strong mechanical properties make it suitable for use in a number of applications. Through functionalization, lignin can carry anti-bacterial functions. The polymeric materials can then be further electrospun with electret materials to prepare nanofibrous materials which can capture particulate matters such as PM2.5. They can also be used for indoor and outdoor air filtration purposes to stop the widespread of contagious diseases such as the recent COVID-19. With the aid of functionalization and electrospinning techniques, fibrous filter materials derived from lignin were synthesized. This project demonstrates great potentials of valorization of wood wastes as uses in filter materials and as an alternative to the current use of non-renewable and non-biodegradable polypropylene materials. The environmental problem including wood wastes, microplastics and public health problem will be simultaneously alleviated for the future sustainable development of Hong Kong.

*Keywords: lignin; fibrous materials; filter materials; electrospinning; biodegradable polymers*

**Chi-Wing Tsang** is currently Assistant Professor of Faculty of Science & Technology, Technological and Higher Education Institute of Hong Kong (THEi) and is a chartered chemical engineer and fellow member registered with the Institution of Chemical Engineers, UK. His research interests lie primarily in the areas of i) catalytic hydrogen generation; ii) heterogeneous and homogeneous catalytic syntheses; iii) development of high phosphorus content polymer with unique catalytic properties; iv) decarbonization technology. Since joining THEi in August 2016, he has already obtained over HK\$11.38 million research funding from external sources (including 2 Faculty Development Schemes as PI, 1 Collaborative Research Grant as Co-PI, 1 Innovation Technology Commission funded project as Co-I and 1 Environment and Conservation Fund as PI). He has published 59 refereed journal articles and 8 patent applications, with h-index = 22). He has also been invited as guest editor in *Frontiers in Chemical Engineering*, *Catalysts* and *Journal of Visualized Experiments*.

**Dawson Wai-Shun Suen** is a research assistant at the Technological and Higher Institute of Hong Kong. He was a master graduate from Imperial College London in 2021 and his thesis and major concentration was in organic synthesis. His is currently involved in the fabrication of lignin-derived fiber materials, and the syntheses, optimisation and characterisation of bimetallic carbon nanotubular catalysts for the catalytic dehydrogenation of small molecules as a source of hydrogen with regards to green and sustainable energy. He has also contributed in several publications including international journals and reviews during his time in THEi.

- Wai-Kit Wong** is currently undergraduate students of Environmental Engineering and Management programme Technological and Higher Education Institute of Hong Kong (THEi). His current interest is in the sustainable materials and energy fields. He is responsible in synthesizing lignin-derived materials in this project.
- Kin-Hei Lui** is currently undergraduate students of Environmental Engineering and Management programme Technological and Higher Education Institute of Hong Kong (THEi). His current interest is in the sustainable materials and energy fields. He is responsible in synthesizing lignin-derived materials in this project.
- Sher Kin Tang** is Professional Engineer, who has a strong technical background in the study of Energy Efficiency and is active in promoting Green & Sustainable building technology. At present, he is serving the Hong Kong Institution of Engineers (HKIE) as the Council Member, Member of Planning Committee (HKIE), Committee member of Environmental Division and the MMNC Mechanical Engineering Division, the member of Environmental Discipline Advisory Panel (DAP). In this project, he is responsible in testing the filtration efficiency of the filter.

### **13. Urbanization and Rural-Urban Migration in Nigerian Cities: Implications for Urban Public Housing Delivery in Enugu Metropolis**

Dickson M. Nwalusi, Kingsley Okechukwu Efobi, Christopher M. Anierobi, Rosemary C. Nnaemeka-Okeke, Francis Ogochukwu Okeke

**ABSTRACT:**

Globally, urbanization is now like a tidal wave sweeping the entire world and its impact is felt more in developing countries like Nigeria, where urban growth is marked by a dramatic shift with emphasis from rural to urban centers. Rural-urban migration which is one of the effects of urbanization has had grievous implications for urban housing delivery in Nigerian cities. Thus, the steady increase in her population over the years and its effect on the housing sector have become a problem of serious concern. This study therefore investigates the effects of urbanization and rural-urban migration on housing delivery in Enugu with a view to evolving sustainable measures that will address the issue. It utilized a qualitative research method of direct observation and review of literature in which primary and secondary data were collected. The research results highlight some of the effects of Urbanization in the study area to include; gross housing shortage, increase housing rent and high land value in the city resulting to the emergence and expansion of many squatter settlements at the periphery of the city, incidence of haphazard situation of developments, land use conversion, contravention of planning standards, poor infrastructure and facilities, as well as slum conditions. The study also identified 14 peri-urban squatter settlements with an estimated total population of 36,442 people; an indication of about 4.03 % unaccounted spill over population with over 5,450 households in the city. Current public housing provision in the city of Enugu from 1999-2020, was observed to be skewed away from low-income earners which make up a major proportion of the city population. It concludes and recommends that Government intervention in the housing sector should be strategic, holistic and proactive, and encourage local building materials as well as effective utilization of worker housing corporative societies and single digit interest loan for housing finance to ensure adequate and sustainable housing delivery for the teeming population in the city.

*Keywords: Urbanization; Migration; Cities, Public housing delivery and Enugu metropolis*

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- Kingsley Okechukwu Efobi** (Ph.D) is an Associate Professor / Reader of Urban and Regional Planning since 2007 at the University of Nigeria. He has been teaching and researching in the University since 1986. He has served as external examiner for B.Sc. and M.Sc. programmes in a few Universities. Dr. K. O. Efobi has headed the Department of Urban and Regional Planning in this University for a cumulative period of seven years. He has also served as chairman and member of some University Committees. He obtained his Bachelor of Architecture (B. Arch. Hons.) degree, M.Sc and Ph.D degrees in Urban and Regional Planning in 1980, 1986 and 2012 respectively from the University of Nigeria (UNN), University of Benin (UNIBEN) and Enugu State University of Science and Technology (ESUT).
- Christopher M. Anierobi**, Department of Urban and Regional planning, University of Nigeria, Enugu State, Nigeria. Is a lecturer in the Department of Urban and Regional planning, University of Nigeria Enugu Campus. He received his B.Sc. and M.Sc. in Urban and Regional planning from the same university and a Ph.D. in Urban and Regional planning (University of Nigeria Enugu Campus). His research interest includes environmental management, urban governance and informal sector activities. He has published papers in several international journals and awarded research grants. Member, Nigerian Institute of town planners and have been in the field of practice for many years.
- Rosemary C. Nnaemeka-Okeke**, Department of Architecture, University of Nigeria, Enugu State, Nigeria. Is a lecturer in the Department of Architecture, University of Nigeria Enugu Campus. She received her B.Sc. and M.Sc. in Architecture from the same university in 2002 and 2005 respectively. Ph.D. candidate in Architecture (University of Nigeria Enugu Campus). Her Area of specialization includes building services and sustainable architecture which she has written some publications. Member, Nigerian Institute of Architects and have been in the field of practice for over 13 years.
- Francis Ogochukwu Okeke**, is a lecturer in the Department of Architecture, University of Nigeria, Enugu Campus. He holds a Bachelor of Science (BSc) Degree in Architecture with First Class Honours and a Master of Science (MSc) in Architecture with a Distinction both from the University of Nigeria. He has been in the field of practice of building and construction for over 8years. He is currently a Ph.D. candidate in Sustainable Architecture and the built environment (DMU Leicester, UK) and has published many journal articles and presented papers in numerous International conferences. He enjoys travelling and watching documentary as hobbies and has served in review and editorial panels for many Journals.

## 14. Urban Agriculture as a Factor for Sustainable Cities – How Does the 2030 Agenda Recognize this Linkage?

Juliana Braga Guimarães

### ABSTRACT:

With the population projection concentrated in urban areas, rethinking the limits of rural and urban areas as well as their functions are fundamental reflections to guide actions to enable adequate ways of life. Knowing that urban food supply logistics appears as an important theme in this scenario, possible transformations in this area need to mirror the multiplicity of knowledge, techniques, cultures, peoples, and territories that the theme - food - represents, and that the space - urban - comprises. For a city to be sustainable establishing an urban political agroecology, then, is indispensable, but how is the 2030 Agenda recognizing and fostering this connection? In this research, a full mapping of mentions on urban agriculture in the preparation and launch documents of the 2030 Agenda was conducted, besides field experience report and literature revision. The results demonstrate a gap on the Agenda in promoting policies and cross-thematic solutions in dialogue to the current and near future society realities to achieve sustainability in cities and in agriculture - two of 17 SDGs. Finally, it is listed the vanguard Global South contribution to urban agriculture and sustainable cities and how the Global North experience, instead, shaped the current debate at 2030 Agenda UN Forums.

*Keywords: Urban Agriculture; Sustainable Urbanism; 2030 Agenda; International Development; Food and Nutrition Security; SDG 2; SDG 11*

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## 15. Experts and Community's Perspective to Build Sustainable Urban Cities in Pakistan

Muhammad Rayan, Dietwald Gruehn, Umer Khayyam

### ABSTRACT:

Urban Green Infrastructure (UGI) planning helps the human societies improve the ecosystem and enhance societal well-being. Such planning strategies remain effective to counteract against the hazards posed by the climatic changes as in Pakistan; stood 8<sup>th</sup> most vulnerable country in time of climatic stresses. Hence, this research study aims to propose a UGI indicator-based model which is based on the input of the concerned stakeholders (experts and local community) to ensure green action plans and urban landscape and greening policies for the worst effected Khyber Pakhtunkhwa (KP) province. Primary data was collected through a field survey which was analysed through Relative Importance Index and Inter-Quartile Range. It was found out both the economic, ecological dimensions and socio-cultural dimensions are important to build climate-resilient (urban) regions under the sustainability idea ( $\alpha > 0.7$ ). The study calls for a blend of scientific knowledge and societal understanding to establish Natural-Green Landscape-Based (NBLB) approach into practice. The role of government needs to be prominent to build an effective relationship between cities' landscapes based on the efficient execution of green urban policies to have eco-friendly and resilient settlements in the ever-growing cities.

*Keywords: Urban Green Infrastructure (UGI); Sustainable UGI Indicators; Urban Green Space (UGS); Climate Change; adaptation; Participatory Planning (PP) approach; Pakistan*

**Muhammad Rayan** is a DAAD Scholarship holder, working as a doctorate student at Landscape Ecology and Landscape Planning at the School of Spatial Planning, TU Dortmund University, Germany (since 2019). The working title of his research project is 'green infrastructure planning framework: An exploratory study towards resilient cities in Khyber Pakhtunkhwa province, Pakistan'. He is an Assistant Professor (study leave) at the School of Art Design and Architecture (SADA), National University of Sciences and Technology (NUST), Pakistan (since 2015), besides a registered member of the Pakistan Council of Architecture and Town Planner (PCATP). His major focuses of research are Green Infrastructure (GI), Climate Change (CC), Participatory, and Sustainable Urban Planning.

**Dietwald Gruehn** is a full professor of Landscape Ecology and Landscape Planning at the School of Spatial planning, TUDO, Germany (Since 2006), adjunct professor at the School of Planning, Construction and Design, Michigan State University, USA (Since 2010), and member of the German Academy for Urban and Regional Spatial Planning (Since 2011). His research interest comprises a broad range of topics within landscape and environmental planning, especially cultural and visual landscape assessment and adaptation to climate change. He has participated in more than 50 international research projects. He has more than 290 publications and has given more than 300 presentations in over 30 countries around the world.

**Umer Khayyam** is currently serving as Assistant Professor and Head of Department of Development Studies, School of Social Sciences and Humanities (S3H), National University of Sciences and Technology (NUST), Islamabad, Pakistan. He has received Ph.D. from the University of Münster, Germany, and a Master from the University of Applied Sciences, Osnabrück, Germany. His research interests include: Development Studies: Genesis, Theories and Practice and Human Dimension of Climate Change. He publishes regularly in top-tier journals, Newspapers, and Magazines. He is also an Editor of the NUST Journal of Social Sciences & Humanities (NJSSH) and a reviewer of several international journals.

## 16. Urban Soil Assessment as Tool for Sustainable Development of City Grasslands

Hassanali Mollashahi, Magdalena Szymura,  
Peliyagodage Chathura Dineth Perera, Tomasz H. Szymura

### ABSTRACT:

Anthropogenic activities can be harmful for urban vegetation and urban soils by, for example, heavy metal contamination. The aim of this examination was to assess quality of urban grassland soils and vegetation, and assess their abilities for serving different ecosystem services. We hypothesized that vegetation and soil chemical properties differ among urban grassland types (lawns, parks, river embankments and roadsides), and the location of grassland patches (city center / peripheries). Content of N, K, P, C, Mg, Ca, Cd, Pb, Zn, Cu, Mn, Al, and Fe in soil as well soil pH were analyzed. Simultaneously, the vegetation coverage, including grasses, herbs and moss coverage, bare-soil and plant-litter coverage, as well as the number of species were recorded on plots sized 1 x 1 m. Analyzed were 94 patches, each represented by 4 plots. The results revealed higher K content in soils of lawns and road verges, regardless the patch location. There were differences in concentrations of Pb, Cd, Zn, and Cu between both: location and grassland type. Generally, the content of metals were higher in parks and road verges located in the city center. We also found that bare-soil coverage was highest in road verges located in the city center.

