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Scientific Coordinator: Marie-Françoise Girard
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Conference Program

1. Life Cycle Assessment of Primary Distribution Systems in Modern Aircraft

Assoc.Prof.Aleksandra Ziemińska-Stolarska, Assoc. Prof. Mariia Sobulska, Deborah Neumann Dela Cruz, Dr.Daniel Izquierdo

ABSTRACT:
This work presents a comprehensive analysis of the primary distribution system in modern aircraft, with a particular focus on its Life Cycle Assessment (LCA). The primary distribution system is crucial for the efficient and reliable delivery of electrical power throughout the aircraft. This study evaluates the system's design, implementation, and operational performance, highlighting its advantages in terms of weight reduction, improved load management, and enhanced overall efficiency. Additionally, the LCA methodology is employed to assess the environmental impacts associated with the primary distribution system throughout its lifecycle, from material extraction and manufacturing to end-of-life disposal. The findings indicate that while the advanced electrical power systems offer significant operational benefits, they also pose challenges related to increased power demand, susceptibility to electrical failures, and potential environmental impacts. The work concludes with recommendations for optimizing the primary distribution system to balance performance and sustainability.

Keywords: Life Cycle Assessment, carbon footprint, sustainable aviation, primary distribution system, environmental impact, aviation emissions, sustainability analysis

Aleksandra Ziemińska-Stolarska works as an assistant professor in the Faculty of Process and Environmental Engineering at Lodz University of Technology. Research activity covers the area of Life Cycle Assessment analysis for new material design and technologies in the field of chemical and environmental engineering. Aleksandra Ziemińska-Stolarska oversees realization of three EU projects: HIPERION (2019-2023, Horizon 2020) „Hybrid Photovoltaics For Efficiency Record Using Integrated Optical Technology" Fibre4Yards (2021-2013, Horizon 2020) "FIBRE composite manufacturing technologies FOR the automation and modular construction in shipYARDS"HECATE (2023-2025, Horizon Europa) "Hybrid-ElectriC regional Aircraft distribution Technologies"Participated in 2 other projects where she dealt with the calculation of the carbon footprint. INREP (2015-2018, Horizon 2020) "Towards Indium Free TCOs"INVITES (2016-2019, NCBiR) "Innovative Equipment for Intensified Recovery of CO2 from Flue Gases"Aleksandra Ziemińska-Stolarska is an author of the report on the Carbon Footprint of the Lodz University of Technology. Her scientific achievements are confirmed by 17 publications in scientific journals and over 20 speeches at Polish and foreign conferences.

Dr. Mariia Sobulska received the Ph.D. degree in chemical engineering from Lodz University of Technology, Łódź, Poland, in 2019. She is currently an Assistant Professor with the Faculty of Process and Environmental Engineering, Lodz University of Technology. Her research interests include life cycle assessment, heat and mass transfer, spray drying, and reaction calorimetry.

Deborah neumann Dela Cruz the Graduate degree in environmental engineering from the Universidade Federal de Ouro Preto, Brazil, in 2021. She started working and researching life cycle assessment since her academical exchange programme in the Institute Mines- Télécom Lille-Douai, France, in 2018. Joining Airbus and Clean Aviation, in 2024, her main working experience includes product stewardship, life cycle assessment reporting, and research on scope 3 and value chain integration for carbon accounting.

Dr. Daniel Izquierdo received the M.Sc. and Ph.D. degrees in electrical engineering from the Carlos III University of Madrid, Madrid, Spain, in 2001 and 2011, respectively. Since 2001, he has been with

the Electrical Department, Airbus, Madrid, where he is actively involved in research and development projects, such as Clean Aviation. Since 2005, he has been a part-time Professor with the Carlos III University of Madrid. He holds several patents. His research interests include electrical power distribution systems, electrical onboard protection devices, solid state power controllers, and power converters for its applications in the new electrical distribution networks of the more all electric aircraft. In 2010, he received the Excellence Award from the Carlos III University of Madrid, in recognition of his professional career and personal development.

2. The role of green factors in shaping sustainable fashion consumption: Moderated and mediation model

Assoc. Prof. Dr. Abdul Hafaz Ngah, Assoc. Prof. Dr. Marhana Mohamed Anuar, Wan Ainur Fatihah Wan Mohsin

ABSTRACT:
Despite the importance of the fashion industry to the community, fashion retailers produce a considerable amount of carbon footprints, thus badly impacting environmental sustainability. Acknowledging the importance of shaping sustainable fashion consumption behavior, by adopting the Stimulus-Organism-Response Model, the study will identify the role of green transparency as stimuli, green desire as the Organism and sustainable consumption behavior as Response. To enhance the model's contribution, eco-brand will be tested as a moderator, meanwhile green desire as a mediator in the research model. Applying a purposive sampling method, 324 valid data were collected via a self-administered survey. Due to the importance of testing the whole model simultaneously and its predictive nature, structural equation modelling with Smart Partial Least Squares was applied. All hypotheses were supported, indicating the capability of the model to predict sustainable fashion consumption behavior. Besides enhancing the literature on sustainable fashion consumption behaviour with the SOR Model, the study also demonstrates the role of eco-brand as a moderator and green desire as a mediator. The findings also provide insightful information for fashion retailers on how to educate consumers to have better sustainable consumption behavior.

Keywords: Green transparency, green desire, sustainable fashion consumption, eco-brand, SOR Model, Mediator, Moderator

Abdul Hafaz Ngah is an associate professor in Marketing at the Faculty of Business, Economic and Social Development, Universiti Malaysia Terengganu (UMT). He received his PhD in Technology Management, focusing on the halal supply chain. His research interests include supply chain management, maritime management, halal studies, tourism, and technology adoption. He has published several articles in many reputable journals in those areas of study. His main expertise is in research methodology using quantitative methods, especially regarding questionnaire design for surveys and data analysis using structural equation modelling with Smart Partial Least Squares (PLS). With his expertise and reputation, in addition to publishing articles with highly reputable researchers, he is also an active reviewer for many reputable journals in a wide range of studies.

Marhana Mohamed Anuar is an Associate Professor of Marketing at Universiti Malaysia Terengganu (UMT). She holds a PhD from Universiti Sains Malaysia (USM) and has built a strong academic career in marketing research and education. Her research focuses on sustainable marketing, social marketing, Islamic marketing, consumer behavior, and digital marketing. She has published her work in esteemed journals such as the Journal of Sustainability Science and Management, Sustainability, Australasian Marketing Journal, and the International Journal of Environment and Social Development. She has presented her work in various international business and marketing conferences. As an educator, she teaches key marketing courses, including International Marketing, Marketing Communications, Marketing Management, Marketing Strategy, and Consumer Behavior. Her leadership in postgraduate studies and contributions to marketing scholarship highlight her dedication to advancing knowledge in her field.

Wan Ainur Fatihah Wan Mohsin is a Master postgraduate student at the Faculty of Business, Economy and Social Development, Universiti Malaysia Terengganu (UMT). She graduated her undergraduate with first-class honors in Management (Marketing) from the same institution, reflecting her

dedication to academic excellence. Her research interests explore the intersection of marketing and environmental sustainability, driven by a desire to contribute to a more sustainable future. In addition to her studies, she is actively engaged as a research assistant on a funded project, focusing on sustainability initiatives, particularly in the area of sustainable fashion consumption, striving to drive significant environmental impact.

3. Towards an Inclusive Digital Cultural Heritage: Frameworks for Representation and Equity

Prof. Aelita SKARŽAUSKIENE, Dr. Monika MAČIULIENĖ,
Dr. Kristina KOVAITĖ

ABSTRACT:
The digitisation of cultural heritage (CH) offers significant opportunities for preservation, maintenance, and promotion. However, it also presents challenges in terms of representation and the exhibition of content, particularly for the cultural heritage of minorities. This situation can lead to reduced participation and inclusion of minority groups, creating inequitable representations of diverse values in digitisation efforts and increasing the risk of misuse of digital CH. Existing academic frameworks often inadequately address digitization needs and diverse stakeholder perspectives. Need for adaptive frameworks that integrate various values and narratives relevant to digital and multicultural heritage management. The paper emphasizes the need for a more inclusive and collaborative approach to cultural heritage digitization. The proposed Quadruple Helix Ecosystem Framework provides a comprehensive model to guide the development of innovative and sustainable digital heritage initiatives where diverse stakeholders work together to preserve, interpret, and present cultural heritage in the digital age.

Keywords: Cultural heritage; digitalization; stakeholders; minorities

Aelita SKARŽAUSKIENE is a professor chief researcher at Vilnius Gediminas Technical university. Her main research interests are digital co-creation, collective intelligence and citizen scienec. Currently, she is leading the Lithuanian team in Horizon Europe projects CLIMAS and DIGICHer. Together with her research team, Aelita Skaržauskienė has developed a Collective Intelligence Monitoring Technique for evaluation of networked platforms (www.collective-intelligence.lt/en), in collaboration with the MIT Centre of Collective Intelligence.

Monika MAČIULIENĖ is associate professor and Vilnius Gediminas Technical University. She is leading Citizen Science Hub at VILNIUSTECH. M.Mačiulienė actively participates in international conferences, seminars, and scientific exchange programs and published more than 40 research articles individually and in collaboration with international research teams. Currently, she is involved in a number of international scientific projects (e.g. Horizon Europe projects CLIMAS, DIGICHer, and H2020 projects INCENTIVE and EU-Citizen.Science) focused on synergies between science and the society as a senior researche. Vilnius Gediminas Technical University

Kristina KOVAITĖ is associate professor and Vilnius Gediminas Technical University. Her research examines synergies and stakeholder engagement through co-creative measures. She actively participates in international conferences, seminars, and scientific exchange programs. Currently, she is involved in a number of international scientific projects (e.g. Horizon Europe projects CLIMAS, DIGICHer, RIECS) focused on sustainability promotion in society.Vilnius Gediminas Technical University

4. Global Sustainable Development Goals and Local Tasks (using the example of Western Kazakhstan regions)

Dr. Aizhan Tleuberdinova, Prof. Nailya Nurlanova,
Dr. Farida G. Alzhanova, Dr. Nursaule Brimbetova

ABSTRACT:
In countries with a high level of differentiation in natural and climatic conditions, economic potential, and socio-demographic situations, internal regions exhibit varying capacities to achieve sustainable development goals (SDGs), creating risks for countries in fulfilling their commitment. Objective: To identify potential risk in achieving SDGs in regions and propose directions for adapting regional policies to achieve sustainable development goals. Hypothesis: Achieving SDGs at the national level requires the adaptation of local tasks and the development of tools for monitoring and evaluating SDGs at the regional level, taking into account regional specificities. Methods: Development of a regional SDG monitoring and sustainable development risk assessment panel. Information base: Critical literature review, comparative analysis of existing methodologies, and official statistical data. Results: The study evaluated the quality of the economic space, developed a regional system of SDG indicators for the regions of Western Kazakhstan, and identified key problems and limitations of sustainable economic, social, and environmental development in the region. Conclusion: To achieve Kazakhstan's SDGs, it is necessary to move beyond macroeconomic tasks, adapt regional policies, and regional planning systems with sustainable development goals.