*Keywords: Ecosystem services, soil properties, heavy metal, urban grassland, green infrastructure*

**Hassanali Mollashahi** is a PhD student from Wrocław University of Environmental and Life Sciences, Poland. He is working on the management of urban grassland in the context of green infrastructure and ecosystem services. His research is in connection with urban soil, connectivity assessment, vegetation analysis, and improving the urban ecosystem in the context of urban green infrastructure.

**Magdalena Szymura** is associate professor at Wrocław University of Environmental and Life Sciences, Poland. She is a biologist and her research interest is mostly focused on the characteristics of invasive plants, management of grasslands and ecosystem services served by city greenery.

**Peliyagodage Chathura Dineth Perera** is a PhD student from Wrocław University of Environmental and Life Sciences, Poland. He is working with plant invasions, and methods of invasive species management.

**Tomasz H. Szymura** is associate professor at University of Wrocław, Poland. He focusing his research on vegetation ecology and ecological modelling in ecosystems used by humans, as grasslands and forests.

## 17. Circular Ecosystem Compensation based on External Life Cycle Cost and Ecosystem Valuation

Daniel Moore, Vanessa Bach, Matthias Finkbeiner, Dirk Gratzel

### ABSTRACT:

There is the need for action beyond climate change towards environmental sustainability, which is also reflected in the SDGs, where besides Goal 13 "Climate Action", there is also Goal 15 "Life on land" calling for ecosystem protection and restoration and halting biodiversity loss. Climate neutrality and associated compensation schemes are on the agenda to support achieving the named goals. So far, their challenges include the limited scope of impacts (e.g. only climate change) and the often theoretical saving scenario. To address these limitations, the Circular Ecosystem Compensation based on External Life Cycle Cost and Ecosystem Valuation is presented. Life Cycle Assessment, Monetization and Renaturation are the key methods applied. The developed Circular Ecosystem Compensation succeeds in compensating a broad set of environmental impacts (e.g. climate change, eutrophication, acidification, photochemical ozone creation, ozone depletion) in an existing ecosystem by renaturation of degraded ecosystems. The renaturation measures are monetized and used to compensate the external Life Cycle Costs. As an example, the implementation of the approach by the company HeimatERBE is presented to show the practical implementation of the approach. The proposed approach should be further tested and is intended to foster progress in more comprehensive and robust compensation of environmental impacts.

*Keywords: Life Cycle Assessment; Life Cycle Cost; Monetization; Compensation; Ecosystem valuation; Renaturation*

**Daniel Moore**, Technische Universität Berlin, originally studied automotive engineering (M.Sc.) at the Technical University of Ilmenau and has worked for more than five years as a developer at an automotive supplier after graduating. Since 2018, he is studying Environmental Sciences (M.Sc.) part-time at the University of Hagen and decided to move to Technical University of Berlin to focus on sustainability assessment and reducing the environmental impact of products and processes with LCA. Since 2020, he is working at the Chair of Sustainable Engineering as a research assistant. He mainly works on projects with the German drugstore chain dm and the compensation provider HeimatERBE, where products are optimized in terms of their environmental impacts applying LCA and remaining impacts are compensated following the Circular Ecosystem Compensation approach. The Circular Ecosystem Compensation is also his main research focus.

**Vanessa Bach**, Technische Universität Berlin, is leader of the team "Resources and Impacts" at the Chair of Sustainable Engineering since 2018. Her research focuses on the climate neutrality, sustainable material use and resource efficiency of abiotic and biotic resources for products, processes and regions. She also analyses and develops LCA impact assessment methods. Her practical fields of activity include working on third-party funded projects, e.g., accompanying the pilot phase of the European Commission's Product Environmental Footprint. Last, she was involved in projects with the German drugstore chain dm and the compensation provider HeimatERBE, where products are optimized in terms of their environmental impacts applying LCA and remaining impacts are compensated following the Circular Ecosystem Compensation approach.

**Matthias Finkbeiner**, Technische Universität Berlin, completed his studies in geoecology at the University of Bayreuth in 1995. Matthias Finkbeiner completed his PhD within the field of LCA at the University of Jena. He then completed the Master of Business Administration Sustainability Management programme at the University of Lüneburg. In his professional life, Matthias Finkbeiner was first a project manager, senior consultant and later vice director at PE International GmbH. He then became head of the Environmental Product Development Department at the Mercedes Benz Car Group of Daimler AG, where he was responsible for life cycle assessment and label management. Additionally, he coordinated the environmental management for the Mercedes Car Group development. Since 2007, Matthias Finkbeiner is professor and head of the Chair of Sustainable Engineering at the Institute of Environmental Technology at Technische Universität Berlin, and since 2015, executive director of the Institute of Environmental Technology.

**Dirk Gratzel**, HeimatERBE GmbH, worked as a lawyer, board member and CEO of various companies, was self-employed as a consultant for entrepreneurs and executives and is the founder of the companies PRECIRE Technologies, greenzero.me and HeimatERBE. His working experience is in the field of artificial intelligence and the ecological transformation of the society. Dirk Gratzel aims to compensate the environmental impacts of his whole life determined by LCA completely by the end of his life. He is doing this with scientific support, e.g., by the Chair of Sustainable Engineering of Technische Universität Berlin. He currently is CEO of the compensation provider HeimatERBE, which implemented the Circular Ecosystem Compensation approach to offer their customers the possibility to reach “environmental neutrality” for products, organizations or individuals.

## 18. Incorporating Climate Change Modeling to Parcel Level Sustainability Efforts Globally

Matthew H. Rogers, Daniel T. Rogers

### ABSTRACT:

Global climate models from the Coupled Model Intercomparison Project Phase 5 (CMIP5) were used to evaluate the exposure of manufacturing operations of a United States-based multinational manufacturing company to future climate change impacts. Regional geographic and site-specific data from 110 manufacturing sites in 18 countries were collected and referenced against the ensemble mean results and inter-model variance from an ensemble of 10 statistically downscaled climate models and two climate projection scenarios (RCP 4.5 and RCP 8.5) for the 2050s and 2080s. Results from the climate model projections indicate increases in both maximum and minimum daily temperatures for regions in which the manufacturing sites are located. Additional dynamically downscaled data for select regions indicates an increased likelihood of flooding due to an increase in magnitude of extreme precipitation events and, for sites in coastal regions, sea level rise. Given these results and the inevitable impacts to these manufacturing sites, we argue for the inclusion of climate change adaptation into industrial site sustainability plans. Important considerations for climate adaptation plans for each site include their “sensitivity” to climate impacts (e.g., location, elevation, local and regional topography geography, geology, hydrology, materials of construction) and each site’s “adaptive capacity” (e.g., ability to enact preparedness training and other proactive or responsive measures).

*Keywords: climate change, climate modeling, climate sensitivity, sustainability adaptation*

**Matthew H. Rogers** is a Research Scientist with the Climate Impacts Group at the University of Washington. He has a Bachelor of Science degree in atmospheric science from The University of Washington and completed his graduate studies in meteorology from The University of Oklahoma.

**Daniel T. Rogers** is the Director - Environmental Affairs at Amsted Industries in Chicago Illinois. Mr. Rogers has published nearly 100 research papers in professional and academic publications and peer-reviewed journals on subjects including environmental geology, hydrogeology, geologic vulnerability and mapping, contaminant fate and transport, urban geology, environmental site investigations, contaminant risk, brownfield re-development, remediation, pollution prevention, environmental compliance, and sustainability. He has also authored seven books on environmental subject matter in the last five years.



## 19. Climate Change and Main Mitigation Measurement for Survival of the Coffee Industry

Juan David Cruz Negrete

### ABSTRACT:

This study has as objective to analyze the various effects that climate change generates in the coffee industry, as well as the mitigation measures most frequently proposed by the global literature. The methodology was carried out through a literature review, mainly of scientific articles from the last 5 years, related to the subject, especially focusing on the Effects that climate change would generate, the effective mitigation measures in various regions of the world, and Context Elements relating the variables. Among the results, it stands out that it is essential to promote the migration of crops to higher ground, expand the variety of coffee beans planted -greater resistance to climate change-, develop shaded areas within coffee crops, contemplate expanding the variety of crops such as cocoa, improve irrigation systems to reduce liquid waste and avoid problems in the quality of the soil for cultivation, create plans of education related to adaptation and offer financial support to coffee farmers to develop these measurement, etc.

*Keywords: Climate change, mitigation measurement, coffee industry, adaptation*

**Juan David Cruz Negrete** got the master's degree in management from Deusto Business School in 2016, in San Sebastian, Spain. He has been a specialist in investment projects in Magdalena University in 2014, in Santa Marta, Colombia, and is professional in international business in Magdalena University from 2012, in Santa Marta, Colombia. He worked as a project team member in Ugam Solutions, which is an international marketing company; then as a project manager in Fundación Semilla; after this experience, he worked at the commercial department in DKV international insurance company. Currently works as a full-time teacher at Universidad del Magdalena (Colombia), teaching about investment projects and corporate sustainability; also, as a researcher involved mainly in sustainability topics like sharing economy, sustainability in different industries: palm oil, textile, honey; energy; all these at international conferences held in Germany, Hong Kong, Sweden, Colombia, South Korea, Canada, etc

## 20. Sustainable Working Conditions in General Practice Medicine

Iris Kalemaj

### ABSTRACT:

General practitioners in Albania during the period 2020-2022 reported increased pressure from patients due to the outstanding epidemiological situation. This study is attempting to identify the critical flaws in the primary healthcare systems with the attendant challenge to envision future sustainable medical practices. The lessons and the experience gained during the Covid-19 pandemic should be used to improve the primary healthcare services not only during emergencies, but also within the normal timeframe activity.

The research was based on primary data generated through 38 semi structured questionnaires distributed through the network of public GPs in Tirana. Important parameters taken in consideration were the number of patients per day in ambulatory care, the average duration of the consultation, the number of referrals to the Emergency departments of the Hospitals and the number of referrals to specialistic consultations. Those GPs with 35 consultations or less a day find the general practice manageable, a key result from the survey. Meanwhile, those GPs having consultations surpassing 35 patient per day and/or average time greater than 15 minutes per patient find general practice unsustainable. Other findings are related to the benefits of technology adaption in the GPs activity, mainly connected to the application of face-to-face video calls, or similar communication tools. The benefits of these practices have a significant impact on lowering the pressure on primary healthcare centres and also broader effects on the environment and urban mobility.

*Keywords: primary healthcare, sustainable practices, Covid-19 pandemic, consultations*

**Iris Kalemaj, MD** graduated in Medicine from the University of Tirana in 2008 and has an experience of more than 13 years in the public healthcare system. She participated in several international conferences and has contributed to some important peer reviewed studies in the field of primary ambulatory care and prophylaxis.

## 21. New behaviors and decisions in network systems

Dr. Julianna Nádai

### **ABSTRACT:**

The present study offers an insight into a specific tendency emerging in the young generations, that is, development of specific characteristics of relations and self-images in the world of interrelatedness by being connected via internet. Individuals as social beings need to develop new characteristic features due to living in a world of network systems and hubs. Thus, they feel a kind of force on themselves of contacting to prevent themselves from being deprived of information vital to being visible in the society. Their purpose is to be familiar with the context of the network by adapting existing behaviour patterns, often ignoring their negative effects and consequences. The study tries to find proper answers to the following questions: What are individuals involved in networks really interested in when checking others' profiles? What behaviour patterns do they acquire and imitate? How does the network system motivate, honour or sanction the involved individuals? The research method is based on semi-structured interviews involving university students who attempt to reveal what images young people living in the world of internet have about themselves and their special world. The research results can contribute both to making everyday communication and education in academic institutions more efficient. The present cross-sectional study presents current state of a long-term research into the drafted topic.

*Keywords: network, self-image, behavior patterns, motivation, interviews, young generation*

**Julianna Nádai**, Associate Professor at Széchenyi István University, Faculty of Economics, Department of International Communication, in Győr, Hungary. She got PhD title at Pécs University in 2008. Her main research field includes international communication and negotiations, corporate culture and economic press. At the university she teaches subjects related to her research fields and consults students on their thesis work and other scientific works. The department is involved in international projects researching into the relations of small and medium size enterprises between Hungary and neighboring countries. She regularly takes part in conferences as a presenter and publishes her research results in international and domestic journals and conference proceedings. She keeps contact with other universities in Hungary and other countries to have a deep scientific cooperation.

## 22. Isolation and Utilization of Toxins from Marine Invasive Species Towards the Management of their Population

Sofia Papadaki, Sofia Pappou, Panagiotis Dimou, Magdalini Krokida

### ABSTRACT:

The pufferfish *Lagocephalus sceleratus* and lionfish *Pterois miles*, are two of the most important marine alien species of the Mediterranean basin. *L.sceleratus* is one of the most toxic species on the planet, as its tissues contain Tetrodotoxin (TTX), a neuroparalytic toxin that can cause death if consumed, while lionfish is also venomous and causes a wide range of symptoms when its venom is injected through the hard thorns of its fins. Both species have rapidly developed large populations in the Eastern Mediterranean basin, while showing increasing signs of spread in the Central and Western part, causing a wide range of socioeconomic and environmental impacts. Finding innovative methods for their economic exploitation is a basic condition in order to create incentives for their targeted fishing and to achieve the limitation of their populations. A study was conducted on the isolation and identification techniques of toxins from both species. In the context of the utilization of the tetrodotoxin (TTX) contained in *L.sceleratus*, an attempt was made to integrate it into products of high added value, such as cosmetics, after the study of its encapsulation in a polymer matrix through the electro-hydrodynamic process of electrospraying.