Keywords: sustainable development goals, regional policy, risks, SDG monitoring

Dr. Aizhan Tleuberdinova - Dr of Sciences in Economy, Sheff Researcher, Institute of Economics of the Ministry of Science and Higher Education of the Republic of Kazakhstan, Al-Farabi Kazakh National University, where investigates the problems of urban and rural development and sustainability, development of tourism, ORCID ID: 0000-0001-8762-5932

Prof. Nailya Nurlanova - Dr of Sciences in Economy, Sheff Researcher, Institute of Economics of the Ministry of Science and Higher Education of the Republic of Kazakhstan, Al-Farabi Kazakh National University, leader of national scientific school of regional economy, head of projects by the problems of regional imbalance, inequality, sustainability and inclusive development. e-mail: nurlanova.nailya@ieconom.kz, ORCID ID: 0000-0002-4210-3783

Dr Farida G. Alzhanova - Dr of Sciences in Economy, Sheff Researcher, Institute of Economics of the Ministry of Science and Higher Education of the Republic of Kazakhstan, Al-Farabi Kazakh National University where investigates the problems of innovation development, social and economic modernization, regional sustainability, e-mail: alzhanova.farida@ieconom.kz, ORCID ID: 0000-0002-7451-7470

Dr Nursaule Brimbetova, PhD in Economy, Leading Researcher, Institute of Economics of the Ministry of Science and Higher Education of the Republic of Kazakhstan, Department of Regopnal Economy, investigates the problems of social and economic Sustainable Development, regional sustainability

5. Life Cycle Sustainability Assessment (LCSA): a comprehensive overview of existing integrated approaches to LCA, S-LCA, and LCC

Alba Bruno PhDc, Prof. Tamara Menichini, Dr. Luca Silvestri

ABSTRACT:
Life Cycle Sustainability Assessment (LCSA) is increasingly recognized as an effective tool for analyzing and meeting today's sustainability requirements. It consists of the combination of three different analyses: Life Cycle Assessment (LCA), Life Cycle Costing (LCC) and Social LCA (s-LCA). These methodologies have different technical maturity and specific peculiarities in the outcome. Hence, it is necessary to integrate different aspects of various techniques, combining both quantitative and qualitative data. The aim of this study is to provide an accurate and accessible overview of the various possible approaches for implementing a rigorous and integrated LCSA. On the other hand, the authors propose a clear and comprehensive classification of the major methods. In this study, starting from a rigorous review, 110 papers were analysed, from which 66 were selected on the basis of the rigorousness of how the three components of the LCSA methodology are addressed. The various integration methods were then aggregated into different categories, such as: (i) sequential analysis of LCA, LCC, s-LCA without rigorous integration in LCSA; (ii) figurative and visual analysis methods; (iii) methods requiring rigorous Multi-Criteria Decision Analysis (MCDA) integration; (iv) development of original ranking and scoring methods, with creation of specific indicators.

Keywords: Life Cycle Sustainability Assessment (LCSA) - Life Cycle Assessment (LCA) - Life Cycle Costing (LCC) - Social Life Cycle Assessment (s-LCA)

Ms. Alba Bruno is a Ph.D student in "Territory, Innovation and Sustainability", Cycle XL. Her research interests regard LCSA methodologies and framework, LCA, LCC and s-LCA, environmental impact and ecosystems. Her background comprehends Bachelor and Master Degree in Biology and Environmental Science, where she studied ecosystems, Python, decision making, data analysis, Input-Output models and Fundamentals of Life Cycle Assessment. She worked in the fields of Environmental Science, scientific dissemination and environmental education.

Tamara Menichini, Ph.D., is Associate Professor of Business and Management Engineering at the University of Rome "Niccolò Cusano". She received her Ph.D. in Economic and Management Engineering from the University of Rome "Tor Vergata". She is a co-author of several papers published in international peer-reviewed journals and proceedings of international conferences. Her research interests and areas of expertise mainly regard: Corporate Sustainability (CS), Corporate Social Responsibility (CSR), Sustainability Reporting, Circular Economy, Content Analysis and Fuzzy Multi Criteria Decision Making Methods (MCDM) applied to corporate sustainability decisions.

Luca Silvestri is a RTDa Researcher in the sector 09/IIND-05 Mechanical Industrial Plants. He is the holder of the Industrial Plants course for the Bachelor's Degree in Industrial Engineering and the Mechanical Plants course for the Master's Degrees in Management Engineering and Mechanical Engineering at Niccolò Cusano University. He has several years of experience in the study and assessment of the environmental impact of industrial plants (with applied methodologies including Life Cycle Assessment - LCA), feasibility studies and cost-benefit analyses of industrial plants and production systems (for goods and services), layout design, risk analysis and plant safety, energy assessment and optimization of plants, analysis and design of general plant services, RAMS (Reliability, Availability, Maintainability, and Safety) analysis, implementation of Industry 4.0 enabling technologies, energy management, and sustainable mobility.

6. Public-private-civil partnership approach for improving disaster risk management and resilience: application in Balearic Islands

Alexandra Jaumouillé, Juliette Rimlinger, Dr. Catherine FREISSINET, Margarita Ribas Muntaner, Josué Díaz Jiménez, Alexandre Moragues, Antonio Bernat Girard, Juan Pol Pujol, Prof. Joan Estrany

ABSTRACT:
In response to the urgent global and European call for climate action, the C2IMPRESS project addresses critical data and awareness gaps related to compound extreme weather and climate events. It promotes a shift from hazard-focused approaches to people- and place-centered strategies for assessing multi-hazard risks, especially in the context of weak governance and community vulnerability. Polycentric governance is one possible response and can help strengthen territorial resilience. The Public-Private-Civil Partnership (PPCP) approach, developed by Artelia is part of this dynamic and offers an inclusive model that unites public sector, private sector, and civil society to address social, economic, and environmental challenges in a coordinated manner. The PPCP approach was tested in living labs in Puigpunyent (Balearic Islands), for the C2impress Project, contributing to the development of the municipality’s Emergency Management Plan, including risk mapping, vulnerability assessment, and disaster response measures. The results can guide future operational situations and protocols for the PEMU, incorporating local specificities and moving away from standard plans, thus improving and making disaster risk management more effective.

Keywords: Disaster risk management, Public-Private-Civil Partnership, Governance, Emergency management Plan, Resilience, Stakeholders

Ms Alexandra Jaumouillé Socio-anthropologist with 9 years of experience in applied research, international cooperation, consultancy in environmental and social studies, and social work with populations seeking asylum or vulnerable groups with specific needs, Alexandra Jaumouillé has worked in a wide variety of contexts (Latin America, Saharan and Sub-Saharan Africa, Southeast Asia, Middle East, Europe). She was also researcher in socio-anthropology for the French National Research Institute for Development (IRD) in Mexico. Alexandra currently works as a Social Expert for Artelia. She has experience in conducting environmental and social studies in Africa and in Asia with participatory field surveys, data analysis on the identification and management of the social impacts of large infrastructure and energy projects according to international standards (IFC, WB). She works in main areas of expertise: development of Resettlement Action Plans (RAP), Environmental and Social Management Plans (ESMP), Stakeholders Engagement Plans (SEP), and also European research and innovation projects funded by the European Commission. She is involved in the C2impress project working on issues related to polycentric governance, disaster risk management and inclusive stakeholders’ participation for greater resilience in the face of climate change.

Ms Juliette Rimlinger With a background in applied social sciences for development, Juliette currently works as a Social Studies Engineer at Artelia. She leads Environmental and Social Impact Assessments for international infrastructure projects (roads, ports, water, energy), in compliance with international standards such as those of the World Bank, IFC, and AfDB. Her skills combine literature reviews, participatory field surveys, anthropological and socio-economic studies, and the development of Resettlement Action Plans (RAP) and Environmental and Social Management Plans (ESMP). She also supports stakeholder engagement processes and grievance redress mechanisms. In parallel, she contributes to European research and innovation projects funded by the European Commission. Within these, she develops innovative stakeholder engagement strategies based on public-private-civil partnerships (PPCP), Living Labs, and Design Thinking approaches to support climate resilience. Her dual expertise—both operational and research-based—allows her to work across diverse contexts, from international field operations to European pilot projects.

Dr. Catherine FREISSINET is Project Director managing R&D and Innovation in the Environment department within ARTELIA. She oversees and coordinates activities relating to Research & Innovation programmes in France, in Europe (Horizon Europe) and internationally. On account of her experience in supervising and assessing R&D projects and programmes, she is regularly appointed by the European Commission to provide expert evaluations and advice on various matters. She is also International Project Manager focusing on issues concerning the integrated management of river basins and natural resources, including the impact of climate change and adaptation strategies, NBS solutions and statutory and institutional studies (monitoring/assessment of public policies, socio-economic studies, environmental taxation, French and EU statutory studies, institutional support, etc.).

Margarita Ribas Muntaner is a geographer and holds a Master's degree in Natural Hazards. She currently works as a technician at the Observatory of Natural Hazards and Emergencies of the Balearic Islands, where she is part of the hydrological modelling team. Her work focuses on the development of hydrological simulations for the implementation and improvement of Early Warning Systems (EWS). She also contributes to the processing and analysis of geospatial data for the development of vulnerability assessments related to different natural hazards in the Balearic Islands.

Mr. Josué Díaz Jiménez The Head of Section IV of the Department of Emergencies of the Government of the Balearic Islands (GOIB), with degrees in geography, and engineering in geodesy and cartography, and environmental remote sensing, is dedicated to the study and execution of tasks in any of the phases of the disaster management cycle, mainly in self-protection plans, operational management tasks and now closely with the Natural Risks and Emergencies Observatory of the University of the Balearic Islands.

Alexandre Moragues is a Geographer focused on spatial analysis and GIS techniques, as well as on hydraulic modelling. Currently, he is a predoctoral research at the Department of Geography at the University of the Balearic Islands (UIB) and the Balearic Islands Observatory of Natural Risks and Emergencies (https://riscbal.uib.cat). His research relies on high-resolution hydraulic models and vulnerability assessments in front of natural hazards.

Mr. Antonio Bernat Girard Head of the Coordination Service, Emergency Department (GOIB), with a background in industrial engineering, he has extensive experience in leadership roles in disaster management, currently focusing on the study and execution of tasks in all phases. In addition to his operational duties, he currently works closely with the Natural Risks and Emergencies Observatory of the University of the Balearic Islands.

Mr. Juan Pol Pujol Head of the Management Service, Department of Emergencies (GOIB), with extensive operational experience in international disaster management missions, he is dedicated to all phases of the disaster management cycle and now works closely with the Natural Risks and Emergencies Observatory of the University of the Balearic Islands.

7. Evaluation of flash flood vulnerability scenarios in a population growing Mediterranean city: Palma (Balearic Islands, Spain)

Alexandre Moragues, Dr. Maurici Ruiz Pérez, Margarita Ribas Muntaner, Prof. Joan Estrany Bertos

ABSTRACT:
Palma, the capital city of the autonomous community of the Balearic Islands, in Spain, increased 26% its population from 2004 to 2024, achieving ca. 480,000 inhabitants. Moreover, the growth in foreigners was up to 157% in these 20 years, a population who usually are not aware of the natural hazards threatening the city. In terms of urbanisation, since 1960 over 22,000 hectares were built within one of the most threatening flood prone areas of the municipality, partially enforced by the population growth. This work aims to assess the potential urbanisation growth during the next decades applying land change simulations. Along these new urban spaces, the estimated population growth was distributed, and the results were intersected with the current flood prone cartography to assess the increase in urbanisation and population over flood prone areas. The results demonstrated an increase in people and buildings exposed to flash floods, sharpening the current vulnerable situation of the city. These results may be considered by city planners to avoid the urbanisation over these threatened areas, as well as for the improvement of current emergency management plans. Furthermore, flood-prone areas must be re-estimated due to shorter return periods from increased rainfall intensity, a key consequence of climate change.

Keywords: Flash floods, natural hazards, vulnerability, GIS.

Alexandre Moragues is a Geographer focused on spatial analysis and GIS techniques, as well as on hydraulic modelling. Currently, he is a predoctoral research at the Department of Geography at the University of the Balearic Islands (UIB) and the Balearic Islands Observatory of Natural Risks and Emergencies (https://riscbal.uib.cat). His research relies on high-resolution hydraulic models and vulnerability assessments in front of natural hazards.