*Keywords: marine alien species, population management, cosmetics*

**Sofia Papadaki** is a Chemical Engineer with M.Sc. degree in Organization and Management of Industrial Systems with specialization in Energy management and Environmental protection Systems and PhD in the scientific area of integrated processes for holistic biomass valorization. She is the author and co-author of more than 70 papers published in refereed journals and scientific conference proceedings. She has great experience in working on EU funded projects and proposal writing.

**Pappou Sofia**, Department of Marine Sciences, University of Aegean, University Hill, Lesvos Island, 81100 Mytilene, Greece. PhD student focusing on the extraction and encapsulation of bioactive compounds from marine organisms such as algae and invasive fish species for use in aquaculture.

**Dimou Panagiotis**, Laboratory of Process Analysis and Design, School of Chemical Engineering, National Technical University of Athens, 9 Iroon Polytechniou Str., 15780 Athens, Greece; Dimou Panagiotis holds BS in Physics and MSc in Chemical Engineering by National Technical University of Athens.

**Krokida Magdalini**, Laboratory of Process Analysis and Design, School of Chemical Engineering, National Technical University of Athens, 9 Iroon Polytechniou Str., 15780 Athens, Greece; Prof of School of Chemical Engineering, member of Laboratory of Process Analysis and Design since 2002. She works on the design of functional foods, design and optimization of physical processes, determination of food properties, evaluation of economic and environmental impact of products and processes. She has published 2 Greek books, 2 international books, 11 ch. in international books and more than 130 articles in international journals. She has participated in more than 30 research projects funded by EC, national funds and various food industries. She has participated as a member of the organizing and scientific committee in several scientific conferences.

## 23. Legal Framework for Environmental Protection in the Context of Sustainable Development

Andrejs Vilks, Aldona Kipane

### **ABSTRACT:**

The aim of the article is to analyse the principle of sustainable development in the context of environmental legislation. We interpret environmental law as a set of rules of social behaviour governing the behaviour of individuals and legal entities in the field of environmental protection. Environmental law is a relatively new and complex area of public law which includes provisions of constitutional, criminal, administrative, procedural and administrative law. The field of environmental protection is usually linked to conflicts between different interests, such as economic development and environmental protection, as well as between different groups in society. An analysis of case law shows that contradictions and conflicts may arise between the need to protect natural resources and the interest in living in a favourable environment. At the same time, the expansion of human living space can threaten untouched natural resources. The principle of sustainable development requires the adoption and implementation of decisions aimed at: 1) ensuring the well-being of society; 2) integrated and balanced development of the environment and the economy, with a view to satisfying the welfare of society and ensuring the protection of the environment.

*Keywords: environment, legal framework, sustainable development, natural resources.*

**Andrejs Vilks** is a doctor of law, professor, vice-dean of the Faculty of Law of Riga Stradins University. His research interests include legal policy, sociology of law, criminology and deviantology, author of more than 220 scientific articles, including 12 monographs.

**Aldona Kipane** is a doctor of law and an assistant professor at the Faculty of Law of Riga Stradins University. His research interests include environmental law, cybersecurity, violence prevention research and criminology. She is the author of more than 100 scientific articles.

## 24. Ghana Ecological Risks: Space Law and Science Education Approach in the Management Frameworks

Emmanuel Nartey

### ABSTRACT:

This article discusses what Ghana needs to do to progress its space and science education programmes to aid the development of legal and scientific education programmes for the management framework of biodiversity and ecosystem. The first part of the article examines previous academic literature produced on this topic which offers many clues about the challenges and opportunities facing Ghana, as well as the lessons that can be learned from both other space nations and actors in this field. When looking at perceptions, the second part explore material taken from ethically approved interviews which were conducted with experts in this field, whilst the third section provides analysis of data taken from a survey in which respondents were asked targeted questions about Ghana's space and science education program, before summarising the key findings. The findings help to better understand the effect of biodiversity and the ecosystem. Finally, recommends a future work is required in the area of preserving, sustaining and maintaining biodiversity and the ecosystem, management framework for invasive species, and biosecurity, management framework for environmental degradation and climate change, a management framework that focuses on fair and equitable access to and sharing the benefit of biodiversity resources with all communities in Ghana and assessing and including biodiversity and ecosystem in the development process of science education and space law.

*Keywords: Science education, Space law, policy, biodiversity, ecosystem, management framework, and sustainability*

**Emmanuel Nartey** holds a PhD in International Law and Human Rights Law, and is National/Regional Director of the International Youth Court UK. He is also a Researcher and Law Lecturer, and serves on the editorial board of the International Journal of Law and Legal Studies and the International Journal of Business Law. He is also a member of the International Association of Psychological Scientists and the Chartered Institution of Management. Dr Nartey served as Head of the Research Integrity and Research Ethics Committee at the International Women Initiatives. He is the author of the book *My Olympic Dream and Accountability and Corporate Human Rights Violations in Tort and International Law*, as well as the co-author of *The Successful Spirit: Top Performers Share Secrets to a Winning Mindset*. His research focuses on international law and human rights, environmental law, public and civil law, tort law, and criminal law, among others.

## 25. Hydrocarbon Oil Refineries, Environmental Sustainability and the Nigerian Jurisprudence

Idowu Adegbite, Gbade Akinrinmade

### ABSTRACT:

Nigeria, a major producer and exporter of crude oil imports refined crude oil products for domestic use. Government owned hydrocarbon oil refineries in the country have been producing below capacity for decades. This gap in local refinery activity is being filled by illegal hydrocarbon oil refineries; these illegal refineries have been and are still being destroyed by law enforcement agencies sometimes by burning the refineries. These destructions emit deleterious substances into the atmosphere and results in the wastages of seized crude oil and other materials. This paper did not support illegal refineries; rather on the one hand proposes a more sustainable manner of dealing with the seized products and on the other hand improving on the crude technologies employed by the illegal refiners. This work submits that the economy would be improved and the environment better if illegal hydrocarbon oil refineries in Nigeria are closed down in a sustainable manner and the legal ones operated in line with global best practices. The Nigerian law in this area has to be upheld and best practices enthroned.

*Keywords: Environmental Pollution; Hydrocarbon Oil Refineries; Oil and Gas law in Nigeria, and Sustainable Development*

**Idowu Adegbite**, Associate Professor of Law and Head Department of Private Law, Olabisi Onabanjo University, Ago - Iwoye, Ogun State, Nigeria. His areas of academic interest includes Oil and Gas Law, Energy Law, Law of Torts and Environmental law. He was once the Dean Faculty of Law, Olabisi Onabanjo University Ago -Iwoye, Ogun State Nigeria.

**Gbade Akinrinmade** is the current Dean , Faculty of Law Olabisi Onabanjo University, Ago - Iwoye. His areas of academic interest includes Product Liability Law, Jurisprudence and Environmental Law. He is from the Department of Jurisprudence and International Law, of the Olabisi Onabanjo University, Ago - Iwoye, Ogun State, Nigeria.

## 26. What Hinders the Development of a Sustainable Compostable Packaging Market?

Grażyna Kędzia, Jolanta Turek

### ABSTRACT:

Numerous publications and expert reports indicate plastic pollution as a widespread environmental problem. About 10 million tonnes of litter end up in the seas and oceans each year. It is estimated that 80% of all litter in saltwater is mainly plastic food packaging. Facing this challenge compostable packaging seems to be an alternative to conventional plastic ones and a feasible solution. Despite the environmental opportunities of the packaging produced from biobased biodegradable polymers, the compostable packaging market is growing relatively slowly. Therefore, the aim of the paper is to recognize the key factors hindering the expansion of the food compostable packaging market for sustainable development. To achieve this objective 29 in-depth interviews with respondents of the key groups of biopackaging market stakeholders were conducted.

The results of the qualitative study allowed us to identify environmental, economic, social, and governance barriers in the light of four main problems disrupting compostable packaging market development. This is an important contribution to the business and academic discussion on the importance of compostable packaging in achieving sustainable development goals as well as implementing the circular economy concept. The paper is the effect of the international R&D project.

*Keywords: biobased biodegradable packaging, compostable, packaging sector, sustainable development, Quadruple Bottom Line*

**Grażyna Kędzia**, PhD in Economic Sciences in the field of Management Sciences. Her research interests are focused on the issues of strengthening the resilience of supply chains and managing product lifecycle based on the principles of the circular economy. She was involved in many international research, development and educational projects carried out in cooperation with Polish and foreign universities. Author and co-author of over fifty publications on risk management and business continuity management as well as supplier involvement in product development.

**Jolanta Turek** is an Assistant Professor at the Department of Risk Management, SGH Warsaw School of Economics. Conducts research, publication and teaching activities focused on enterprise risk management, including in particular sustainability risk management, use of new technologies in the risk management process, reorientation of business models towards customer preference risk management. Author of numerous publications in this area. Participant in national and international projects.



## 27. Simultaneous Recycling of Plastic Waste and Discarded EV Batteries via Co-hydrothermal for Energy Storage

Xiaoying Lu, Ji Jing, Wu Kehua, Sher Kin Tang

### ABSTRACT:

In recent years, with the continuous increase in the consumption industry of electric vehicles, the demand for Li-ion batteries has continued to rise. Due to the large amount of non-renewable heavy metals (Li, Ni, Co and Mn) contained in EVs, how to recycle and reuse Li-ion batteries has become the focus of attention. At the same time, PVC is also widely used in daily life, and its traditional treatment method will produce toxic gas, which is extremely harmful to the environment. For environmental sustainable development, in this study, we innovatively use waste PVC and EV battery co-hydrothermal treatment to simultaneously recycle heavy metals and PVC. Through experiments, it is found that the leaching rate of metal elements by co-hydrothermal method is as high as 90% or more.

*Keywords: Polyvinyl chloride(PVC); heavy metals; co-hydrothermal*

**Xiaoying Lu**, Dr. Helen, currently assistant professor, works in Technological and Higher Education Institute of Hong Kong. She graduated with Ph.D. in the University of Hong Kong at 2011. She obtained Best Research Award in 2019 in THEi. Her research activities have been focusing on biological solid waste disposal for regenerating value-add products, and in the following three main areas in particular: bioleaching of valuable metals from spent batteries; recycling of valuable metals for energy storage materials; and bioenergy recovery from organic wastes by anaerobic digestion. Since joining the THEi in 2013, she have successfully obtained over HK\$5.8 million research funding from external and internal resources (including 2 Research Grants Council Competitive Research Funding Schemes for the Local Self-financing Degree Sector, 2 Environment and Conservation Fund, 1 National Natural Science Foundation Fund of China and 3 THEi Seed Grants). She have published over 37 papers in peer-reviewed international journals and 4 patents.

**Ji Jing** is a Research Assistant and working on Technological and Higher Education Institute of Hong Kong. Mrs.Ji graduated from China University of Geosciences in Mainland China with a bachelor's degree and obtained two master's degrees, namely China University of Geosciences and Hong Kong Polytechnic University. Mrs.Ji has been engaged in environmental chemistry related work, committed to testing and improving the environment, and achieving sustainable development of the environment. Currently, Mrs.Ji has published two articles, Variations in sedimentary nitrogen, phosphorus and silicon and regional environmental changes in East Dongting Lake in recent 50 years and Centurial changes in sedimentary phosphorus forms and trace elements in response to damming and anthropogenic pollution in a foodplain lake, central China.

**Wu Kehua** obtained his bachelor degree in Information and Computing Science from South-Central University. He developed many pilot-scale recycling process of batteries.

**Sher Kin Tang** is Professional Engineer, who has a strong technical background in the study of Energy Efficiency and is active in promoting Green & Sustainable building technology. At present, he is serving the Hong Kong Institution of Engineers (HKIE) as the Council Member, Member of Planning Committee (HKIE), Committee member of Environmental Division and the MMNC Mechanical Engineering Division, the member of Environmental Discipline Advisory Panel (DAP). In this project, he is responsible in testing the filtration efficiency of the filter.

## 28. Perceptual Differences on the Concept of Sustainability between Japanese and Foreign Students

Aida Mammadova

### ABSTRACT:

The concept of sustainability has complex and multidisciplinary definition, which includes environmental, social and ecological aspects. How well students perceive the concept of sustainability, and do they really understand the meaning of this concept was the main topic of our study. We have evaluated perceptual difference between 80 Japanese and 80 Non-Japanese students, by creating the special educational program which included topics on global and regional issues such as biodiversity loss, climate change, environmental pollution social issues like gender imbalance, health care, human rights and etc. Analysis have shown significant differences between Japanese and Non-Japanese students on the perception of economic development, sustainable communities and livelihoods. As well as Pre- and Post- analysis showed the changes on the perception of the regional issues after the completion of the course. Our study suggests, that the perception on the sustainability may strongly depend on the students' historical background, cultural differences and living environmental conditions.

*Keywords: Sustainability, environmental education, regional sustainable development*

**Aida Mammadova** is an Associate Professor for Organization of Global Affairs, Kanazawa University, Japan. Her research is focused on the environmental education and sustainable development in rural and urban areas.