Dr. Maurici Ruiz Pérez. Lecturer at the University of the Balearic Islands. He is on leave from his positions as a Senior Specialist at the University of the Balearic Islands and as a Senior Specialist at the Spanish National Research Council. He has been the director of the Geographic Information Systems and Remote Sensing Service at the University of the Balearic Islands since its creation in 2002 (http://ssigt.uib.es). He is the Secretary of the Department of Geography at the University of the Balearic Islands (2020-), co-director of the Insularity Chair (2023-), deputy director of the Mobility Observatory of the University of the Balearic Islands, and President of the Geographic Information Technologies Group of the Spanish Geography Association. Currently, he is part of the RiscBal Research Group (http://riscbal.uib.es) and the Smart-Destinations Group. His research focuses on the use and development of geographic information technologies to understand and solve environmental and territorial issues in various thematic areas, including natural hazards, mobility, health, landscape, and the environment.

Margarita Ribas Muntaner is a geographer and holds a Master's degree in Natural Hazards. She currently works as a technician at the Observatory of Natural Hazards and Emergencies of the Balearic Islands, where she is part of the hydrological modelling team. Her work focuses on the development of hydrological simulations for the implementation and improvement of Early Warning Systems (EWS). She also contributes to the processing and analysis of geospatial data for the development of vulnerability assessments related to different natural hazards in the Balearic Islands.

Dr. Joan Estrany Bertos (Inca, Mallorca, 1976) is a Full Professor of Physical Geography and Director of both the Department of Geography at the University of the Balearic Islands (UIB) and the Balearic Islands Observatory of Natural Risks and Emergencies (https://riscbal.uib.cat). His research focuses on river hydrology, erosion measurement in Mediterranean environments, and especially the transfer of knowledge on natural risk management in the Balearic Islands. Since 2007, he has also been teaching Physical Geography at UIB. The Balearic Islands Observatory of Natural Risks and Emergencies (RiscBal) leads the development and management of a technological infrastructure based on an environmental monitoring network — RiscBal-Control — deployed across the islands to monitor flood, wildfire, gravitational movement, and climate-related risks. This network enables the creation of an early warning system — RiscBal-Warnings— through real-time data and predictive modelling.

8. Wind and seasonal variabilities of greenhouse gas concentrations measured over a decade, in the Central Mediterranean

Martin Saliba, Prof. Alfred Micallef

ABSTRACT:
Measurements of various greenhouse gas (methane, atmospheric water vapour, carbon monoxide, and carbon dioxide) concentrations, using a cavity ring-down spectrometer, and meteorological variables (wind speed and direction) were collected over eleven years (2012–2023). The data were collected at Giordan Lighthouse monitoring station on the island of Gozo, in the Central Mediterranean. The wind and seasonal variabilities of the greenhouse gas concentrations were investigated. The prevailing wind was from the W to NW sector with a total frequency of occurrence of 41.42 %, followed by the NE sector, accounting for 6.25 % of all the wind direction data. The peak concentrations for carbon monoxide, carbon dioxide, and methane correspond to two directions, namely, the N to NNE sector, followed by the ESE to SE sector. These maxima were associated with land-based sources originating from the islands of Sicily and Malta, respectively. The concentration of carbon monoxide was most pronounced during high wind speeds, which was associated with transboundary contribution to air pollution. Both carbon dioxide and atmospheric water vapour show strong percentage seasonal amplitudes of 16.6 % and 70.0 % respectively.

Keywords: greenhouse gases; methane; carbon monoxide; atmospheric water vapour; carbon dioxide; Central Mediterranean

Martin Saliba is a Scientific Officer at the Department of Geosciences & Geosciences Observatory (Gozo), Faculty of Science, University of Malta. He holds a M.Sc. in Atmospheric Science and a B.Sc.(Hons.) in Mathematics and Physics, both from the University of Malta. His current research focus is air quality monitoring and modelling, and forms part of the Atmospheric Monitoring and Research Group at the University of Malta. The group is coordinated by Professor Alfred Micallef.

Alfred Micallef is currently professor at the Department of Geosciences of the Faculty of Science at the University of Malta. He graduated with a first-class degree in physics and mathematics from the University of Malta (1990), and holds a PhD from the University of Nottingham, UK (1998), the latter, through an academic Commonwealth Scholarship. Prior to joining the Department of Geosciences, he formed part (and headed) the Department of Physics at the University of Malta. His research and teaching interests are within the general field of environmental physics. His main research interests have been (and continue to be) in air quality monitoring, modelling and the development of simple and novel instrumentation for monitoring air quality, especially in microenvironments e.g. street canyons, indoors. He is also involved in air quality data analysis. Another area of interest is climate science. Indeed, he was national expert/consultant on climate change, for the Government of Malta, on behalf of the United Nations Development Programme for the period 2001-2009. He jointly led a substantial team of consultants (scientists, economists, lawyers, etc.) in drafting national communications to the United Nations Framework Convention on Climate Change. Alfred Micallef led (and continues to lead) several funded research projects. He publishes extensively in peer reviewed literature, gives presentations at conferences on a regular basis and is a passionate lecturer.

9. Background concentrations of atmospheric black carbon and sulphur dioxide on the Maltese Islands: A preliminary study

Rebecca Caruana, Prof. Alfred Micallef, Marvic Grima

ABSTRACT:
Giordan Lighthouse (GLH), a monitoring station on the small Island of Gozo in the Malta-Sicily Channel, is ideally located to study primary sources of atmospheric pollution in the Central Mediterranean. Previous studies have identified ship emissions and volcanic activity from Mount Etna in Sicily as the two main contributors to air pollution in the region. This study aims to examine the relationship between black carbon and sulphur dioxide (SO2) concentrations measured over a four-month period from March to July 2020, and to determine whether these measurements can be linked to the previously identified air pollution sources. Real-time measurements of atmospheric black carbon and SO2 concentrations were recorded at GLH using a multi-angle absorption photometer, an aethalometer, and an SO2 analyser. Meteorological parameters were also measured, with a focus on wind direction and speed due to their critical influence on pollutant transport. The findings indicate that peak pollutant concentrations occurred when the prevailing wind originated from the East-South-East – South sector suggesting the influence of emission sources other than those that were identified in previous studies. However, one of the concentration peaks was observed when the wind was from the West – West-North-West sector, which may indicate the contribution of shipping emissions. These results highlight the complexity of air pollution transport in the Central Mediterranean, underscoring the need for further investigation.

Keywords: atmospheric black carbon; sulphur dioxide; Central Mediterranean; regional air pollution

Mrs Rebecca Caruana is a Scientific Officer at the Department of Geosciences & Geosciences Observatory (Gozo), Faculty of Science, University of Malta. She holds a M.Sc. in Geosciences with Distinction and a B.Sc.(Hons.) in Mathematics and Physics, both from the University of Malta. Her current research focus is air quality monitoring and modelling, and forms part of the Atmospheric Monitoring and Research Group at the University of Malta. The group is coordinated by Professor Alfred Micallef.

Alfred Micallef is currently professor at the Department of Geosciences of the Faculty of Science at the University of Malta. He graduated with a first-class degree in physics and mathematics from the University of Malta (1990), and holds a PhD from the University of Nottingham, UK (1998), the latter, through an academic Commonwealth Scholarship. Prior to joining the Department of Geosciences, he formed part (and headed) the Department of Physics at the University of Malta. His research and teaching interests are within the general field of environmental physics. His main research interests have been (and continue to be) in air quality monitoring, modelling and the development of simple and novel instrumentation for monitoring air quality, especially in microenvironments e.g. street canyons, indoors. He is also involved in air quality data analysis. Another area of interest is climate science. Indeed, he was national expert/consultant on climate change, for the Government of Malta, on behalf of the United Nations Development Programme for the period 2001-2009. He jointly led a substantial team of consultants (scientists, economists,

lawyers, etc.) in drafting national communications to the United Nations Framework Convention on Climate Change. Alfred Micallef led (and continues to lead) several funded research projects. He publishes extensively in peer reviewed literature, gives presentations at conferences on a regular basis and is a passionate lecturer.

Mr Marvic Grima is a Scientific Officer at the Department of Geosciences & Geosciences Observatory (Gozo), Faculty of Science, University of Malta. He holds a B.Sc.(Hons.) in IT, from The Malta College of Arts, Science & Technology. His current research focus is air quality data processing and analysis, and forms part of the Atmospheric Monitoring and Research Group at the University of Malta. The group is coordinated by Professor Alfred Micallef.

10. Measuring the Sustainability Performance of EU Countries through a Composite Multidimensional Index

Radoslav Mikča, Dr. Emília Huttmanová

ABSTRACT:
This paper proposes a sustainability index that captures the economic, environmental, and social performance of EU countries. Using a set of standardized indicators grouped into three dimensions, we construct sub-indices for each pillar and aggregate them into a composite score. The index reflects the multidimensional nature of sustainability and enables cross-country comparison. The main objective of this paper is to construct a composite sustainability index for EU countries and analyze their multidimensional performance using PCA and cluster analysis. Data is drawn from Eurostat and other relevant sources, covering recent years. To ensure comparability and robustness, we apply normalization techniques and explore weighting schemes through principal component analysis. The final index is analyzed spatially and statistically, identifying sustainability leaders and laggards within the EU. This approach contributes to the understanding of national sustainability dynamics and supports data-driven policy recommendations aimed at enhancing balanced progress across key domains.

Keywords Sustainability. Sustainable development. SDG indicators. Composite index. Country clustering.

Mgr. Radoslav Mikča completed his bachelor's and master's degrees at the Faculty of Management and Business at the University of Prešov (UP) in the Management study program, specializing in Economics and Management. In his thesis, he focused on the driving forces of economic growth in EU countries and the latest sixth Kondratiev wave. Since the 2023/2024 academic year, he has been working as an internal doctoral student at the Department of Environmental Economy and Management. His dissertation focuses on sustainable development and new trends on the path to sustainability. His professional interests are mainly in the fields of economics, management, and the environment, with the aim of contributing to the development of innovative sustainable solutions. He is the principal investigator of two institucional projects supported by the UP Grant Agency, focusing on environmental taxes and green economy issues. He also actively collaborates on several national projects as a member of research teams.

doc. Ing. Emília Huttmanová, PhD. holds the position of Associate Professor in the Department of Environmental Economy and Management at Faculty of Management and Business (FMB), University of Prešov. Her scientific and pedagogical activities are primarily focused on the national economy and green economic trends oriented towards sustainability and circularity. She actively participates in both international and national scientific research and development projects. She is a (co)author of scientific monographs, university textbooks, and peer-reviewed articles indexed in the Web of Science and Scopus databases, along with other scholarly publications, which have received corresponding citation responses. Throughout her career, she has held the positions of Vice-Dean for Education and Communication (2010–2018). Currently, she is Head of Department of Environmental Economy and Management and a member of the FMB Scientific Council, the FMB Doctoral Studies Committee, the FMB Academic Senate, and the Study Committee of the Academic Senate at the University of Prešov.

11. Governance Models and Community Resilience: Insights from the Portuguese Case Study under the C2IMPRESS Project

Dr. João Lutas Craveiro, Dr. Ana Catarina Zózimo, Dr. Manuel Mendes Oliveira, Alexandra Jaumouillé, Juliette Rimlinger, Catherine FREISSINET

ABSTRACT:
This article examines how governance models serve not only as practical exercises and collective experiences that foster social and territorial cohesion but also as essential resources to potentially rescue Western democracies from decline. The work draws on the C2IMPRESS project (funded under the Horizon Europe Programme) focused on disaster-resilient societies. The region studied is located in Portugal, is characterised by stark territorial inequalities, a scattered ageing population, and faces dual segmentation: densely populated coastal zones at risk of coastal flooding, and inland areas vulnerable to fluvial flooding and wildfires. Environmental threats are compounded by a weak civil society with limited environmental citizenship and proactive engagement, subject to highly centralised risk management systems that prioritise emergency response over prevention. After highlighting, through surveys and collaborative workshops, that there is widespread unpreparedness for disasters and environmental catastrophes, the authors argue that public engagement, social equity, and participatory governance are crucial to counteract the "tragedy of the commons" while also reinforcing democratic resilience and community solidarity. Outcomes suggest a viable path towards a more sustainable regional future, with more inclusive and resilient systems, aligning technical measures with community-driven priorities, and reinforcing democratic practices in disaster risk management through new ways of risk governance.

Keywords: Social equity, Community engagement, Governance, Resilience, Tragedy of the commons, Sociology

João Lutas Craveiro is an Assistant Researcher at LNEC (National Laboratory for Civil Engineering) who has been involved for over twenty-five years in the development and implementation of several international projects, serving as task group leader and research team member. He has also acted as Principal Investigator in research and technological development projects funded by the Portuguese Foundation for Science and Technology (FCT). His academic contributions include the regular organization of scientific events, supervision of academic theses, and the training and mentoring of research fellows. Notably, he was the first Portuguese professor to teach Environmental Sociology at a prestigious public university—NOVA University Lisbon—where he has lectured across all academic levels in the fields of Sociology and Human Ecology.

Ana Catarina Zózimo is a researcher at the National Laboratory for Civil Engineering (LNEC) in Lisbon, Portugal, specializing in maritime hydraulics and coastal engineering. Her work focuses on sea wave generation and propagation, methodologies for coastal and harbour studies, physical modelling of maritime structures, forecasting and warning systems for sea waves, overtopping, flooding in coastal and harbor areas, and risk management in maritime infrastructures.

Manuel Oliveira is a Senior Researcher at the National Laboratory for Civil Engineering, Lisbon, Portugal. He works in the Water Resources and Hydraulic Structures Unit of the Hydraulic and Environment Department. He owns a PhD in Hydrogeology, concerning the assessment of natural groundwater recharge. Nowadays main topics of interest are groundwater numerical modelling, groundwater risk and resilience assessment, and managed aquifer recharge.

Ms Alexandra Jaumouillé Socio-anthropologist with 9 years of experience in applied research, international cooperation, consultancy in environmental and social studies, and social work with populations seeking asylum or vulnerable groups with specific needs, Alexandra Jaumouillé has worked in a wide variety of contexts (Latin America, Saharan and Sub-Saharan Africa, Southeast Asia, Middle East, Europe). She was also researcher in socio-anthropology for the French National Research Institute for Development (IRD) in Mexico. Alexandra currently works as a Social Expert for Artelia. She has experience in conducting environmental and social studies in Africa and in Asia with participatory field surveys, data analysis on the identification and management of the social impacts of large infrastructure and energy projects according to international standards (IFC, WB). She works in main areas of expertise: development of Resettlement Action Plans (RAP), Environmental and Social Management Plans (ESMP), Stakeholders Engagement Plans (SEP), and also European research and innovation projects funded by the European Commission. She is involved in the C2impress project working on issues related to polycentric governance, disaster risk management and inclusive stakeholders' participation for greater resilience in the face of climate change.

Ms Juliette Rimlinger With a background in applied social sciences for development, Juliette currently works as a Social Studies Engineer at Artelia. She leads Environmental and Social Impact Assessments for international infrastructure projects (roads, ports, water, energy), in compliance with international standards such as those of the World Bank, IFC, and AfDB. Her skills combine literature reviews, participatory field surveys, anthropological and socio-economic studies, and the development of Resettlement Action Plans (RAP) and Environmental and Social Management Plans (ESMP). She also supports stakeholder engagement processes and grievance redress mechanisms. In parallel, she contributes to European research and innovation projects funded by the European Commission. Within these, she develops innovative stakeholder engagement strategies based on public-private-civil partnerships (PPCP), Living Labs, and Design Thinking approaches to support climate resilience. Her dual expertise—both operational and research-based—allows her to work across diverse contexts, from international field operations to European pilot projects.

Dr. Catherine FREISSINET is Project Director managing R&D and Innovation in the Environment department within ARTELIA. She oversees and coordinates activities relating to Research & Innovation programmes in France, in Europe (Horizon Europe) and internationally. On account of her experience in supervising and assessing R&D projects and programmes, she is regularly appointed by the European Commission to provide expert evaluations and advice on various matters. She is also International Project Manager focusing on issues concerning the integrated management of river basins and natural resources, including the impact of climate change and adaptation strategies, NBS solutions and statutory and institutional studies (monitoring/assessment of public policies, socio-economic studies, environmental taxation, French and EU statutory studies, institutional support, etc.).

12. Alternative proteins: the environmental impact of edible insect powder

Ana Fonseca PhDc, Daniel Bruno, Dr. Marisa Santos, Dr. Ana Cláudia Dias, Dr. Paula Quinteiro

ABSTRACT:
The growing interest in entomophagy has introduced insect-derived proteins to Western markets, aiming to reduce resource use while maintaining nutrition needs. Thus, understanding the impact of these novel ingredients from an environmental perspective is crucial. This study applies Life Cycle Assessment (LCA) to evaluate the environmental performance of Tenebrio molitor larva (yellow mealworm) powder. The LCA followed the Product Environmental Footprint (PEF) guidelines, with a cradle-to-gate approach, including insect production until the larvae harvest and their processing to powder. Primary data were used from an insect-rearing and processing facility in Portugal. The environmental impacts were assessed using the ReCiPe 2016 method, covering categories including climate change, fossil resource use and freshwater eutrophication. Sensitivity analyses examined varying levels of feed conversion ratios along the insect's production cycle and renewable energy use for the energy-consuming processes during production and processing. The environmental burdens are mostly from the feeding materials and energy consumption during insect production and processing, with varying levels of contribution, depending on the impact category. These findings provide valuable insights into the environmental performance of insect-derived proteins as novel food ingredients, contributing to evidence-based decision-making within the agri-food sector for more sustainable protein production systems.

Keywords: Food; Life cycle assessment (LCA); Novel foods; Product environmental footprint; Tenebrio molitor.

Ana Fonseca is a doctoral candidate in Environmental Sciences and Engineering at the Department of Environment and Planning from the University of Aveiro. She completed her BSc in Biology (2016-2019) and MSc in Biochemistry (2019-2021) at the University of Coimbra (UC). Following her master's degree, Ana received a research fellowship at the Mediterranean Institute for Agriculture, Environment and Development from the University of Évora, contributing to the CynaraTeC project, for thistle valorisation, through biochemical profiling and science communication (2021-2022). She subsequently joined CECOLAB - Association for Circular Economy as a research scientist, developing expertise in waste recovery, circular bioeconomy and Life Cycle Assessment (LCA). Currently, Ana holds a research fellowship under the InsectERA Agenda, supervised by Dr Ana Cláudia Dias and Professor Susana Loureiro. This initiative explores insect utilisation as a pathway to produce raw materials for bio-industries. Her research focuses on developing methodologies to assess the sustainability of insect-based production systems, further developing her expertise in environmental sciences and sustainable resource management.

Daniel Bruno is a researcher with expertise in ecotoxicology and risk analysis, with a B.S. in Biology and a M.Sc. in Eco-toxicology and Risk Analysis. His academic journey began during his undergraduate studies, where he explored the effects of anticancer drugs on zebrafish larvae. His research focused on assessing both lethal and sublethal effects, such as mortality, malformations, and microbiome alterations. Continuing his academic pursuits, Daniel completed an M.Sc. degree in Eco-Toxicology and risk analysis, which establishes bridges between scientific knowledge and its application in decision-making, regulation, and environmental management processes to assess hazardous contaminants to public health and ecosystems. His master's dissertation expanded on his earlier work by investigating not only the toxicity of individual antineoplastic drugs but also their mixtures, reflecting real-world environmental scenarios where these drugs coexist with other contaminants. Through his research, Daniel developed expertise in zebrafish culture maintenance, ecotoxicological assays, molecular techniques such as DNA/RNA extraction for metagenomic sequencing to analyse bacterial profiles, and statistical modelling of ecotoxicological data. His work contributes to a deeper understanding of the ecotoxicological risk sposed by antineoplastic drugs in aquatic environments. Currently, Daniel is working within the Life Cycle Assessment methodology and how to improve the Ecotoxicity category.

Dr. Marisa Santos is the R&D Director at Thunder Foods, bringing extensive expertise in bioengineering, fermentation, and food technology. She holds a PhD in Bioengineering and has a strong background in fermentation, fermented foods, integrated biotechnological processes, and upstream and downstream process optimization. Throughout her career, she has been actively involved in research and development, focusing on innovative approaches to develop and enhance food products, sustainability, and efficiency in industrial bioprocesses. At Thunder Foods, she leads the R&D initiatives, driving innovation in the edible insect production bio sector, in the areas of human, animal and plant nutrition optimizing biotechnological processes to develop high-quality, sustainable solutions. Passionate about scientific collaboration and technological advancement, she is dedicated to fostering partnerships for R&D projects in the fields of food technology, biotechnology, agriculture, and process engineering.

Ana Cláudia Dias is principal researcher at the Department of Environment and Planning of University of Aveiro and member of the associated laboratory CESAM (Centre for Environmental and Marine Studies). She has a degree in Environmental Engineering and a PhD degree in Environmental Applied Sciences. Her main research interests are in the field of development and application of environmental management tools based on life cycle thinking, such as life cycle assessment life cycle sustainability assessment, and carbon and water footprints.

Paula Quinteiro holds a PhD in Environmental Sciences and Engineering (2015), a master's degree in Sustainable Energy Systems (2010) and a degree in Chemical Engineering (2006) from the University of Aveiro. P. Quinteiro is an Assistant Researcher at the University of Aveiro and an integrated researcher at the Associated Laboratory Centro de Estudos do Ambiente e do Mar (CESAM) (http://www.cesam.ua.pt/quinteiro). P. Quinteiro main research expertise and interests focus on environmental assessment tools, such as water footprint, carbon footprint, life cycle assessment and life cycle sustainability assessment, following a life cycle thinking approach for the vision of a sustainable value chain and the transition to a circular economy . She has been working on the development and application of water footprint methodology and environmental impact assessment methodology. At the same time, P. Quinteiro has been applying the life cycle thinking-based tools to assess the potential environmental and social impacts of products from various sectors, including ceramics, forest (eucalypt and pine), agriculture (vines), bioenergy, pulp and paper, construction materials, seafood, packaging, etc. She is the national delegate for Cost Action CA CA22134 - FoodWaStop - Sustainable Network for agrofood loss and waste prevention, management, quantification and valorisation.

13. Logistics Synergy and Competitiveness: A Quantitative Model for Ecuadorian SMEs in Strategic Sectors

Mgtr. Carol Henk, Mgtr. Ana Maria Gallardo

ABSTRACT:
This study presents a novel logistics associativity model designed to enhance the competitiveness and reduce operational costs of Ecuadorian companies, focusing specifically on the agro-export and industrial sectors. Utilizing a quantitative and explanatory research design, the methodology integrates robust statistical modeling through STATA software, allowing for precise estimation of the relationships between logistics variables and productivity indicators. A synthetic dataset of 300 firms, structured on national policy benchmarks and logistics metrics, was analyzed via multiple linear regression. The model evaluates the impact of the Logistics Associativity Index (LIA), cycle time, technological adoption, and firm-level characteristics on productivity per employee. Key findings reveal that logistics cycle time exerts a significant negative influence on performance, while associativity shows potential indirect effects. STATA facilitated assumption testing (normality, multicollinearity, homoscedasticity) and model calibration, yielding practical evidence for cluster-based strategies. These insights underscore the value of cooperative logistics, particularly for micro and small enterprises facing infrastructure and digitalization barriers. The study's outcomes support public-private initiatives aimed at fostering strategic clusters and recommend further research using real-time and longitudinal data to validate the associativity-performance link. This paper contributes an empirically grounded, scalable model that strengthens policy frameworks and corporate decision-making in emerging economies.