## 29. EffSET: a Self-Evaluation Tool to Assess the Effectiveness of Education for Sustainable Development

Elisabetta Venezia, Fabio Pizzutilo

### ABSTRACT:

Education for Sustainable Development (ESD) plays a prominent part in the process of building the ethical, responsible, and sustainable consciousness of future generations and in addressing the sustainability challenge that society is facing. Nevertheless, very few methodologies have been developed to assess the effectiveness of sustainable and responsible teaching, so far. EffSET is a qualitative and quantitative instrument which was developed to enable Higher Education Institutions (HEIs) and instructors to classify and analyse their Corporate Social Responsibility (CSR) and Sustainability related courses and teaching concepts according to different criteria. The tool is also intended for benchmarking courses and HEIs in time (i.e., against previous years' evaluation) and space (i.e. against comparable courses/HEIs) and to become an instrument to foster debate on ESD within and outside the institution. The idea behind EffSET is that a holistic perspective that involves, in an inclusive approach, values, strategy, operations, activities, stakeholders, structures, etc. of the HEIs and considers inputs and knowledge from different field of studies must sustain CSR/sustainability curricula/course if an effective impact on students' long-term ethical, sustainable, and responsible behaviour is the envisaged learning outcome. This paper introduces EffSET and discusses its methodology. Preliminary results from very first applications are, also, showed.

*Keywords: Education for Sustainable Development, Higher Education Institution, Sustainability teaching, Social Responsibility teaching, Evaluation*

**Elisabetta Venezia**, Ph.D., researcher and senior lecturer in Applied Economics at the University of Bari Aldo Moro, Department of Economics and Finance. She is the Director of the Short Master in Mobility Management, and of ApERLab-Applied Economics Research Lab. She teaches Economic Evaluation of Investments, Transport Economics, and Economics of Transport Mobility in UG and PG courses. Her research activity is mainly concentrated on the following topics: sustainable transport, economic evaluation of infrastructures and projects, costs and benefits analyses, equity in the transport sector services and infrastructures, travel behavior. She took part in the evaluation process of the university system in a project coordinated by the OCSE. She is the author of more than 80 publications. She is the coordinator/component of several research project groups at national and international levels. She is an active referee of several scientific journals. She has been a consultant of several Ministries and Local Authorities as a senior economist in the transport economics and sustainability fields. She is an independent scientific expert for the scientific evaluation of the Italian research (REPRISE) for the Italian Ministry of Education and Scientific Research (MIUR). She is also a component of the Italian Evaluation Body (O.I.V.).

**Fabio Pizzutilo** is associate Professor of Financial Markets and Institutions at the University of Bari Aldo Moro. He published several papers on financial topics (including Basel 2, International accounting standards, Venture capital, Pension funds, Investment banking, Credit crunch, International diversification, Stock return distributions, Pairs trading, Multinational capital budgeting, Equity market neutral investments, Idiosyncratic risk, Stock market anomalies, Socially responsible investments, Social Return on Investments, Environmental risk), a book on the Securitization and a book on Multinational enterprises. He co-authored a text on CSR employee preferences and co-guested Special Issues on Social Responsibility topics. His present research interests are in the areas of Behavioral finance, Socially responsible investments, Environmental finance and Education for sustainable development. He is local Scientific coordinator of EFFORT, an Erasmus+ co-funded project aiming at developing tools for the assessment and the improvement of the effectiveness of responsible teaching. He holds a PhD degree in Corporate finance from the University of Trieste. His researches have been selected for the presentation at many international financial conferences. He was awarded of the best paper prize at the 3rd Social Impact Investments International Conference. He serves in the editorial board of several international economics journals.

## 30. Education Adaptation Post COVID: A Creative and Collaborative Mindset for Education for Sustainability

Ilive R. Peltier

### ABSTRACT:

Now more than ever, education's role in sustainability efforts is significantly imperative and powerful. The COVID-19 pandemic has exposed many discrepancies where it pertains to education sustainability. The issues did not only relate to the economy and equity, but also exposed situations in educational environments. Thus, there is a need for change, not only in education occurring in the classrooms, but education that drives success in health, food security, wellness, environmental responsibilities, and the economy. Such change has to be creative in developing an awareness of mindset shifting towards education for sustainability. This type of education has to be data driven, and forefront in the minds of all involved in the education process. The Caribbean and the rest of the world can no longer ignore the inconceivable circumstances that were brought on by the 2020 pandemic, neither can it be ignored that climate change as an additional phenomena that is forcing island regions to rethink and redesign their economies, environmental situations, and necessitate these changes and adaptations in order to succeed. Such success though will come into fruition through education that is equitable and collaborative. If sustainability focuses itself on imaginable circumstances that are primary to the breakdown in the human future, then success in making this future credible calls for thoughtful consideration of outrageous civilian obligation, self-motivated and democratic establishments, incredible developments, and resourceful, strong political leadership. Therefore, if the aim of sustainability is to avoid destabilization of any given situation that permits people to flourish within a compassionate network, then the need to redesign education within such network so that it benefits the environment and the economy through equity calls for creativity.

*Keywords: Adaptation, economy, environment, equity, sustainable education, climate change, collaboration*

**Ilive R. Peltier** holds a BA in English, The University of the Virgin Islands, an MA in English as a Second Language, Ana G. Mendez University of Puerto Rico, Graduate Certification in Creativity and Change Leadership, State University of New York College at Buffalo, and a Ph.D. in Creative Leadership for Innovation and Change from the University from the Virgin Islands. She completed a dissertation on the topic "The role of education, creativity, and innovation in sustainability efforts." Her research focused on the effects of climate change impacts in the Caribbean Region, and what Caribbean Region leaders and inhabitants can do in preparation for both present and unexpected changes. Her public scholarship includes presentation at the 7th International Conference on Sustainable Development, 2019, and at the University of the Virgin Islands Panel Discussion as part of Creativity Week, April 2021. She has also co-written chapters for *A Companion to: Beyond the Long Lines*, The Caribbean Writer Press, The College of Liberal Arts and Social Sciences, University of the Virgin Islands, and a book chapter, (Springer, 2021), *Energy Policy Advancement: Climate Change Mitigation and International Environmental*.

## 31. Pedagogical Challenges of Architectural Education in Nigeria; Study of Curriculum Contents and Physical Learning Environment

Nicholas Iheanacho Obi, Joy Sylvia C. Obi, Francis Ogochukwu Okeke, Rosemary C. Nnaemeka-Okeke

### ABSTRACT:

The current curriculum design, program and the state of the physical learning environment in the Nigerian schools of architecture seem inadequate and ineffective. The study examined the teaching of architecture in Nigerian tertiary institutions. The aim is to ascertain the state of the present curriculum contents and learning facilities. Major Challenges identified in this study include dearth of learning facilities, inability to reform the curriculum contents and limited financial resources allocation to run the schools. Also increasing unemployment for architecture graduates and unskilled nature of practicing graduates were also included. Highlighted in the discussion for necessary intervention by stakeholders of Nigerian tertiary institutions includes review and upgrading of existing curriculum, efficient time-management skills and collaborative teaching and learning techniques. For physical learning environment, literature points that a clean, bright, organized and open-plan ventilated space strengthens learning by motivation. The result from the survey carried out on physical classroom environment among students of tertiary institutions, indicates that the level of satisfaction was fairly satisfactory and that the students expressed that large halls, large corridors were the most available facilities (63.2% and 52.8% respectively). The major equipment in the classroom were whiteboards (100%), personal computers (47.2%) and digital projector or smart board (30.4%), while the available facilities for pleasant environment were attractive surroundings (100.0%). Adjustment of training methodology, improving training skills, retraining the trained, upgrading infrastructure and facilities; expansion of the curriculum and training program were recommended in order to comply with the current global trends.

*Keywords: curriculum contents; classroom; global trends; learning environment; practicing graduates*

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- Joy Sylvia C. Obi** is currently a Senior Lecturer in the Department of Guidance and Counselling, Nnamdi Azikiwe University, Awka, Anambra, Nigeria. She holds a Bachelors Degree (B.ED) in Guidance and Counselling from University of Nigeria Nsukka, with Second Class honours Upper Division, Masters Degree ( M. ED), Guidance and Counselling with Distinction from Nnamdi Azikiwe University, Awka, Anambra, Nigeria and Ph.D, Counselling Psychology with Distinction, from same University. She has been a practicing Counsellor/Psychologist for more than 15 years. She has published textbooks, many journal articles and presented papers in numerous international conferences. She has served as a reviewer and member, editorial board of reputable international journals. Her research interest among others, include quasi experimental research, behaviour modification, vocational, career and educational challenges and solutions. She is a member, Counselling Association of Nigeria and a recipient of meritorious service award from her professional body. Member, Forum for African Women Educationist, Anambra State Chapter. Member, Teachers Registration Council of Nigeria. Supervised and Edited many Undergraduate Projects. Currently Supervising and Editing Postgraduate thesis.
- Francis Ogochukwu Okeke** is a lecturer in the Department of Architecture, University of Nigeria, Enugu Campus. He holds a Bachelor of Science (BSc) Degree in Architecture with First Class Honours and a Master of Science (MSc) in Architecture with a Distinction both from the University of Nigeria. He has been in the field of practice of building and construction for over 8years. He is currently a Ph.D. candidate in Sustainable Architecture and the built environment (DMU Leicester, UK) and has published many journal articles and presented papers in numerous International conferences. He enjoys travelling and watching documentary as hobbies and has served in review and editorial panels for many Journals.
- Rosemary C. Nnaemeka-Okeke**, Department of Architecture, University of Nigeria, Enugu State, Nigeria. Is a lecturer in the Department of Architecture, University of Nigeria Enugu Campus. She received her B.Sc. and M.Sc. in Architecture from the same university in 2002 and 2005 respectively. Ph.D. candidate in Architecture (University of Nigeria Enugu Campus). Her Area of specialization includes building services and sustainable architecture which she has written some publications. Member, Nigerian Institute of Architects and have been in the field of practice for over 13 years

## 32. Advancing Sustainable Development through Gender Equality and Economic Development: A Case Study of Nest

Eundeok Kim, Heeseo Han

### **ABSTRACT:**

In the era of sustainable development, economic, social, and environmental changes are interrelated, and social inclusion and environmental sustainability are our shared goals. Social enterprises have recently been recognized for their potential in advancing sustainable development. The purpose of this study was to explore how a social enterprise contributes to advancing the UN Sustainable Development Goals (SDGs) through a case study of Nest in the handcraft and artisan sector. The research questions were, first, how does Nest create value for their customers? Second, what are Nest's social and environmental sustainability practices and their impacts on global social change? Third, how are the impacts measured? Fourth, what are Nest's success factors? Sustainable Development and Fair Trade were used as conceptual frameworks, and document and interview analyses were conducted. Nest's social sustainability practices highlight empowering women artisans, cultivating local economic development, and preserving cultural identity. Nest's ethical compliance program is meant to increase the visibility of the supply chain for handcraft products and responsible sourcing practices. Authenticity and nimbleness were emphasized as success factors. This case study characterizes a successful social enterprise and provides researchers and practitioners with valuable insights on how a social enterprise can contribute to advancing the UN SDGs.

*Keywords: economic development, fair trade, gender equity, social enterprise, sustainability, sustainable development, UN Sustainable Development Goals*

**Eundeok Kim** is a professor in the College of Entrepreneurship at Florida State University in the United States. Her research and teaching areas include product development and management, trend analysis and forecasting, sustainability and social entrepreneurship, and innovation and technology.

**Heeseo Han** is an undergraduate student at Florida State University majoring in Management Information Systems and Music.



### 33. Integrating Gender Equity in Vocational Studies to Transform Agricultural Activities Towards Green and Inclusive Businesses

Paola Vásquez, Viviana Marcela Gallego, Elizabeth Gomez Etayo, Andrea Potes Riaga

#### ABSTRACT:

Productive sectors greatly contribute to environmental pollution in Colombia, especially in rural areas. Green businesses emerged as an alternative to reduce such environmental impacts, applying clean technologies that require STEM knowledge. However, the participation of women in environmental STEM careers is still low, particularly those vocationally oriented to eco-efficient agricultural activities. Thus, the research aimed to answer the question: How to integrate gender equity in vocational training processes to transform agricultural activities towards green and inclusive businesses? A vocational institute acted as the unit of analysis for the case study. Interviews, focus groups and surveys were used to collect data on women in two selected training programs. The gender transformative and sustainable production approaches guided the identification of gender barriers and the implementation of strategies to remove them. As a result, female models led trainings and the installation of environmental prototypes, which inspired and developed STEM skills in the female apprentices, and reduced pollution in rural units. Finally, innovative pedagogical processes and gender aspects were introduced in organizational guidelines, seeking the institutionalization of the gender perspective in STEM environmental vocational training programs and fields.

*Keywords: gender equity, vocational education and STEM, green business, woman, agricultural activities, rurality and sustainable production, gender transformative*

**Paola Vásquez** is a professor in the Autonomous University of the West (UAO - Colombia), associated to the Institute for Sustainability Studies, where she works as a researcher and leader of research and development projects with an environmental focus. Paola completed her PhD in rural studies at University of Guelph and her undergraduate studies in civil engineering at University of Valle. Her research interests lie in the area of green industries with an emphasis in Micro, Small and Medium Enterprises (MSMEs). She has led multiple sustainable production projects in different service and manufacturing productive sectors. Since 2015, Paola has been a passionate leader of initiatives aimed at enhancing women's participation in environmental business transformation.