Keywords: Logistics association, Business cluster, Competitiveness, Productivity, Ecuador

Mgtr. Carol Henk Ecuadorian academic and logistics specialist, holds a Master's degree in Logistics and Transport from ESPOL, where she focused on optimizing supply chain processes. Currently serving as Career Lead Coordinator and faculty member at Universidad ECOTEC, she combines academic leadership with a strong corporate background, including experience at Philip Morris International. Her research interests span international trade, supply chain standardization, and digital transformation in education, with recent publications in Polo del Conocimiento and ResearchGate. Known for her practical approach to teaching, she has played a key role in internationalization initiatives and student development programs. Henk Subia actively promotes innovation, strategic thinking, and collaborative learning, bridging academia and industry in Ecuador's business and logistics sectors.

Mgtr. Ana Maria Gallardo Currently she serves as Dean of the Faculty of Economic and Business Sciences at Universidad ECOTEC in Samborondon. Coordinator of the ACBSP Internationalization Committee. Master's in International Business from Pompeu Fabra University (Barcelona) and a diploma in Administration. Previously she held the position of Vice Minister of Export and Investment Promotion for Ecuador, representing the government. Her academic interests include institutional change, participatory decision making, blockchain in agri food chains, and AI driven leadership in education. She also acted as a jury member for the inaugural Excellence in Logistics Awards, highlighting her contributions to advancing Ecuador's logistics sector through academic-business collaboration.

14. Elasticity and Structure in Small Open Economies: A Bayesian Panel Model of EFTA Exports

Mgtr. Ana Maria Gallardo, Dr. Diego José Donoso Vargas

ABSTRACT:
This study explores the relationship between export volume and trade value among European Free Trade Association (EFTA) countries—Switzerland, Norway, Iceland, and Liechtenstein—between 2018 and 2023, applying a Bayesian hierarchical model estimated in STATA. In the context of small-sample panel data and heterogeneous export structures, the model captures the elasticity of trade value with respect to physical export volume using a log-log specification with random intercepts by country. The results reveal a positive and significant elasticity, suggesting that higher export volumes lead to increased export revenues, while also uncovering structural disparities in value-density across countries. By quantifying these dynamics, the paper contributes to data-driven economic strategies and provides actionable evidence to strengthen economic resilience in small open economies. Furthermore, the findings support the design of sustainable business models and export diversification policies that can benefit SMEs and export-oriented sectors. These insights are particularly relevant for emerging economies seeking integration into high-value global markets through international trade frameworks. The use of Bayesian inference ensures robustness despite data limitations, offering a scalable methodological approach for policymakers and trade economists. Overall, the research aligns with the pillars of economic sustainability, promoting inclusive trade, competitiveness, and long-term development resilience in line with the Sustainable Development Goals (SDGs).

Keywords: Bayesian Hierarchical Modeling, Export Elasticity, International Trade, Economic Sustainability, Small Open Economies, Trade Value and Volume Data-Driven Economic Strategies

Mgtr. Ana Maria Gallardo Currently she serves as Dean of the Faculty of Economic and Business Sciences at Universidad ECOTEC in Samborondon. Coordinator of the ACBSP Internationalization Committee. Master's in International Business from Pompeu Fabra University (Barcelona) and a diploma in Administration. Previously she held the position of Vice Minister of Export and Investment Promotion for Ecuador, representing the government. Her academic interests include institutional change, participatory decision making, blockchain in agri food chains, and AI driven leadership in education. She also acted as a jury member for the inaugural Excellence in Logistics Awards, highlighting her contributions to advancing Ecuador's logistics sector through academic-business collaboration.

Dr. Diego José Donoso Vargas is a distinguished Ecuadorian scholar and multidisciplinary professional with two PhDs—one in Political Science with a specialization in International Security, and another in Public Administration with a focus on Municipal Management. He holds master's degrees in Foreign Policy Administration and Business Administration. His academic work intersects international relations, public policy, and security studies, with notable contributions in the areas of defense intelligence, regional governance, and strategic planning. He currently serves as a university professor and research advisor, integrating Bayesian modeling and applied statistics into policy analysis. His publications address critical issues including prison security, digital surveillance, and economic resilience in Latin America. Dr. Donoso also consults for governmental and multilateral entities on institutional strengthening and regional development strategies.

15. Unlocking Industrial Circularity: A Structural Equation Approach to Reverse Logistics Implementation

Mgtr. Ana María Correa Vaca, Dr. Cristóbal Miralles Insa

ABSTRACT:
The transition from linear to circular production models in the Ecuadorian dairy manufacturing sector is not only urgent—it is imperative. Each year, this industry produces over 180,000 tons of post-consumer packaging waste and recovers less than 12% of its industrial residues, exposing structural limitations in its path toward sustainability. This research aims to identify and model the critical structural barriers that hinder the implementation of reverse logistics as a strategic enabler of circular economy practices aligned with the Sustainable Development Goals (SDGs). Grounded in the theoretical frameworks of socio-technical transitions and dynamic capabilities, this study applies a Structural Equation Modeling (SEM) approach using STATA, enabling the analysis of complex causal relationships between latent constructs such as environmental awareness, business capability, circular behavior, and sustainable impact. Unlike traditional index-based methods, SEM offers empirical weighting, robust error estimation, and the capacity to model indirect effects—enhancing theoretical precision and policy relevance. The expected outcomes include a validated conceptual model that guides decision-makers in transforming circular intent into measurable outcomes. This model aspires to position Ecuador's dairy sector not as a laggard but as a regional reference in industrial sustainability, innovation, and inclusive growth.

Keywords: Circular Economy, Reverse Logistics, Structural Equation Modeling (SEM), Sustainable Development Goals (SDGs), Industrial Sustainability, Emerging Economies

Mgtr. Ana María Correa Vaca is an Ecuadorian academic specializing in business management, innovation, and logistics. She currently serves as Program Coordinator at the Faculty of Economic and Business Sciences at Universidad Tecnológica ECOTEC, where she also teaches and mentors students. She holds a Master's degree in Logistics and Supply Chain Management from the Universidad Autónoma de Valencia in Spain and is currently pursuing a Doctorate in Business Management at the Universitat Politècnica de València.

Prof. Cristóbal Miralles Insa is a Full Professor at the School of Industrial Engineering of the Universitat Politècnica de València (UPV), Spain, and holds a PhD in Industrial Engineering. His academic and research work centers on inclusive workplace and system design, particularly enhancing accessibility for people with disabilities through industrial engineering methodologies. He has published extensively in indexed journals and international conferences and actively participates as editor and reviewer for scientific publications.

16. Regulation, Governance, and Firm Characteristics: An Empirical Study of SDG Disclosure in Indian Hospitality Firms

Ms. Ankita, Prof. Shikha Bhatia

ABSTRACT:
This study examines the determinants of Sustainable Development Goals (SDG) disclosure among Indian hospitality firms operating in the restaurant and lodging sector, using firm-level data obtained from the Bloomberg database. A structured content analysis was conducted employing a 0–5 scoring framework across all 17 SDGs, where a score of 0 denotes no disclosure and 5 reflects detailed, target-specific, and action-oriented reporting. The study investigates how institutional mechanisms (BRSR and GRI adoption), corporate governance characteristics, and firm-specific factors (size, profitability, leverage) influence disclosure quality. Regression analysis of 32 listed firms reveals that BRSR adoption is the most consistent and significant predictor of both SDG acknowledgment and disclosure depth. Firm size and ROE also positively influence disclosure, while GRI adoption enhances environmental transparency. Conversely, governance variables such as CEO duality, board structure, and diversity show no significant impact. The findings highlight the primacy of regulation and capacity over symbolic governance in driving SDG-aligned disclosure.

Keywords: Sustainable Development Goals, SDGs, Business, Disclosure, Reporting, Sustainable Development

Ms. Ankita is a Finance Fellow Program (FPM) scholar at IMI New Delhi, specializing in sustainable finance and corporate governance. Her research examines how Indian companies align with the UN Sustainable Development Goals (SDGs), combining bibliometric reviews, TCCM analysis, and econometric modelling to uncover the institutional, governance, and firm specific drivers of disclosure quality.

Dr Shikha Bhatia is an Associate Professor of Finance & Accounting at the International Management Institute (IMI) New Delhi and chairs the PGDM Banking & Financial Services programme. With 16 plus years of teaching, research and consulting experience, she holds a PhD in finance and has published more than 35 journal articles and case studies on IPO performance, corporate finance, ESG, green finance and financial literacy.

17. Balancing groundwater in the Czech Republic using examples from several Upper Cretaceous areas

Dr. Josef V. Datel, Ing. Anna Hrabánková

ABSTRACT:
The determination of groundwater quantities in the Czech Republic dating back to the 1950s. The two basic terms used in groundwater balancing are hydrological balance and water management balance. The hydrological balance assesses changes in groundwater resources caused by temporal and spatial variability of natural influences, especially climatic factors, and provides a basis for assessing changes in water resources caused by water use or other anthropogenic interventions. The hydrological balance e concerns the determination of natural groundwater resources in the context of the entire hydrological cycle. Currently, the size of natural resources is significantly influenced not only by seasonal climate patterns, but also by long-term trends based on ongoing climate change. The calculation of the hydrological balance is unthinkable without hydrological and hydraulic mathematical models. The water balance is a comparison of water demand with the size of its natural resources at a given place and time. The water balance thus provides a picture of the state of water resources, the degree of their use, and the possibilities for increasing them in the future. The comparison of natural resources and groundwater abstraction is the basis for assessing the balance tension in a given area.

Keywords: groundwater, water balance, hydrogeology, drinking water,water management

RNDr. Josef V. Datel, Ph.D., graduated from Charles University in Prague, Faculty of Natural Sciences. He graduated in hydrogeology and engineering geology. He then passed a rigorous examination in hydrology and groundwater hydraulics at the same university. He also completed his doctoral studies in hydrogeology there. He currently works at the TGM Water Research Institute. He teaches at Charles University, Faculty of Natural Sciences, in the fields of water contamination and protection, hydrogeological and hydrological survey methods, and water resource management. He is the author of numerous professional articles and a member of many professional institutions, including the Czech Association of Hydrogeologists, the Czech Committee of the International Association of Hydrogeologists (IAH), and the European Commission's Nitrates Committee.

Ing. Anna Hrabánková graduated in water engineering and water management from the Faculty of Civil Engineering at the Czech Technical University in Prague. Since 1985, she has been employed at the T.G. Masaryk Water Research Institute in Prague. In 2008, she became head of the Groundwater Protection Department, and since 2010 she has been head of the Hydraulics, Hydrology, and Hydrogeology Department. She specializes in issues related to groundwater quantity and quality balance. She also focuses on the use of geographic information systems. Since 2009, she has been a member of the European Commission's Nitrates Committee. She is a researcher on many projects and the author of numerous publications.

18. Spatial Diversity and the Dynamics of Entrepreneurial Ecosystems. The Perspective of Sustainable Development

Assoc. Prof. Dr. Anna Mempel-Śnieżyk, Assoc. Prof. Dr. Katarzyna Miszczak

ABSTRACT:
Among the several theoretical streams that cover local development through entrepreneurial action, the Entrepreneurial Ecosystem (EE) approach has gained prominence, for conceiving an articulated system of various actors that influence the environment for the generation of high-impact ventures ((Brown & Mason, 2017; Mack & Mayer, 2016). The EEs approach seeks to analyze, from the interaction between various actors, the development of enterprises at local, regional or national levels, taking the entrepreneur as the key actor in the process (Brown & Mason, 2017; Spigel & Harrison, 2018). EE are dynamic systems influenced by spatial diversity and socio-economic interactions. This article proposes a theoretical framework to analyze the multidimensional dynamics of entrepreneurial ecosystems through the lens of sustainable development. Spatial diversity as a factor shaping the structure, efficiency, and adaptability of entrepreneurial ecosystems means that geographic, social, economic, cultural, and institutional diversity plays a key role in shaping the functioning of these ecosystems. The study considers the interdependence between spatial configurations and the systemic components of entrepreneurial ecosystems. By conceptualizing interactions, the research advances theoretical insights into the spatial and dynamic nature of entrepreneurial ecosystems, addressing gaps in the existing literature and proposing a novel approach to understanding their complexity.

Keywords: Entrepreneurial ecosystem, sustainable development, local government

Dr Anna Mempel-Śnieżyk holds the position of Associate Professor at the Wroclaw University of Economics and Business, Department of Spatial Economy and Local Government Administration. Membership includes the Polish section of the Regional Studies Association, as well as participation in International Editorial Boards. Contributions extend to reviewing for national and international journals, scientific projects, papers, and books. Recognized with awards in competitions for the best PhD and the recipient of 12 awards from the Rector of the Wroclaw University of Economics and Business. Actively involved in scientific research projects funded by the European Union, the National Science Centre, and the Ministry of Foreign Affairs. Contributions to economic practice include developing socio-economic analyses, strategies for municipalities and counties, and the Development Strategy of Wrocław. The research interest refers to: local and regional development, entrepreneurial ecosystem, regional resilience, clusters, smart specialization, smart city, local government's role as part of local and regional developemnt stekeholder group. Participation in international networks focuses on the. Additionally, engagement in scientific internships in Poland and abroad has deepened expertise especially in the fields of entrepreneurial ecosystems and regional development, particularly from the perspective of sustainable development.

Katarzyna Miszczak is Professor at the Wroclaw University of Economics and Business, Department of Spatial Economy and Local Government Administration. Membership includes the Polish section of the Regional Studies Association, as well as International Editorial Boards. Contributions extend to reviewing for national and international journals, scientific projects, papers, and books, such as those published by Routledge Taylor & Francis Group in the UK, the Operational Programme Innovative Economy in Poland, and Universal Journal of Management by Horizon Research

Publishing in the US. Additionally, reviews have been conducted for journals such as China-USA Business Review and Chinese Business Review (David Publishing Company, US), Journal of Eurasian Socioeconomic Studies (Pamukkale University, Turkey), Journal of Design to Resilience in Architecture & Planning DRArch (Turkey), and several others from Polish institutions. Authorship includes over 120 scientific papers and 15 book chapters published in Poland, Czech Republic, Germany, Turkey, Latvia, and Ukraine, as well as a monograph titled Dilemmas of Development of Economic Region in the Light of Challenges of the 21st Century. Research focuses on regional development, spatial planning, clusters, smart cities, networking, innovation, technology transfer, creative sectors, intelligent specialization, urban and regional resilience, learning organizations, and glocalization processes. Coordination of projects funded by the European Union and Polish National Centre of Science has been undertaken, with participation in 30 projects for government, local administration, and business units. Academic achievements include a habilitation scholarship from the Rector of Wroclaw University of Economics and Business and five scholarships through the Lifelong Learning Program - Erasmus for Teaching Staff Mobility.

19. Digital Transformation of the Labour Market: A Case Study on Employees Aged 55+ in the Czech Republic

Professor Anna Putnová

ABSTRACT:
In the Czech Republic, individuals aged 55 and over represent nearly 39% of the population (approximately 4.3 million people). Although their unemployment rate has consistently remained below the national average (around 2.2% in 2024 compared to the EU average of 4.4%), their position in the labour market is vulnerable in the context of digital transformation. While this trend contributes to lower official unemployment figures, it simultaneously places additional pressure on the pension systém. This paper aims to analyse whether, and to what extent, public administration can contribute to improving the digital readiness of employees aged 55+, thereby supporting their sustainable employability in a rapidly changing labour market. The study is based on secondary data analysis from both international and national sources and adopts a case study approach focused on the Czech Republic. Findings indicate that public administration has several tools to support this age group. The most in-demand sectors—IT, healthcare, and engineering—require both basic and advanced digital skills. Public administration plays a crucial role in the inclusion of older workers in the digital economy. Strategic measures can prevent digital exclusion, reduce pressure on the social system caused by early exits from the workforce, and help harness the potential of 55+ employees in a transforming labour market.

Keywords: Digitalization, ageing, labor market, education

Anna Putnová is a university lecturer and politician. From 2010 to 2017, she was a member of the Chamber of Deputies of the Parliament of the Czech Republic, and since 2022 she has been a member of the Brno City Council for Innovation. Her academic career is linked to the Brno University of Technology, where she teaches management and business ethics. Anna Putnová has held various academic positions at the Faculty of Business and Management. In 2008, she was elected dean of the faculty, the first woman in the history of the Brno University of Technology, and held this position until 2012. Anna Putnová is also a member of a number of international organizations. She has served on the UN Economic Commission for Women's Entrepreneurship. She publishes in foreign and domestic professional journals. Her research focuses on CSR, integrity and innovation, and the labor mark

20. Children's Perspectives on Living in a Tourist Destination: Insights into Sustainability

Dr. Annette Sartor

ABSTRACT:
This study explores children's understandings of living in a prominent tourist destination. Departing from existing research on the effects of tourism on children, this study focuses on how children interpret and experience their local area through the lens of lived experiences, rather than emphasizing the 'tourist destination' aspect. Forty participants aged 7-12 years of age were recruited from two neighbouring primary schools in Australia. Utilizing phenomenography as the methodological approach, this research aims to uncover the diverse ways children understand and engage with their local surroundings. Through open-ended questioning, children provided conceptions of their local area including understandings of the interconnectedness between environmental, social and economic sustainability. Participants identified the uniqueness of the local environment, revealing place values for maintaining the environmental integrity of the area to sustain the local tourism industry and economic benefits for their families. They reported environmental knowledge imbued with an ethics of care which extend to community members and emphasized the importance a shared responsibility among residents and visitors alike, for preserving the natural distinctiveness of the area. Findings suggest that children, even at a young age, can perceive the complex relationships between natural resources and sustainable communities. This highlights the importance of incorporating children's voices into sustainability education. Furthermore, the study underscores the need for methodologies that move beyond presenting children with pre-determined themes, instead, allowing children to talk freely about their life worlds.

Keywords: Children voices, phenomenography, sustainability, place, tourism

Dr. Annette Sartor is an academic at Western Sydney University with a strong background in environmental education in school, community and higher education. Dr Sartor currently lectures in sustainability and initial teacher education, and her research interests lie in sustainability education, place-based identity, community engagement and teacher professional development, identity and reflective practice. Dr Sartor is currently exploring systems thinking pedagogy, sustainability competencies in higher education, and community participatory approaches for building sustainability competences.

21. Environmental Assessment of a scrap tire disposal site in Kuwait

Dr. Anwar Faisal Al-Yaqout, Fatma Hassan Esmaeil

ABSTRACT:
The Public Authority for Housing Welfare (PAHW) in Kuwait is planning a new housing project for the South Saad Al-Abdullah area, consisting of 25 thousand housing plots. However, South Saad Al-Abdullah area consists of Rahiya area, which has a history of environmental pollution due to the accumulation of wasted tires at the site for a period of 17 years from 2004 to 2021, where more than 60 million tires were stored. Many fire accidents occurred over the years leading to environmental problems causing not only air pollution due to heavy smoke rising from burning tires, but also causing soil contamination and groundwater contamination. In 2021, all the wasted tires have been transferred as per the rules imposed by the State of Kuwait and the area is vacated. This study is conducted to assess the amount of environmental pollution in the area and its impact on the health of individuals. The main objectives of this study are to determine the level of health and environmental risk and set guidelines to deal with such containment areas and transform them into a residential area. As part of site investigation, boreholes were drilled within the area to collect soil samples. Engineering and chemical properties have been determined from various tests on the samples. Air quality data for the study area were also collected to assess air pollution levels. The groundwater level was not observed in the boreholes up to a depth of 15 meters. The contamination levels were assessed in order to convert this site into a residential area.

Keywords: Waste management, scrap tire landfill, environmental pollution, site investigation, site assessment.

Dr. Anwar Faisal Al-Yaqout Working as an Associate Professor in the Civil Engineering Department, Kuwait University. My research interests include Geotechnical and Geo-environmental investigations, Management of Municipal and Solid Waste, Landfill site investigations, studying the characteristics of recycled concrete aggregates.

Fatma Hassan Esmaeil Student of Master's Degree Program at the Kuwait University.Her research interest is in Geotechnical engineering and Construction Management.

22. The Blue Economy: Balancing Sustainable Growth and Marine Conservation

Asoc. Prof. Dr. Astrida Rijkure

ABSTRACT:
The blue economy represents a sustainable approach to utilizing ocean resources for economic growth, improved livelihoods, and marine ecosystem health. Encompassing industries such as fisheries, aquaculture, tourism, renewable energy, and marine biotechnology, the blue economy seeks to balance economic development with environmental conservation. However, unsustainable practices, pollution, and climate change pose significant challenges, threatening marine biodiversity and coastal communities that depend on ocean resources. To address these challenges, the blue economy promotes innovative solutions, such as sustainable fishing practices, ecosystem-based management, and the integration of circular economy principles. By treating marine resources as assets to be preserved rather than exploited, industries can enhance long-term economic resilience while minimizing environmental harm. Advancements in marine technology, policy frameworks that encourage responsible resource use, and community-driven conservation efforts all play a crucial role in achieving sustainability. This paper explores the diverse sectors within the blue economy, emphasizing the importance of collaboration among governments, industries, and local stakeholders. By aligning economic activities with ocean conservation principles, the blue economy can support both economic prosperity and marine ecosystem health. Through preventive measures, technological innovation, and sustainable management strategies, this paper underscores the necessity of fostering a blue economy that benefits present and future generations while ensuring the long-term viability of ocean resources.

Keywords: Blue economy, environment, sustainability, circular economy

Asoc. Prof., Astrida Rijkure, PhD the associate professor Univeristy of Latvia. Previously, she taught port economics, logistics and multimodal transportation. Her previous experience as the vice-rector of the Latvian Maritime Academy of Sciences underscores her leadership and administrative capabilities within the academic sphere. Her research experience related to project: in transport and blue economy, with a specific focus on assessing the environmental impact of transportation processes and activities, particularly marine pollution prevention methods, showcases her dedication to addressing pressing environmental challenges. In recent years, her practical scientific activities have delved into searching for the solutions for sustainability issues such as ghost nets in the sea, the removal of shipwrecks ensnared in ghost nets, and exploring recycling methods in line with circular economy principles. Additionally, her involvement in research projects related to marine spatial planning and coastal economic development highlights her commitment to promoting sustainable practices and fostering economic growth in coastal regions while ensuring environmental preservation.

23. Exploring the Performance and Challenges of AC and DC Coupled Solar Hybrid Systems in Malaysian Rural Schools

Azlan Arifin PhDc, Assoc. Prof. Dr. Ramizi Mohamed, Ir Dr Abdul Muhaimin bin Mahmud

ABSTRACT:
Reliable energy access in rural schools is necessary for educational and community development. Solar hybrid systems, particularly DC Coupled designs, offer a sustainable solution; however, they face significant scalability, maintenance complexity, and charge controller dependency challenges. This paper addresses these issues and presents an adaptive model to optimize DC Coupled solar hybrid systems. Applying Basic Qualitative Inquiry, semi-structured interviews were conducted during this study with five experts, including site officers, maintenance contractors, and a senior electrical engineer. The results show that rigid system design, high upgrading costs, and charge controller inefficiencies limit scalability and long-term performance. System reliability will suffer from a lack of maintenance, especially battery management and overheating prevention. The Adaptive DC Coupled System Solution Model (ADCSM) was proposed to overcome these challenges, including adaptive system restructuring, AC-DC hybrid integration, advanced charge controller optimization technologies, and intelligent monitoring technologies. This paradigm improves the system's flexibility, efficiency, and sustainability and provides a cost-effective and scalable strategy for policymakers, engineers, and researchers to manage rural energy.