**Viviana Marcela Gallego** is research assistant in sustainable production at the Institute for Sustainability Studies in the Autonomous University of the West (UAO - Colombia), under the project "Removing barriers to recruiting, retaining and advancing women in science and technology fields for promoting green industries in Colombia". Viviana completed her studies at University National of Colombia in environmental engineering. She has experience in the application of technological reconversion actions and good environmental practices within the framework of cleaner production, in rural and municipal productive sectors. Her research interests lie in improving productivity, the quality of life of the people involved in production processes, mitigate or reduce the negative environmental impacts generated on different components such as: water resources, soil, and air, and contributing to the removal of gender barriers in environmental fields.

**Elizabeth Gomez Etayo** is director of the Institute of Studies for Sustainability in the Autonomous University of the West (UAO-Colombia), and member of the research group on "Conflicts and organizations". Elizabeth is a professional in Sociologist, Specialist in gender studies, with a Master in Sociology and a doctorate in social sciences at State University of Campinas (Brazil). Author of the book "Neither angels nor demons. Common men. Narratives on masculinities and gender violence" and many papers about education, youth and gender approach. Her research interests lie in articulating gender studies with sustainability, from the perspective of ecofeminism.

**Andrea Potes Riaga**, academic coordinator of the Center for Industrial Biotechnology - CBI, of the National Apprenticeship Service-SENA (Palmira-Colombia), is an environmental engineer graduated at University National of Colombia, with a Master's degree in Engineering with an emphasis in Environmental and Sanitary Engineering at University of Valle. She has worked on the design and implementation of Comprehensive Solid Waste Management Plans in municipalities of Valle the Cauca, on the construction of strategies to promote the proper management and use of domestic solid waste, promoting the inclusion of the informal sector in the recycling chain in smaller municipalities. As leader of the BIOMA Research Seedbed at CBI, she supported the elaboration of the portfolio of adaptation and mitigation measures to climate change, and the creation of the Local Table of Climate Change of the municipality of Palmira.

## 34. Time to ACT: Community-Led Projects, Sustainability and Institutional Time

Sam Thomson, Alex Franklin

### ABSTRACT:

The thesis outlined herein is that if sustainable collaborations between large institutions and community-led groups/charities are to be established and maintained then their divergent temporalities must be contended with. The case study and findings presented originate from the lead author's work over 10+ years of founding and running a self-sustaining Community Trust - Ardagh Community Trust (ACT) - in Bristol, UK, with both authors' operating as independent Community Researchers. Large institutions - such as councils, funding bodies, universities and sports' governing bodies - adhere to established cyclic and linear temporalities, driven by their own internal and external logics. While these may facilitate the institution's broader operations, they risk clashing with those of smaller, more localised entities who are beholden to the social microecologies and attendant microtemporalities in which they operate. Through analysis of examples of ACT's work with large cultural and political institutions, this paper details the real-world impact of such conflicting temporalities and describes how institutional practices of accelerating or decelerating 'time', e.g. via the setting of unrealisable deadlines and acts of postponement and delay, can be understood as the assertion of coercive temporalities and experienced as an alienatory disciplinary technology running counter to goals of mutuality and enrichment.

*Keywords: Charity, community, time, conflicting temporalities, coercive temporalities*

**Sam Thomson** is the founder and Chief Executive Officer of the Ardagh Community Trust. She was named one of NatWest's WISE100 (Women in Social Enterprise) in 2018 and one of the Euclid Network's Top 100 Women in Social Enterprise in Europe in 2022. Sam was previously employed in the Higher Education Sector, working in a range of teaching, research and external engagement roles, latterly as Associate Head of School and Director of Civic & Cultural Engagement in a Faculty of Arts, Creative Industries and Education at a large university in South West England. She has also worked in a range of freelance roles as an artist, researcher, producer and project manager. Sam is passionate about the role of public parks in cities and their importance in supporting mental and physical health.

**Alex Franklin** was one of the first trustees of Ardagh Community Trust. She is a retired senior lecturer, researcher and editor. She is a fellow of the Royal Anthropological Institute and member of the British Society of Gerontology.

## 35. Local Development Evaluation - A Methodological Proposal

Marco Domingues, Alcides A. Monteiro

### ABSTRACT:

The absence of the evaluation of local development in academic literature reflects the lack of debate at present, but also the need for analysis of evaluation proposals and models. This article aims to present the results of a recent research work in this field, seeking to contribute to the debate around the evaluation of local development. Through exploratory interviews to 20 key informants with links to Animar - Portuguese Association for Local Development as the representative entity of Social Economy in Portugal, its analysis resulted in a "political-administrative space" of evaluation and the development of an evaluation matrix with 7 dimensions of analysis and 37 indicators. It is concluded that the evaluation of local development based on the proposed model generates a set of possibilities, by contributing to a local diagnosis through the auscultation of the entities of the social economy sector.

*Keywords: Local Development; Social Economy; Evaluation*

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## 36. Problems Relating to Judicial Selection in the Context of Sustainable Development of Society

Inga Kudeikina, Sandra Kaija

### ABSTRACT:

The research deals with problems relating to the conformity of the professional selection of candidates for judicial office with current needs. It should be noted that matters at hand are interdisciplinary and require a systemic approach because the judiciary is independent and any judiciary selection process must be conducted in line with the principle of the independence of the judiciary, meanwhile bearing in mind that independence may not imply arbitrariness and uncontrollability. The objective of the research is to examine the legislation dealing with the selection of candidates for judicial office at district (town) and regional courts, analysing it in the context of the right to a fair trial, in order to formulate suggestions for improving the legislation, thereby promoting the above right. The research has employed descriptive and analytical, deductive and inductive methods. These methods have been used to analyse laws and the opinions of legal scholars and formulate conclusions and suggestions. As a result of the research, the authors have arrived at the following: 1) judicial selection is a component of the right to a fair trial, which ensures public confidence in the judiciary in the long term, thus facilitating sustainable development of society; 2) the judiciary is not a closed system, and society may take an active part in judicial selection; 3) an assessment of personal qualities during judicial selection is an adequate and necessary tool, considering that judges apply, inter alia, the principle of fairness when administering justice.

*Keywords: judge, judicial selection, right to a fair trial, sustainable development*

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**Sandra Kaija**, professor of Riga Stradiņš University, expert of the Latvian Council of Science, member of the Working Group of the Ministry of Justice for amendments to the Criminal Procedure Law. More than 70 publications, incl. 7 monographs and textbooks, author and co-author.

## 37. OER in the Forensic Science: International Experience

Karina Palkova, Olena Agapova

### ABSTRACT:

One of the important factors affecting the quality of modern education is open educational resources. The new form of education has been recognized by UNESCO and has become an important element in achieving the main goals of sustainable development in the field of education. The article discusses the experience of usage open educational resources in the field of expert justice support based on international experience. To find out the possibility of using open educational resources in a specific area of training forensic experts, the authors of the article conducted a survey among representatives of the expert community, the results of which are presented in this study. Representatives of the expert institutions of Latvia, Bulgaria, Montenegro, Greece, Poland, Georgia, Ukraine, Czech Republic, Israel, Germany, Bosnia and Herzegovina, Slovenia and other countries took part in the survey. During the analysis of the survey results, it was found that the introduction of open educational resources is acceptable for the majority of respondents. It has been established that the project "Open Educational Resource: Forensic Science" will be the first educational content of its kind for its implementation in the activities of forensic institutions and universities that have the right to provide educational activities. It has been proven that open educational resources can improve the quality of education on at least two levels. Firstly, it is the quality of teaching, and secondly, a modern learning environment that provides access to all the necessary research necessary for conducting forensic activities.

*Keywords: OER, education, EdTech, forensic experts, international experience*

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**Olena Agapova**, PhD in Law, holds the position of the researcher at the Riga Stradins University (Latvia). From 2020 to 2021, Olena Agapova was the principal investigator of the project "Open Educational Resource: Forensic Science", what is the European Union's framework program for research and innovation, fulfilment of Ukraine's obligations in the field of international scientific, technical and educational cooperation. Olena Agapova has a large number of scientific publications (more than 40), including scientific publications in scientometric editions such as Scopus, WoS. In 2022 Olena Agapova obtained a job position: Director of Center for Innovation Development, International Scientific, Technical and Educational Cooperation National Aerospace University «Kharkiv Aviation Institute» Member of the editorial board – «Socrates RSU». Winner of the city competition «Yong scientist of the year 2021».

## 38. Situations that Have to Be Created in the Course of the Operational Experiment and the Related Legal Issues

Marcis Grinciuns

### ABSTRACT:

Operational Activities Law of the Republic of Latvia (OAL) states operational activities that are performed in order to prevent or detect criminal offences and to safeguard the independence of the State, its constitutional order and territorial integrity. This research focuses on “Operational experiment” which is an operational activity defined in section 15, point 3 of the OAL. It allows Latvian law enforcement authorities to create specific circumstances (situations) in order to determine criminal purposes of persons. Usually, this activity is used to investigate illicit narcotic drug trafficking, corruption cases and other crime investigations where “test-purchase” operations are required. The research addresses legal aspects of circumstances that are created in the course of operational experiment. Legal interpretation (clarification) of current legislation of the operational experiment in conjunction with the actual content of operational experiments that are put into practice showed that there are certain deficiencies in the legislation which occur in cases when it is necessary to create infringement situation which is not a crime. Such situations are created when it is necessary to determine if officials facing an infringement, which is not a crime, in the course of fulfilling their official duties, will act in accordance with duties assigned to their post or will ask the infringer (performer of the operational experiment) for a bribe. In this modern age of technology, investigative measures where information on crime is acquired via direct interaction become increasingly important. As criminals are applying various encrypted communication tools, operational experiment allows to acquire information on crime which otherwise would be left undetected. Thus, the research of the legislation of operational experiment is particularly relevant today.

*Keywords: Operational activities, operational experiment, test purchase, undercover operations, incitement, provocation*

**Marcis Grinciuns** is a researcher and Ph.D. in Law candidate at Riga Stradins University (RSU), Latvia. His academic work is devoted to researching the legislation of covert operations (in Latvian legislation – operational activities) and teaching law students (bachelor and master degree). Over the last few years, he has participated in international conferences organised by RSU, where he has presented his research findings and purposed possible improvements for the regulative framework of Operational Activities Law. To date, his research has been focussed on the legislation and practical implementation of operational activity “Operational experiment”. He has published studies on actions that are prohibited in performing operational experiment, such as provocation and incitement, which violates Article 6 of the European Convention for the Protection of Human Rights and Fundamental Freedoms. Namely, if one of those prohibited actions is identified, the materials acquired during the operational experiment cannot be presented as an evidence in legal proceedings. Besides, Marcis Grinciuns has researched conditions of performance of operational experiment, which are laid down in Operational Activities Law and are stemmed from judgments given by the European Court of Human Rights. Ph.D. candidate Marcis Grinciuns currently is writing a doctoral dissertation on “Operational Experiment as an Operational Activity: Legal Issues and Possible Solutions”.

## 39. Impacts of Kiteboarding on the Social and Natural Environment: Results of the Delphi Method

Dan Heuer, Svatava Janoušková

### ABSTRACT:

As the literature shows, kiteboarding – a relatively new water sport combining paragliding and surfing – has several negative and positive impacts on the natural environment and society. Negative effects include impacts on organisms living in coastal areas (e.g., waterbirds, turtles), on climate (high footprint caused by frequent travelling), or conflicts with local communities and other beach-users (space-demanding sport and no existence of beach management plans). As positive impacts can be seen the health benefits for persons doing this sport, the development of new local markets dealing with the sport equipment's as well as facilities for the sport practice. The goal of our research was to complete the list of the positive and negative impacts and assesses their severity. In order to achieve this goal, the Delphi method was used to obtain experts' input. A literature-based review of impacts and two rounds of scoring by experts categorized all identified impacts into groups according to their severity. Conflicts with local authorities and absence of recycling of the used equipment appeared to be the most serious negative impacts. Among the most severe positive impacts are an improvement of fitness and health or social interaction with locals. Contrary as the least severe impact was identified a degradation of coastal ecosystem (excluding birds). Future research should explore measures to mitigate these negative impacts.

*Keywords: Kiteboarding, sustainability, Delphi, impacts, sport, environmental, social*

**Dan Heuer** is a PhD student at the Faculty of Humanities of Charles University in Prague. He studies a programme Social ecology. He focuses on the evaluation of sustainability and the sustainability of sport. He combines the findings from the field of sustainable surfing with methods for the evaluation of sustainability and sustainability indicators. Then he applies it to the research of kiteboarding. He also teaches sustainability at ŠKODA AUTO university.

**Svatava Janoušková**, Ph.D. has been working in Charles University Environment Centre since 2009 and Faculty of Science since 2016. Her main field of interest is development and use of sustainable development indicators on the national and local level. She cooperates on the development of sustainable development policies and programs, collaborates in development and implementation of sustainable development indicators in Czech cities (Local Agenda 21). She is an author of studies and scientific articles dealing with sustainability concept and its operationalization through indicators. Besides research, she has taught at the Faculty of Science and Faculty of Humanities at Charles University.