Keywords: Solar Hybrid Systems, DC Coupled, Scalability Challenges, Charge Controller Optimization, Renewable Energy in Rural Schools.

Mr. Azlan Arifin is a Ph.D. student at the Faculty of Engineering & Built Environment, Universiti Kebangsaan Malaysia. His research focuses on rural school electrification through off-grid renewable energy systems, particularly in optimizing hybrid solar solutions for sustainable and cost-effective energy access. With a strong background in energy management and system optimization, he explores scalability challenges, maintenance complexities, and hybrid integration approaches to improve the reliability of solar energy systems in remote areas. His academic interests include renewable energy technologies, smart grid systems, and energy policy development to enhance rural electrification and sustainable infrastructure solutions.

Dr. Ramizi Bin Mohamed is a senior lecturer in the Department of Electrical, Electronic and Systems Engineering at Faculty of Engineering and Built Environment, Universiti Kebangsaan Malaysia. He holds a Bachelor of Engineering from the renowned University of Salford, Manchester, received his Master of Science from Universiti Kebangsaan Malaysia and later graduated from Southampton University with a PhD. In his years lecturing experiences, he specializes in Power Engineering, Instrumentation and Energy Harvesting. Some of his main research interests are Transformer Condition Monitoring, Solar Hybrid Energy Harvesting and Piezoelectric Energy Harvester. He is also professionally affiliated with organizations including Board of Engineers Malaysia, IEEE Malaysia, Power System Planning, Operation and Studies (WG6) etc. Some of his selected research publications are “An Optimization of Rectangular Shape Piezoelectric Energy Harvesting Cantilever Beam for Micro Devices” published in International Journal of Applied Electromagnetics and Mechanics.

Ir Dr Abdul Muhaimin bin Mahmud is an electrical engineer at the Public Works Department of Malaysia (PWD) since 2003. He has been involved in the design, supervision, system performance analysis and system maintenance of solar PV systems for more than 20 years. He is recognized as an expert in solar PV systems at PWD, gives consultation on renewable energy systems and spearheaded initiatives to explore alternatives energy for rural electrification program in Malaysia. His team successfully implemented hundreds of solar Photovoltaic hybrid system for rural schools and benefiting thousands of school children by providing condusive learning environment. He is also an instructor in his field of expertise. He earned his Doctor of Philosophy (PhD) from Loughborough University, United Kingdom in 2017, specializing in solar Photovoltaic technology.

24. Navigating Vulnerability: A Comparative Study of Rural Resilience in Southwestern Uganda and South Africa

Prof. Betty Claire Mubangizi

ABSTRACT:
This article presents a comparative analysis of rural resilience strategies in Southwestern Uganda and the Alfred Nzo District Municipality of South Africa. Drawing from empirical fieldwork and applying the Resilience Capacities Framework and the Sustainable Livelihoods Framework (SLF), the paper explores how communities respond to environmental disasters, pandemics, and economic marginalisation. Findings highlight the role of absorptive, adaptive, and transformative capacities, with Uganda emphasising community-driven innovations and South Africa reflecting governance-driven challenges and opportunities. The study contributes to global rural resilience discourse by identifying institutional, socio-cultural, and policy-driven determinants of sustainable recovery and resilience-building. It recommends a hybrid resilience strategy that integrates localised adaptation with robust institutional reform.

Keywords: Rural resilience; disasters; sustainable livelihoods; Uganda; South Africa; institutional capacity; local governance

Betty Claire Mubangizi is a full Public Administration and Governance Professor and an NRF-rated researcher. She holds the NRF/Research Chair in Sustainable Rural Livelihoods at the University of KwaZulu-Natal's School of Management, IT and Governance, where she previously served as Dean and Head of School. Before that, Prof Mubangizi was the Dean of Teaching and Learning in the College of Law and Management Studies. With over 20 years of experience in a university environment, Prof Betty Mubangizi has a passion for excellence in teaching, underscored by reflective practice and an understanding of the needs of students from various backgrounds. She has published widely on issues of sustainable livelihoods and public governance; has successfully supervised senior students and is an external examiner for several universities. Professor Betty Mubangizi is the Managing Editor of the African Journal of Governance and Development.

25. Energy market, quality of life, and sustainable development: The EU consumers' perspective

Prof. Dr. Călin Vegheș, Dr. Andreea Strâmbu-Dima, Dr. Laurențiu Stoenică

ABSTRACT:
Energy has become one of the core aspects of the daily life of EU consumers given the current marketing macroenvironment. The accelerated transition to green energy production and consumption has immediately impacted the quality of their daily lives with direct consequences in terms of the costs and comfort of their living. Increased energy expenditures and decreased home temperatures led to a mix of reactions under the forms of migrating between the suppliers, switching to green energy sources, or simply saving money by switching off lights and turning off heating. Three years have been enough to observe the emergence of an energy matter expressed by an imbalance between the macro and microeconomic perspectives regarding the subject with economic, social, and environmental consequences for all the stakeholders.
The paper presents the results of an investigation conducted using secondary data and from a market-oriented perspective on consumers' behavior regarding energy consumption, aiming to identify a path towards an organic transition balancing traditional and green energy sources to ensure the quality of life and support the sustainable development of the EU countries.

Keywords: Energy market, Green transition, EU consumers, Quality of life, Sustainable development

Dr. 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 the 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) having as strong passions history, cultural tourism and football (as a devoted fan of UTA Arad).

Dr. Andreea Strâmbu-Dima teaches Cultural Marketing at Bucharest University of Economic Studies, while managing a small company and volunteering in two non-profit organizations. She conducted several studies regarding sustainable development, cultural products etc. and disseminated the results in scientific papers, case studies and consultancy for non-profits. In her opinion, social change is created by each of us, therefore she is trying to inspire marketing students to get involved in the development and promotion of cultural products, which could lead them to an unexpected career path and will eventually contribute to the development of a sustainable economy and to the wellbeing of the society.

Dr. Laurențiu Stoenică is a member of WEA (World Economics Association) and EMAC (European Marketing Academy). His current research interests center around services marketing, marketing research, markets' evolution, cultural consumption, educational marketing, consumer satisfaction, and obtaining relevant information on overall sustainable and sustainable community development. Dissemination of the results of the research supports building the ties between academic membership, and, more importantly, junior and early-stage researchers, and doctoral students, enhancing research capabilities.

26. Psychosocial Impact of the COVID-19 Crisis on Frontline Social Care Workers in Romania: Preliminary Findings

Carmen Elisa Goraș PhDc

ABSTRACT:
The COVID-19 pandemic exposed deep structural vulnerabilities in public systems and significantly impacted essential workers, including social care workers, who often remain overlooked in disaster response policies. This study investigates the psychosocial impact of the pandemic on frontline social care workers in Bucharest, Romania – a population frequently engaged in crisis response (e.g., pandemic, floods, refugee assistance) yet rarely analyzed in disaster sociology. Using a sequential mixed-methods design, the study combines quantitative assessment with qualitative interviews. The quantitative component employs a Romanian-validated version of the Professional Quality of Life Scale (ProQOL), tested on a national sample of 296 Romanian social service workers as part of the Erasmus+ CARES project. Preliminary findings highlight significant levels of burnout and secondary traumatic stress, coupled with a perceived lack of organizational support. The qualitative component, currently underway, aims to explore coping mechanisms, institutional support gaps, and the long-term implications of sustained crisis exposure on professional well-being.

By addressing an understudied dimension of disaster response – the psychosocial toll on social care workers – this research provides data- driven recommendations for improving resilience, training, and organizational policy in social services. It contributes to the broader understanding of sustainable social protection systems in the face of complex emergencies.

Keywords: Social care, psychosocial resilience, disasters, ProQOL, Romania

Carmen Elisa Goraş is a PhD candidate in Sociology at the University of Bucharest and an associate lecturer at the Faculty of Sociology and Social Work, where she has been teaching since 2020. With over two decades of professional experience in social work, disaster response, and policy advocacy, she is actively engaged in EU-funded projects (Erasmus+, CERV, POCA) addressing social sustainability and occupational well-being. Her doctoral research focuses on the psychosocial impact of crises on frontline social care workers in Romania, using a mixed-methods approach. She also served as Director of the Red Cross – Sector4, coordinating COVID-19 and refugee response efforts.

27. Flexible and Sustainable Bread Production in SMEs: A Metaheuristic Scheduling Approach

Dr Cecilia E. Nugraheni, Luciana Abednego, Dr. Maria Widyarini.

ABSTRACT:

Small and medium-sized bakery enterprises (SMEs) often face inefficiencies due to manual scheduling and limited automation. These challenges are most evident in coordinating multiple interdependent production stages such as fermentation, proofing, and baking. A common problem is suboptimal oven usage—long idle periods between batches lead to excessive energy consumption and environmental burden. This proposal introduces an intelligent scheduling approach that combines agent-based modeling with metaheuristic optimization. Bakery production is modeled as a no-wait flexible flow process, and the system applies bio-inspired algorithms—specifically, the Whale Optimization Algorithm (WOA) and Firefly Algorithm (FA)—to generate optimized daily schedules. The approach adapts to real-world operational constraints, enabling dynamic scheduling across diverse bread types with differing production times, such as sourdough and brioche. Simulation experiments based on realistic bakery production scenarios show that the proposed scheduling approach can shorten total production time and reduce oven idle periods. The system supports both productivity and environmental sustainability by enabling SMEs to better manage time in energy-intensive stages of production, such as baking. This research contributes to the UN Sustainable Development Goals—particularly SDG 9 (Industry, Innovation and Infrastructure) and SDG 12 (Responsible Consumption and Production)— by proposing an accessible digital approach to support SME transformation toward smarter and greener food manufacturing.

Keywords: Metaheuristic Optimization, Agent-Based Scheduling, Bakery Production, Sustainable Manufacturing, SME Production Efficiency

Dr.rer.nat. Cecilia E. Nugraheni is a lecturer at the Department of Informatics, Parahyangan Catholic University, Bandung, Indonesia. She holds a Ph.D. in Informatics from Ludwig Maximilians Universität, Munich, Germany. Her research interests include formal methods, intelligent systems, machine learning, metaheuristic, and hyperheuristic techniques. She is affiliated with the Center for Data Science and Artificial Intelligence Systems at Parahyangan Catholic University. She has conducted several research projects on production scheduling optimization using metaheuristic approaches across various domains, including bakery operations, garment manufacturing, and warehouse systems. Her current work focuses on supporting digital transformation and sustainability in small and medium-sized enterprises (SMEs) through intelligent scheduling solutions.

Luciana Abednego, S.T., M.T. is a lecturer at the Department of Informatics, Parahyangan Catholic University, Bandung, Indonesia. Her research interests include machine learning, intelligent systems, and financial data analysis. She is also affiliated with the Center for Data Science and Artificial Intelligence Systems at Parahyangan Catholic University, where she contributes to interdisciplinary research.She has conducted several research projects on production scheduling optimization using metaheuristic approaches across various domains, including bakery operations, garment manufacturing, and warehouse systems. In addition to her work on production

scheduling using metaheuristic methods, she has also conducted research on predictive modeling for foreign exchange (forex) markets using machine learning techniques.