## 40. A Proposal to Develop Software to Prevent Young People to Acquire Extremist Beliefs

David Patón-Romero, Ingrid Vrålstad Løvås

### ABSTRACT:

The advancement and adoption of technology in recent years has been unstoppable and has brought with it multiple benefits. However, progress towards a digitized world and society carries certain dangers and risks that must be addressed. One of these threats, which is becoming more and more frequent, for example, in social media, is the radicalization towards extremism and the performance of acts of terror that, mainly, occur in a male audience. Therefore, the present study aims to analyze this perception that men are more vulnerable than women to adopt these extremisms, identifying the characteristics of people vulnerable in this regard, as well as to present the proposal of the practices that can be followed for the design and development of software to prevent young people from acquiring extremist beliefs. The final goal is that software that follows these practices can be implemented at social media platforms and used at an educational level, mainly in primary schools, where it can have the greatest impact in preventing extremism, and therefore contribute to reducing the number of terror and discrimination acts.

*Keywords: Social sustainability; Extremisms; Radicalization; Software; Digitalization; Education*

**David Patón-Romero** is a postdoc at the Norwegian University of Science and Technology (NTNU). He holds two PhDs with highest honors in: Advanced Information Technologies at the University of Castilla-La Mancha (UCLM), Spain, and Computer Science and Mathematics at the University of Bari “Aldo Moro” (UniBa), Italy. He also has the certifications of PMP (Project Management Professional) by PMI (Project Management Institute) and CISA (Certified Information Systems Auditor) by ISACA (Information Systems Audit and Control Association). His research interests are governance, management, assessment/auditing, and process improvement of sustainability and Green IT.

**Ingrid Vrålstad Løvås** is a master’s student in Computer Science at the Norwegian University of Science and Technology (NTNU). She is currently working in the field of Artificial Intelligence (AI) and its use towards the detection and prevention of people vulnerable to risks in social media.

## 41. Empirical Research of the Professionalism's Degree of Organizational Communication into Romanian Units Providing Support Services

Robert-Andrei Costache, Cristina State, Dumitru-Alin Statie, Genoveva Da Costa Lupédia

### ABSTRACT:

The main objective of this paper is to analyze the degree of professionalism of organizational communication in the units providing support services in Romania. The research was a quantitative one, by resorting to a questionnaire distributed online to the personnel from the units providing support services in Romania, both at the level of the executive and management functions. 291 employees answered to this questionnaire placed in the crowdsourcing system, representing 19.4% of the total staff in the field of support services. The answers formulated to the twenty questions of the questionnaire allowed us to observe and analyze some specific aspects of organizational communication at the level of the support service units in Romania. The methodology for testing the three working hypotheses was based both on the multiple correspondence analysis, through the IBM SPSS 20 application, and on the method of comparing the average scores, this being supplemented, for nuancing the results, with the ANOVA technique. The econometric testing of the hypotheses led to their validation, and allowed the formulation of appropriate conclusions regarding the professionalism of the organizational communication and the efficiency of the activity of the units providing support services in Romania.

*Keywords: organizational communication, support services, Romania, professionalism, communication process, streamlining*

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## 42. The Cultural Aspect of Learning Environment in Foreign Languages as a Means of Empowering Social and Integrative Attitudes

Valbona Loshi Softa, Elda Gjergji

### ABSTRACT:

Due to a rising demand for social and integrative interaction among nations, the cultural and educative role of foreign language learning compatible to a sustainable pedagogy learning environment is a priority to be investigated, especially in countries which are heading toward European integration, like Albania is. This paper addresses the enhancement of formal education curriculum with focus at foreign language in order to meet the needs of learning environment by employing an interactive pedagogy methodology. The instrument used in this research is the Socio-Educative Model, Gardner R.C. (2001) which measures the intensity of the impact that cultural and educative constructs have in students' social and integrative attitudes. On national basis, by a random selection technique the Socio-educative Model presented by Attitude Motivation Test Battery (AMTB) was conducted on a sample size of N=1500. The Likert scale of assessment at a range from (1-6) was used for the instrument and the results of the data gathered indicated that: English learners have moderate positive attitudes toward foreigners speaking English, mean value, (M=4.8), (SD=0.8); the language is marked as a high priority when integration is concerned, mean value (M=5.3), (SD=0.7), and a very strong interest to learn the language was indicated at the mean value, (M=5.5), (SD=0.8).

*Keywords: cultural and educative role, learning environment, socio education model, integrative attitudes, interest in foreign languages*

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## 43. Education and Employment of Population with Tertiary Education Attainment in the European Union

Constantin Marius Profiroiu, Carmen Valentina Rădulescu, Petrică Sorin Angheluță, Ana Maria Călin

### ABSTRACT:

Changes in the labor market are due to changes in production processes. Automation and globalization lead to the need to update the skills of the workforce. Finding and accessing jobs is all the easier as people have a high level of education. In a globalized economy, maintaining a high level of competitiveness is a major challenge. Vocational education and training systems can provide the skills, knowledge and competencies needed for new jobs. Vocational education and training programs are thus solutions by which the lack of skills or skills gaps can be filled. For the period 2000-2020, the article presents the comparative situation of the share of the adult population with tertiary education attainment. Their participation in lifelong education and training programs is very important. The comparative situation of participation rate in education and training is also analyzed. The labor market can influence the areas that high school graduates can pursue in higher education. Thus, the article presents the distribution of tertiary education graduates according to field of education.

*Keywords: European Union, tertiary education, participation rate in education and training*

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**Carmen Valentina Rădulescu**, Bucharest University of Economic Studies, Romania.  
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## 44. Eco<sup>2</sup>-Screening Method supporting SME-product and process innovations in Electronics Manufacturing Services Sector

Bert Schusser, Christina Kolb, Anika Ehlers

### ABSTRACT:

Consumption exceeds ecological limitations and still the market develops an insufficient incentive for the consideration of environmental aspects in the supply chain. Therefore, if the business environment fails to govern sustainable development, internal processes need to capture strategic options for improvement. In order to mitigate negative environmental effects, the earliest possible phases of innovation processes should be managed. However, numerous studies detect systematic use of ecological and economical innovation instruments mainly in large enterprises. In inverse consequence small and medium enterprises (SMEs) implement fewer environmental innovations, even though 99 % of the enterprises in Germany count less than 500 employees and adhere significant innovation potential. In order to provide a scope for action for SMEs, an instrument for consideration of environmental product and process implications is needed that claims little economical resources of users and is easily applicable. Based on the Design Science Research Process a screening method is developed for SMEs in the Electronics Manufacturing Services sector to enable monitoring of ecological and economical optimization of innovation processes, while not demanding costly Life Cycle Assessment or additional information from suppliers. The eco<sup>2</sup>-screening method uses existing data and follows a modular design.

*Keywords: ecological innovation, optimization of innovation processes, Electronics Manufacturing Services, SMEs*

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## 45. Overpromising Self-Disclosures? Empirical Evidence on Investors' ESG-Driven Investment Activities in Europe

Moritz Frederic Rombach, Daniel Handojo

### ABSTRACT:

Capital market investors claim to include environmental, social, and governance (ESG) criteria in their investment decision to address tightening regulation and society's demand. However, it is unclear whether these self-disclosures adequately reflect the investment behavior. We aim to examine whether capital market investors integrate ESG ratings in their investment decision-making. By using an event study design for the STOXX Europe 600 companies between 2016 and 2021, we analyze the causal effect of ESG rating changes on trading volumes as an indicator for investors' responses. Based on this very recent dataset and the rarely analyzed European focus, we obtain three key findings: First, investors integrate ESG rating changes in their investment decision. Second, there is an asymmetric reaction to rating downgrades compared to rating upgrades. Third, market reactions are mainly driven by environmentally-triggered rating events. We contribute to literature about the impact of ESG news, index changes, and rating changes on capital markets and to traditional capital markets theory about the measurement of investors' responses. This contribution includes clear and consistent results for abnormal trading volumes and the most recent European dataset. Our result can guide capital providers in allocating their funds to asset managers and policymakers considering regulating ESG ratings.

*Keywords: ESG, Event study, Investors, Sustainability, Rating changes*

**Moritz Frederic Rombach** is a PhD student at the Chair of Management Accounting (Technical University of Munich - TUM). His main research focus lies on environmental, social, and governance criteria's impact on investment processes – both from a corporate and an investor perspective. Moritz has a broad methodological interest from qualitative, quantitative to experimental. Before starting his PhD, Moritz was a strategy consultant at a leading strategy consulting firm.

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## 46. ESG Rating and Market Valuation of the Firm: Sector Approach

Adrian Gawęda

### ABSTRACT:

The main aim of the study was to assess the impact of the ESG rating of the company on its market valuation. The research sample included stock companies of real economy sectors of financial markets of European Union Member States in years 2018-2020. The research hypothesis stated that across financial markets of European Union there are sectors in which there is a strong and positive correlation between high ESG rating of the company and its market value. The paper analyzed selected measures of descriptive statistics of used variables, Pearson correlation coefficient, and constructed an Ordinary Least Squared model assessing the impact of ESG rating on the surveyed companies' market value. Both the composites of ESG rating (ESG and ESGC) and the individual components (E, S, G and C) were analyzed. Financial data and ESG ratings were extracted from Refinitiv Eikon database. Undertaken research proved ESG disclosure and rating to be the determinant of the companies market value in specific sectors, while companies controversies appeared to be the destructors of market value of companies across all sectors. Undertaken study adds new insights to the debate on the relation between companies ESG and financial performance by applying sector approach to the analysis.

*Keywords: ESG, ESG rating, Tobin's Q, financial performance, sustainable finance, non-financial information*

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## 47. Design for Circular Business Models: Conceptual Framework

Rūta Valušytė, Lina Dagilienė

### ABSTRACT:

This paper suggests a conceptual framework for design and its role in developing circular business models. The growth in sales volume assesses most firms' success, i.e., long-lasting products are seen as a threat to business development in today's industry. The Circular Economy (CE) is introduced to foster extended product lifespans, zero waste, and promote long-term economic growth. Design is recognized as an essential source of CE - without product-service system design, businesses built on long-life products and recovered resources would hardly operate. A range of circular design strategies is established to achieve product integrity. These strategies are inextricably linked to circular business models drawing profits from circular solutions. Design thinking may also aid the circular transition in business. However, design for CE and its relationship to circular business models has not been investigated sufficiently; there is a need to articulate better the phenomena. We propose a conceptual framework showing the touchpoints between design for CE and circular business models by reviewing the scant literature at the intersection of the two concepts. Limitations, development opportunities, and implications of the framework are discussed to guide future research on the combined role of circular business models and design in the circular transition.

*Keywords: Design for circular economy, Circular design, Circular business models, Design thinking for CE*

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## 48. Circular Design Strategies and Business Models – Sectorial Outline with Commercial Sport Organizations

Tomas Petronis, Lina Dagilienė, Rūta Valušytė

### ABSTRACT:

This paper aims to investigate the use of circular design (CD) strategies in commercial sport sector among sporting goods manufacturers & retailers, and how these strategies are linked with their business models. Design is known as an empowering feature in moving away from the outdated 'take-make-dispose' approach to circular, which reaches approximation towards restorative, regenerative model. Although there is a growing trend of research dedicated to various aspects of circular business models, however, many important circularity phenomena are under-researched, particularly design and its role in the circular transition within the sport industry. Usually, approaches and technologies used in sport industry adopt a business model based on production and sale of products within linear value-chain logic, which provides limited support in addressing today's sustainability challenges. Sporting goods manufacturers and retailers has one of the biggest influences on the environment among the commercial sports organisations, since it supplies products and goods to both - athletes and spectators. This paper systemizes circular business model (innovation) relevant for sport industry. Moreover, the paper also aims to visualize the logic of value chain in sport industry with the focus to the sporting goods manufacturing & retailing.

*Keywords: circular design, strategies, circular business model, sport industry*

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**Lina Dagilienė**, PhD in Economics, is full professor and principal investigator at Digitalization research group, School of Economics and Business, Kaunas University of Technology. She is a constant member of European Accounting Association (EAA), European Academy of Management (EURAM), IEEE (Technology Management). She has significant experience in leadership and implementation of various national and international projects (Horizon 2020, DAAD, Erasmus+, Lithuanian Research Council). Currently she is also leading research cluster on Circular Economy Research. Her research interests among other include corporate sustainability, corporate social responsibility, circular business models, sustainability accounting information systems and environmental reporting. Lecturing includes courses on Auditing, Accounting for Sustainability, Circular Economy and else.

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## 49. Age of Economic Alliances - How SMEs Win the Market Using Alliances in Turbulent Times

Genoveva da Costa Lupédia, Constantin-Iulian Tănaşcu, Dumitru-Alin Statie, Robert-Andrei Costache

### ABSTRACT:

Over the two years of the pandemic, SMEs have learned that the only way to survive is to work together, within strategic alliances. This strategy of alliances was a response of the Romanian entrepreneurship, where the big companies "attacked" the few clients the SMEs had. Small businesses have learned that "working together" is synonymous with "surviving." The synergy relationship achieved between small companies, transposed into economic alliances, are true examples of business. Through our research, we wanted to see how these companies acted so we have created a model by which new entrants can develop these strategic alliances. For this, we performed a statistical and econometric analysis, using as a tool a questionnaire applied to a number of 156 SMEs in Bucharest-Ilfov and Giurgiu, as well as the output provided by the SPSS for Windows application. Preliminary results have shown us the existence of strategic alliances in order to create a model called the Survival Alliance in Modern Era (SAME). This model can be used as a starting point in the rapid, sustainable and efficient development of an SME, that is at the beginning of the road and wants to have a word in the market in which it operates.

*Keywords: Strategic alliances, SMEs, Business strategy*

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## 50. Ukraine and Global Food Security during the War: Economic and Legal Analysis

Liudmyla Golovko, Olena Gulac, Olena Yara, Kateryna Ladychenko,  
Olena Uliutina

### ABSTRACT:

The full-fledged activity of the agricultural sector of Ukraine's economy is an important factor in food security in the global dimension. After all, Ukraine, in accordance with its export potential, is primarily an agricultural country. In particular, according to some positions, Ukraine in the global dimension provides a significant part of food resources for many countries. This applies in particular to wheat and other cereals, sunflower and sunflower oil and maize. The latter is feed for livestock products. And the interruption of at least one component in the food security chain as a whole and the individual agri-food industry is critical to ensuring the food security of the country, the region and the world as a whole. Thus, any risks of various nature for the planned implementation of the tasks of the domestic agricultural sector in general are essentially critical not only for domestic food security, but also for global. The aim of this study was primarily to analyze the risks of exports of Ukrainian agricultural products during the war, which could cause a global food crisis and significant economic threats to the country in the coming years. The research was done within the framework of projects Erasmus + «EU Food Policy and Law»:620340-EPP-1-2020-1-UA-EPPJMO-MODULE and «EU Environmental, Climate Change and Energy Law»: 620353-EPP-1-2020-1-UA-EPPJMO-CHAIR.

*Keywords:*

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## 51. Brand Image during WAR

Daniel Moise, Amelia Diaconu, Carol Cristina Gombos, Carmen Elena Spiridon

### ABSTRACT:

Due to the latest war, that unfortunately has a worldwide impact not only on humanitarian emergency, on the attacked country, but as well as at the economic level with greater international influence. Almost all countries, with very few exceptions, have interdependent economies and rely either on raw materials, goods, financial services, finite products, technology, know-how that are supplied by other states. We live in a Global World, where friendship, stewardship, understating, mutual respect and the protection of humans' life must prevail both for very few "blessed", but also for all the inhabitants of the Earth. The recovery after the CoVid-19 pandemic is not complete, as the actual pandemic was not totally wiped out; many countries still need time to restore their Gross National Income, as a result, that different economic sectors were likewise affected by medical emergency and restrictions. Innumerable multinational companies decided, owing to the latest war against Ukraine, to seize, suspend and even withdraw their activities, production and even brands from the aggressive country. In this article, we want to discover if appealing to this kind of measures, has increased their brand image among actual and potential customers. The findings are quite intriguing.

*Keywords: European Union*

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## 52. Economic Implications of the Effects of the Ukrainian War

Iulian Gole, Florentina Olivia Balu, Mihaela Diana Oancea Negescu, Cristina Dima

### ABSTRACT:

Without any doubt, beyond humanitarian consequences, Russia's war in Ukraine will have economic implications, some of which we can already see, others will be more obvious soon. The most important effect is on energy and food prices. Energy security remains the "Achilles' heel" of the European economy, given its heavy dependence on Russian energy imports. In this article, we will analyze, among other implications, what is probable to happen in the commodity trading markets, which are the winners and losers from this difficult situation. We will also have a look at capital flows, what are the perspectives for emerging markets from the area. Another aspect taken into consideration is consumer and business confidence, because, despite significant savings accumulated during the pandemic, there will be an important change from the consumer side, which will nevertheless affect the GDP growth. Given the fact that this is an ongoing event, some of the conclusions may be different at the time of presentation.

*Keywords: Ukrainian War, economic consequences*

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## 53. The Development Aspects of the Real Estate Market, Construction Industry, and Entrepreneurship in Changing Environment

Linda Kauškale, Janis Zvirgzdins, Ineta Geipele

### ABSTRACT:

The relevance of the research and its significance are being determined by the fact that changes in economic and environmental development could affect the tendencies of the development of the real estate market and construction industry, and entrepreneurship within these sectors. As time passes, the participants of real estate sectors face numerous challenges, and it could be useful to find the possible improvement opportunities for economic analysis and management. The aim of the research is to analyse the factors affecting the real estate market, construction industry, and related entrepreneurship in changing environment in the context of sustainable economic and environmental development, paying particular attention to the tendencies within these sectors. The literature, historical, comparative analysis and logical access methods have been used in the research. The results and recommendations could be applied to the improvement of the overall economic development of the real estate market and construction industry. Acknowledgements: This research was supported by the EU Erasmus + project "Circular Economy in Wooden Construction" (Wood in Circle). Project No: KA203-8443DA0D. Project code: 2020-1-LT01-KA203-077939; and EU Erasmus + project "Design and Construction of Environmental High Performance Hybrid Engineered Timber Buildings" (HybridTim). Project No: KA203-ACD02B26. Project code: 2020-1-DK01-KA203-075045.

*Keywords: Changing environment, economic sustainability, entrepreneurial aspects, real estate development, real estate entrepreneurship, real estate market, sustainable construction*

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**Janis Zvirgzdins**, Mg. oec., He is a Researcher and a PhD student within the Institute of Civil Engineering and Real Estate Economics, Faculty of Engineering Economics and Management, Riga Technical University. Janis Zvirgzdins obtained the degree of Bachelor of Electrical Science in 2015. In 2018, he obtained the Professional Master's degree in Urban and Regional Engineering Economics and earned the qualification of an Economist. His main research areas are green economy, circular economy, sustainability, sustainable development, urban environment, renewable and nuclear energy and real estate management. He received the Award in Final Paper Competition of the Latvian Association of Power Engineers and Energy Constructors in 2015. Currently, Janis Zvirgzdins is a Researcher in project "PROGRESS" in INTERREG Europe programme.

**Ineta Geipele Prof. Dr.** Over ten years she is a Professor with the Faculty of Engineering Economics and Management, Director of the Institute of Civil Engineering and Real Estate Economics, Head of the

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## 54. Using Materiality Analysis to Determine Actual and Potential Relevant Company Sustainability Impacts

Tamara Menichini, Gennaro Salierno

### ABSTRACT:

Materiality Analysis in sustainability reporting helps companies determine the threshold at which sustainability topics become sufficiently important to be included in the report, according to significant organization's impacts and to stakeholder's interests and concerns. To deliver the highest level of transparency for organizational impacts on the economy, environment, and people, the latest version of Global Reporting Initiative (GRI) guidelines, the "Universal Standard 2021", propose to identify and assess both actual and potential material impacts. In light of this suggestion, the present paper proposes the Materiality Cube as a practical and structured approach for supporting the analysis of organization's impacts. The proposed tool allows to evaluate the materiality of impacts considering the company's strategy, sustainability performance and stakeholder expectations and needs. By comparing the positioning of sustainability topics under the three assessment dimensions, companies can improve the overall process of determining materiality and the accountability towards stakeholders: they can act to address and account for the most material impacts and identify those that could become material over time since they result much more significant from one perspective than the others. An illustrative application of the proposed Materiality Cube completes the paper.

*Keywords: Materiality Analysis, Sustainability Reporting, Sustainability Impacts, Global Reporting Initiative (GRI) Guidelines, Stakeholder engagement*

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**Gennaro Salierno** is graduated in mechanical engineering. He is a Phd student in Territory, Innovation and Sustainability at the University of Rome "Niccolò Cusano", Italy. His current research interests are: Corporate Sustainability, Corporate Social Responsibility (CSR), Sustainability Reporting, Sustainable Development Goals (SDGs) Reporting.

## 55. Empirical Research Concerning the Evaluation of Customer Satisfaction Regarding their Perception on the Quality of Organizational Communication in the Units Providing Support Services in Romania

Lorian-Ovidiu Vintila, Raluca-Elena Ghinea, Alin Statie,  
Genoveva Da Costa Lupedia

### ABSTRACT:

Our research aimed at assessing the degree of customer satisfaction regarding the quality of organizational communication in the support service units in Romania, from the perspective of the services they have benefited from. Our research was of a quantitative type, through a questionnaire distributed online, to which 315 current and/or former clients of the support services units in Romania replied. In order to establish the representativeness of the research sample, we used the snowball method. The confidence level of the answers was 95% and the MPE was 5.5%. The questionnaire included 21 questions, context in which we formulated one main hypothesis and three working hypotheses. The econometric analysis of the answers was based on the method of comparing the means through the IBM SPSS 20 application, this being supplemented by the ANOVA variance analysis, where the structure of the answers in the questionnaire allowed. In the methodology used, we included the method of analysing multiple answers for structured questions, so as to record more answers from the variants we proposed to the participants in the study. The validation of the research hypotheses revealed that the suspicions of the clients of the support services units in Romania regarding the quality of the provided services are justified, given that the interest of these entities for the loyalty of the beneficiaries of the provided assistance activities is non-existent. The results of the study finally allowed us to formulate proposals for improving the organizational communication within the support units in Romania and, in this way, to also improve both the efficiency of the activity and the loyalty of their customers.

*Keywords: customers, quality of organizational communication, support services, loyalty, efficiency*

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## 56. Consumers' Materialistic and Green Value Conflict: A Qualitative Research

Rita Markauskaite, Ausra Rutelione

### ABSTRACT:

To achieve sustainability goals, consumers are encouraged to care about the environment and to change their behavior towards sustainability. Green and materialistic value orientations are identified as opposite to each other. This research investigates what are the causes of the consumer's materialistic and green value conflict. Also, the study explores what feelings are used to describe a conflict of values and how to avoid materialistic and green value conflict. A qualitative research method was applied, by conducting semi-structured interviews with Lithuanian consumers (N=22) who had a conflict of materialistic and green values. The results highlight negative attitudes towards consumption, negative information, impulsive buying, environmental knowledge, environmental concern, and decision evaluation as potential causes of consumers' materialistic and green value conflict. Furthermore, this research indicates, that consumers' materialistic and green value conflict is associated with negative emotions, for example, guilt, tension, sadness, and anxiety. Influencers' environmental endorsement, mindfulness, and planned and conscious purchasing can be possible factors that reduce materialistic and green value conflict. This research has some theoretical and practical implications for policy makers and marketers. It should be considered to promote influencers' environmental endorsement in sustainability campaigns thus avoiding value conflict.

*Keywords: Value conflict, green consumption, materialism, sustainability, consumer behavior*

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## 57. Aspects Regarding Renewable Sources in the European Union

Carmen Valentina Rădulescu, Petrică Sorin Angheluță, Sorin Burlacu, Anna Kant

### ABSTRACT:

The use of renewable energy sources offers opportunities for regional and local development. Thus, it can be appreciated that the use of renewable sources can stimulate the development of local communities. An advantage is also given by an increased security in terms of local energy supply, but also by a reduction in energy transport losses. Recently, there has been some interest in investing in the development of energy generation technologies and especially in renewable sources. For the period 1990-2020, a comparative situation of gross electricity production and electricity production capacities for renewables is presented. Pollution and climate change can affect both the production and consumption of electricity. There has been interest in using more and more diverse sources. Given the interest in reducing energy consumption in transport, important measures are needed to increase the energy efficiency of transport. In the article, an analysis is made of the share of renewable energy in the final gross energy consumption, for the period 2004-2020, with particularization for the transport sector.

*Keywords: European Union, renewable sources, energy*

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## 58. Shifting Microeconomic Indicators into Solving Macroeconomic Issues

Florina Bran, Dumitru Alexandru Bodislav, Maria Loredana Popescu, Ana Madalina Potcovaru

### **ABSTRACT:**

Defining relations can be built between the state and the corporation on its capitalist structure with observable results in increasing economic performance. The idea of sustainability results from Schumpeter's analysis of "healthy" economic growth of about 2% per year (according to the analysis between 1890 and 1940, including the unsustainable pre-crisis growth of 3.8% / year between 1890 and 1929). Basically, the relationship between government action and corporate governance can be likened to the relationship between urban management and business management (the ultimate goal is to attract investors / stakeholders to the city / corporation by offering advantages over other areas with similar characteristics but keeping the sense of economic logic). to maintain a competitive environment over the local government apparatus and an effective relationship with the inhabitants of that city, respectively, to maintain an organizational culture that resonates with the employees and with the initial purpose of the business), thus this research work having a character of rationalization of the economic environment of an emerging state through an integrated corporate governance approach to the issue.

*Keywords: Macroeconomic indicators, development, growth, corporate governance, sustainability*

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## 59. Digital Public Administration and the Perspectives of Sustainable Development in Romania

Sorin Burlacu, Oana Camelia Iacob (Pargaru), Svetlana Platagea Gombos

### ABSTRACT:

The Romanian Digitalization Authority is currently proposing a new vision in the public sector through the digital transformation component. It's a vision of the business environment. It is estimated that the benefits of digital transformation, such as efficiency, transparency, and simplicity, could lead to much higher process productivity. The vision that ADR will develop in its work is based on the awareness of the need for new technologies by the leaders of public institutions, the continuous adaptation to the requirements of citizens, quality, secure and fast online public services. However, the question arises whether this vision also considers the perspective of sustainable development in Romania in terms of sustainable development indicators. In order to be able to answer this question, we used as a research method the documentary analysis doubled by an analysis of the indicators of the sustainable development of Romania for the last five years. The review of the specialized literature gave us the chance to identify the particularities of the digitalization of public administration from other countries and to highlight the specific characteristics of Romania. A comparative analysis of sustainable development indicators will be the subject of our further research.

*Keywords: sustainable development, digitalization, public administration, indicators of sustainable development*

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## 60. Does Presence in the UNESCO World Heritage List Support Sustainable Development? A Market-driven Exploratory Approach

Călin Vegheș

### **ABSTRACT:**

Noting the increasing threats at the address of the cultural and natural heritage, and considering their deterioration or disappearing a harmful impoverishment of all the nations, UNESCO has adopted fifty years ago, at its 17th General Conference held in Paris, the Convention concerning the protection of the cultural and natural heritage aiming to safeguard it as part of the world's heritage of mankind as a whole. One of its provisions, the inscription on the World Heritage List, has rapidly evolved from recognizing the outstanding universal value to supporting the promotion and capitalization of the heritage sites and their areas by attracting domestic and international visitors interested to discover, explore, enjoy, and engage the cultural heritage, generating the financial resources, and creating workplaces to support the social and economic growth. Discussing the impact of presence in the World Heritage List and acknowledging the key role of cultural tourism in the capitalization of the cultural heritage, the paper assesses the relationships between the inscription on the List and the sustainable development in terms of the number of incoming tourists, revenues generated from tourism, and the number of the workplaces created in the travel and tourism industry for a group of selected countries.

*Keywords: Cultural heritage, World heritage list, UNESCO, Cultural marketing, Sustainable development*

**Călin Vegheș** is Professor of Direct Marketing and Cultural Marketing at the Bucharest University of Economic Studies, Romania. He carries out teaching and research in the area of Cultural Marketing aiming to substantiate that arts become culture through marketing and that cultural resources, properly preserved, restored, promoted and capitalized, can be successfully employed to support the sustainable development of the local communities. He is a member of EMAC (European Marketing Association), AMA (American Marketing Association), and ARMAD (Romanian Direct Marketing Association), and has a strong passion for history, cultural tourism and football (as a devoted fan of UTA Arad).

## 61. Political Economy of Greenhouse Gas Emissions; Sustainable Energy and Climate Action

Meryem Gurel

### ABSTRACT:

The main question for sustainable economic development of supply and demand equilibrium require the examination of carbon emissions forming 70% of greenhouse gases which comes from energy field. This article aims to examine and analyze the circular economy with complex phenomena through SDG7 Clean Energy and SDG13 Climate Action. NY Climate Summit 2019 declared that Carbon dioxide level in the atmosphere shows no signs of falling, and toward 2030 global warming caused by Greenhouse gas emissions is aimed to be limited less than 2 Celcius in the atmosphere, limited as 1.5 Celcius degree by the scientists. The purpose of research article is to shed light on the political economy of greenhouse gas emissions through the examination of indicators of SDG 7 sustainable energy and SDG 13 climate action. Carbon based energy sources versus renewable energy sources the substitution of energy sources, and international trade of energy are performed through linear regression and non-linearity for 35 countries between 2000-2015. The findings indicate that the sustainable development of global warming will be confronting with failures due to continuation of inefficiency and insignificant development of energy systems although renewable energy is substantive and related. Demand sided politics should be generated for the formation of markets rather than supply sided politics as the composition of sustainable energy. This structural complexity also emphasizes the importance of economic growth as the soundness of GDP. Structural economics and natural sciences should be taken into further evaluations as suggestion. Exceptionally, SG12 responsible production and consumption is excluded because data is not available.

*Keywords: political economy, greenhouse gas emissions, sustainable development, carbon dioxide, energy, import, export*

**Meryem Gurel** is a PhD student in Political Science in the concentration of comparative politics, international political economy and data analytics with an interdisciplinary specialization interested in circular economy, sustainable economic development, Asia Pacific international relations and globalization at Claremont Graduate University California. She completed her MA in Asia Pacific Studies specializing in China studies and Mandarin Chinese language at University of San Francisco completed with an interdisciplinary capstone project in philosophy, history, politics and economy, MS in International Economics in the concentration of World Economy, European Union Economies, International Monetary Policy and International Economic Institutions and completed with a thesis study of China's outward foreign direct investments and Dunning's theory, BA in Business Administration in Istanbul. She has her university publications and ICSD 2021 attendance on Challenges of Clean energy and China's political implications, Evolutionary Global Vision of Chinese political philosophy and China's socio-economic transformation in the 21st century, The Materialization and complexity of Silk Road, China's outward foreign direct investments along the Belt and Road initiative, and interdisciplinary essays online. She is Academic Mentor at Women in Economics Initiative Berlin, Germany pursuing for SDG 5 Gender Equality, as well She led USFCA Women in Economics club pursuing SDG 4 and SDG 5. She was also invited for academic consultation on a research draft of SDG17 Global Partnership to define a new indicator by UN SDG working group. She has been writing a book chapter on sustainability and inclusion for economic growth in Turkish language.

## 62. Societal Sustainability: Mitigating a Social Crisis Amid Government Unpreparedness

Neysa Holmes

### **ABSTRACT:**

This study examines the dimensions of “societal sustainability” after a socially disruptive event. COVID-19 ignited a global health challenge threatening and disrupting all societies. The world has not endured more diplomatic isolation on an international stage since the 2nd World War. Diplomacy has been challenged as institutional failures ignite a social crisis. World organizations have yet to address the impact of societal sustainability even as society questions future preparedness and civil repair after such an event. While government entities enforced temporary closures to all nonessential businesses, this ruling heralded an unprecedented disruption to commerce. Transaction-based models have created negative human behaviors and actions while civil solidarity requires mitigating a post-pandemic society. Government agencies need to provide resources to address a socially disruptive event instead of mitigating damages resulting from government pandemic unpreparedness. Key players during this pandemic, have beholden to corporate interests and funding yet the commerce for citizens have been compromised. Governments have implemented COVID mandates yet failed to protect those natural rights. A paradigm shift from a social crisis to a societal sustainability is crucial and society must trust the governmental knowledge being presented.

*Keywords: societal sustainability, social mitigation, COVID, social crisis*

**Neysa Holmes**, Dr. Holmes has more than 20 years’ experience securing resources and implementing effective programs in diverse settings. She continues to inspire systematic change for practitioners, researchers, and businesses around the world. She is a versatile professional with proven experiences in large scale programs and projects. She has provided data-informed decision-support services to various educational institutes globally. She has engaged in global studies consulting in 30 different countries, performed duties, completed projects, managed governance in the public and private sector, and municipal environments and infrastructures. Her other contributions include factor analysis of various large-scale state-based assessments, international assessments, and non-cognitive assessments for secondary and higher education students. She has presented on numerous topics at several national and international conferences. She has contributed to educational research and technical platform learning in the insurance industry. She continues to focus on global cultures, international languages, and social movements throughout the world.

## 63. Digital Labour Market Model and Financial Opportunities in the Context of Sustainable Development in the EU Countries

Ghenadie Ciobanu, Mihai Dinu, Oana Camelia Iacob (Pârgaru), Victor Constantinescu

### ABSTRACT:

Technological opportunities have a transformative impact on labor markets. In this article, we aim to study the ways in which digital technologies contribute to the development of the digital model of the labor market and digital platforms. We aim to highlight the digital opportunities to support the efforts of labor market institutions in ensuring the development of employment strategies and policies. We intend to build the digital model of the labor market within the model of the systemic digital economy, in close connection with other digitalization models (business, financial markets, public finance, commerce, industry, agriculture, transport). An important part of the study focuses on the opportunities for sustainable financing of the digitized labor market, as financial services interact closely with labor market institutions, which reflect on labor outcomes. We propose that the digital model of the labor market in close correlation with the digital business model will be developed with investments from employers in the training of employees in digitization, new modern professional knowledge, which will allow an integration of companies in global markets. The financial-monetary dimension of companies in the context of globalization also requires radical transformations to ensure companies' access to the international financial markets.

*Keywords: Digital labour market model, financial opportunities, sustainable development*

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## 64. Learning Financial and Business Skills for the Sustainability of Survivalist Female Entrepreneurs in South Africa

Melanie Cloete

### ABSTRACT:

Western-centric studies on opportunity-based entrepreneurship have dominated the literature on the experiences of women entrepreneurs in the business world. Much of this scholarship focused exclusively on the experiences of women in the formal sector. In this paper, we examine from an African perspective the issue of female necessity entrepreneurship in the informal street trade in South Africa. This research has been framed using the theories of African Feminisms, Resilience, and Informal learning, subscribing to a critical feminist paradigm and using a feminist phenomenological design. A sample of twelve women in the informal street trade in the greater Durban area of KwaZulu-Natal was selected based on purposive criterion sampling. Phenomenological in-depth face-to-face interviews were conducted to capture the essence of their experiences of managing their business in the informal street trade. While several significant findings emerged from this study, this paper highlights the need to upskill necessity entrepreneurs with financial and business skills for the sustainability of their businesses. We draw implications of these findings for policy and enablement for this type of entrepreneur. The themes that emerge from the analysis would assist in designing targeted needs-based business education interventions for female necessity entrepreneurs in the informal street trade.

*Keywords: Illegal street trading; financial and business skills; female necessity entrepreneurs*

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## 65. Future of Labour Market - Empirical Research on the Tendencies Experienced by Students and Graduates

Dumitru-Alin Statie, Constantin-Julian Tănaşcu, Genoveva Da Costa Lupédia, Lorian Ovidiu Vintilă

### ABSTRACT:

The labor market is a complex place, characterized by a level of dynamism difficult to analyze. The main objective of our research is to identify how students in university programs (bachelor's and master's) perceive changes in the labor market and the needs of companies. Also, another goal is to identify how students react to these changes and how they adapt to the new present. Also, through this research we wanted to see if the students consider that they have the necessary skills for a job on the faculty benches. The research is based on the perception of young students and graduates towards the needs on the labor market of companies. Thus, with the help of a sample of 390 students and recent graduates, we were able to identify trends that can characterize the dynamic environment of the labor market. In order to achieve our research objectives, we used an econometric analysis applied to all the answers of the sample, in order to identify correlations between the quality of studies and the speed with which students or graduates are employed, and to identify correlations between the importance of certain knowledge and the need of Romanian companies.

*Keywords: fresh graduates, labor market, continuous learning, know how*

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## 66. Impact of Technology Readiness and Work Engagement on Employees Performance in the Aerospace Industry

Dan Florin Stănescu, Camelia Crișan, Irina Marsh

### ABSTRACT:

The study was conducted in the framework of the SESAME project (Smart European Space Access through Modern Exploitation of data science - H2020-EU.2.1.6.1.) using a convenience sampling method. Because access to highly specialized employees in the aerospace industry is extremely difficult, we end up having responses from 30 highly specialized aerospace employees from the Guiana Space Center in Kourou through the following structured questionnaires: Technology Readiness Index (TRI, Parasuraman, 2000), Work Performance (Goodman & Svyantek, 1999) and Utrecht Work Engagement Scale developed by Schaufeli and Bakker (2004). Data analyses were performed in SPSS 26.0 (IBM Corporation, 2019) and Jamovi 2.0.0.0 (The Jamovi Project, 2021) using structural equation modeling (SEM). Assessing the relationships between variables, the path analysis showed that technology readiness positively predicted both work performance ( $\beta = 0.511$ ,  $p = 0.013$ ) and work engagement ( $\beta = 0.709$ ,  $p = 0.001$ ). Practical implications of the recent study are discussed as well as some directions for future research in the area.

*Keywords: TAM, technology, performance, engagement, aerospace*

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## 67. Poland on The Path Towards Sustainability – A Ratio Analysis of the Socio-Economic Development of Polish Regions

Joanna Wyrwa, Anetta Barska, Janina Jędrzejczak-Gas

### ABSTRACT:

The aim will be to conduct research and present the results of a ratio analysis assessing the implementation of the concept of sustainable development in Polish voivodeships. The article proposes a set of indicators tracking two of the areas of sustainable development: economic and social, in two separate periods: before the 2019 pandemic and during the 2020 pandemic. In addition to determining the performance of Lubuskie Province compared to other regions, the authors' assumption is also to identify the impact of the COVID-19 pandemic on the implementation of economic and social sustainability goals in Poland as a whole. The article is divided into two sections. In the first, the key issues concerning the concept of sustainable development and the state of research on sustainability indicators at a regional level are presented with the help of a literature review. The second section is a ratio analysis on the basis of which the economic development of 16 Polish regions was assessed and then benchmarked to determine the position of Lubuskie Province. The proposed tracking indicators included the following aspects: economic potential, innovation of the economy, sustainable production patterns, demographic changes, job market, and social integration. The obtained results have answered the question concerning the socio-economic development of Polish regions, in particular that of Lubuskie Province, in the context of sustainability before and during the pandemic.

*Keywords: sustainable development, economic development, social development, indicator analysis, region, Poland*

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