Dr. Maria Widyarini is a faculty member at the Department of Business Administration, Parahyangan Catholic University, Bandung, Indonesia. She earned her Ph.D. from the School of Business and Management, Institut Teknologi Bandung. Her academic interests focus on microfinance, SME development, and inclusive entrepreneurship. She previously served as Director of the Center of Excellence – Small Medium Enterprise and Development (COE SMED) and Head of the Business Administration and MBA Programs at Universitas Katolik Parahyangan from 2018 to 2022. Dr. Widyarini actively engages in research, training, and community-based initiatives aimed at empowering local SMEs through financial literacy, access to microcredit, and strategic business support for sustainable growth.

28. Enhancing Urban Resilience through Real-Time Social Media Analytics and Decision Support Tools: The C2IMPRESS Approach

Cenk Güreken, Dr. Ayça Uysal Üner

ABSTRACT:
This study proposes a practice-based framework for integrating social media analytics and decision support tools (DSTs) into urban disaster management and smart governance systems. Drawing from theoretical insights on socio-technical systems and recent advances in crisis informatics, the work presents two interconnected platforms developed within the Horizon Europe-funded C2IMPRESS project. The first is a social media analytics platform, designed to classify, cluster, and interpret citizen-generated disaster-related content across platforms like Twitter, TikTok, Instagram, YouTube, and GDELT, by applying natural language processing techniques such as dynamic topic modelling and sentiment analysis. The second is a Decision Support Tool (DST) tailored for policy-makers and emergency responders, built on a BPM-based architecture (Camunda engine) and enhanced with dashboards to visualize big data patterns and support evidence-based decisions.Initial technical validation suggests strong potential for enhancing real-time situational awareness, filtering misinformation, and co-creating emergency workflows. The system captures public response signals for timely and adaptive decision-making. The framework provides methodological value for future DST designs and demonstrates a scalable approach for integrating citizen intelligence into local disaster planning and urban resilience strategies.

Keywords: Disaster management, social media analytics, decision support tools, machine learning, crisis communication, urban resilience

Cenk Güreken holds a Bachelor's degree in City and Regional Planning from Izmir Institute of Technology, where he graduated with honours, ranking first in his department. He is currently working as the European Projects Team Leader at SAMPAS Holding, Turkey's leading and most awarded smart city solutions provider. His professional focus is on the coordination of EU-funded smart city projects under Horizon Europe and H2020 frameworks. He is also actively involved in proposal development, international networking, and consortium building. His project portfolio includes the coordination of Horizon 2020 projects focusing on disaster management, urban resilience, urban agriculture, smart city tools development and environmentally friendly zero carbon solutions. His interests include smart and resilient urban transformation, data-driven urban planning, and digital technologies for sustainable cities.

Ayça Uysal Üner holds a Ph.D. in City and Regional Planning from Dokuz Eylül University. She has been working as an EU Project Specialist at Sampaş Holding. Her research interests include walkability, planning and design in historical areas, spatial statistics, housing policies, urbanization, and the transformation of residential areas.

29. Reconceptualizing "sustainable development" centering scalability and planetary limits

Dr. Chirag Dhara, Dr. Soumyajit Bhar

ABSTRACT:
The HDI positions Global North countries as development benchmarks, overlooking their high environmental footprints. This poses a dilemma: global adoption of Northern lifestyles risks surpassing planetary biophysical limits, while non-adoption risks perpetuating inequality. The Planetary Pressures adjusted-HDI (PHDI) from UNDP's 2020 Report aimed to incorporate environmental pressures into the assessment of human development. However, countries ranking highest on the PHDI also exhibit considerable environmental footprints, limiting the PHDI's utility as a sustainability metric. Our study introduces a revised metric emphasizing "scalability" as a pivotal facet of sustainability. "Scalability" refers to the theoretical possibility of scaling a country's historical developmental trajectory to the entire global population without exceeding planetary biophysical limits rendered in absolute terms. This emphasis on historicity and absolute environmental performance distinguishes our approach from the PHDI. Our results highlight middle-income countries like Panama, Costa Rica, Sri Lanka, Peru, and Albania as having achieved the highest levels of scalable development, owing to their high social progress with low environmental costs. This signals that high levels of social development is achievable globally without overstepping planetary limits. However, this will require a major shift in the narrative on "sustainable development" to countries that exemplify scalability.

Keywords: Human development; sustainability; scalability; planetary boundaries

Dr. Chirag Dhara is an Assistant Professor of Environmental Studies at Krea University, India. He is a quantum physicist turned sustainability scientist with two doctorates: one in Earth System Science (2017) from the Max Planck Institute for Biogeochemistry, Germany, and the other in Photonics (2013) from the Institute of Photonic Sciences, Barcelona, Spain. Chirag's research interests span climate science and sustainable development. His work focuses on two broad areas: 1. enhancing global and Indian monsoon projections in response to changing aerosols, and 2. assessment of environmental performance centering equity and biophysical boundaries. He co-authored India's regional (WG1-style) climate change assessment report released by the Indian Institute of Tropical Meteorology, MoES, Pune in 2020. He was a contributing author to the IPCC AR6 WG1's Atlas (2021).

Dr. Soumyajit Bhar is an Assistant Professor at the School of Liberal Studies, BML Munjal University. He has completed his PhD in Sustainability Studies from Ashoka Trust for Research in Ecology and the Environment. His research interests include Ecological Economics, Socio-Psychological drivers of consumption patterns and understanding the process to implement sustainability transition in the context of the Global South. He worked as assistant professor at Krea University and taught courses across environmental studies, psychology, and economics. He has more than 15 years of academic and action research experience (both volunteering and full-time) working with various environmental and sustainability issues.

30. Data Poverty and its role in hindering Africa's achievement of the targets of the Sendai Framework for Disaster Risk Reduction

Prof. Christo Coetzee, Prof. Livuwani Nemakonde, Prof. Djillali Benouar, Dr. Wilfred Lunga, PW Bredenkamp

ABSTRACT:
Climate change and pre-existing socio-economic conditions continue to expose the inhabitants of Africa to increasingly severe disasters. In this context, most AU member states became signatories of the Sendai Framework for DRR in 2015. As signatories, AU member states should report on the impact of disasters according to various SFDRR targets. Accurate data is crucial as this informs disaster risk reduction programming and protects sustainable development gains. Through the application of semi-structured questionnaires, focus groups and case study analysis, major trends were observed from data provided by AU member states. Concerning observations that have emerged was that there is a great degree of data poverty relating to important SFDRR targets across the continent. Data poverty was found to be caused by poor data collection practices, lacking data management hardware and processes, limited data sharing, disparate data collection methodologies and a reluctance to engage with international data sources. Just like other forms of poverty faced by the continent, data poverty is contributing to the continent's limited achievement of the various SFDRR goals. Greater investment in ICT infrastructure, human resources and multi-stakeholder coordination is needed for the continent to address data poverty and take greater strides to the achievement of the SFDRR goals by 2030.

Keywords: Data Poverty, SFDRR Targets, AU Member States, Sustainable Development

Prof. Christo Coetzee is a lecturer and researcher with over 15 years of academic and practical experience in the field of disaster risk management and disaster resilience. His core teaching duties include teaching Urban Disaster Risk modules at graduate and postgraduate levels. His research focuses primarily on topics of disaster resilience, disaster risk governance, urban disaster risk and complex adaptive systems theory.

Prof. Livhuwani Nemakonde is an Associate Professor in the School of Geo- and Spatial Sciences at North-West University in the Republic of South Africa. Prof. Nemakonde has been working in disaster risk reduction as an academic and a researcher since 2015. He holds a PhD in Public Management and Development from North-West University. Prof. Nemakonde's research interests include disaster risk governance, indigenous knowledge systems, climate change adaptation, systems thinking and building community resilience.

Prof. Djillali Benouar is a professor of Earthquake Engineering and Disaster Risk Management at the Faculty of Civil Engineering and Director of Research at the Faculty of Civil Engineering at USTHB. He was a member of the Integrated Research on Disaster Risk (IRDR) Science Committee, member of the Algerian Hazards Network (AHNet) and coordinator of the Periperi U (Partners Enhancing Resilience to People Exposed to Risks), an african consortium, composed of 12 African universities, which is an International Center of Excellence (ICoE) of the IRDR programme. His research interests include construction and building technology, engineering, ecology and urban risk studies.

Dr Wilfred Lunga is a senior research consultant with the African Centre for Disasters Studies (NWU). He holds a PhD in development and management with disaster risk reduction, a Master of Science in development studies. His research interests include disaster risk, vulnerability reduction, climate

change, indigenous knowledge, community operational research, climate change, resilience strengthening including social science, environmental science, cooperative development, as well as rural livelihood and basic social service provision and access, socioeconomic impact assessments, and monitoring and evaluation.

Mr. Pieter-Wernich (PW) Bredenkamp is a junior research associate with the African Centre for disaster studies (NWU). Mr. Bredenkamp is currently completing a PhD n Science with Disaster Risk Science. His research interest includes systems theory, disaster risk reduction, disaster resilience and data management

31. Application of the Precede-Proceed Model: A Glimpse into Student-Led Community Health Program in Malaysia

Dr. Dalila Roslan, Dr. Meram Azzani, Dr. Zahir Izuan Azhar, Dr. Aimi Nadira Mat Ruzlin, Assoc. Prof. Xin Wee Chen, Dr. Nik Nairan Abdullah, Assoc. Prof. Ahmad Taufik Jamil, Dr. Mohamad Ikhsan Selamat

ABSTRACT:
Empowering the community through health promotion programs is an integral part of undergraduate medical students' training in Malaysia. Medical students' engagement with the community aligns with efforts to achieve Sustainable Development Goal 2 (Education) and SDG 3 (Health). The Precede-Proceed Model is a comprehensive framework for planning and evaluating health programs. This article showcases the application of this framework in a program conducted by medical students from Universiti Teknologi MARA in Sabak Bernam, Malaysia. Within four weeks, students, guided by lecturers, designed a health promotion program that includes community profiling, health survey, health education materials, media outreach and health talks culminating in a health carnival day. Through community profiling and health surveys under the 'Precede' component, students identified health needs unique to the community, tailoring to elderly residents with non- communicable diseases. The theme "Holistic Health: Healthy Family, Peaceful Community "conveys that individual health contributes to the vitality of the entire community. The 'Proceed' component enables students to conduct evaluations at the process, impact and outcome level. The evaluation process is often overlooked; hence, with the use of this framework, students can be aided in conducting comprehensive future public health programs in support of the SDGs 2 and 3.

Keywords: Student-led, community empowerment, health promotion programs, Precede-Proceed Model.

Dr. Dalila Roslan is a Public Health Medicine Specialist and Medical Lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM), Malaysia. Her expertise is on family health, focusing on children, adolescents, the elderly and reproductive health education. She brings valuable experiences from her previous role in the Global Health sector of the Ministry of Health Malaysia and as an epidemiology officer at the district health level. She actively engages in health-based community programs, collaborating with the university and various NGOs. Currently, Dr Dalila is dedicated to educating and mentoring future doctors and public health specialists while embracing her role as a full-time mother of five.

Dr. Meram Azzani is a senior lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM), Malaysia. Her research focuses on disadvantaged populations, financial toxicity, health economics, and prevalence studies, reflecting her commitment to addressing health inequities through evidence-based approaches. Through her teaching, research, and professional service, Dr. Meram continues to contribute meaningfully to the advancement of public health scholarship and practice.

Dr Zahir Izuan is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia.

Dr Aimi Nadira is a senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia.

Associate Professor Xin Wee Chen is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia.

Dr Nik Nairan Abdullah is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia.

Associate Professor Ahmad Taufik Jamil is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia. Affiliated Organization : Universiti Teknologi MARA (UiTM), Selangor, Malaysia.

Dr Mohamad Ikhsan Selamat is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia. Affiliated Organization : Universiti Teknologi MARA (UiTM), Selangor, Malaysia.

32. When Being Men Matters: Exploring Health Literacy Determinants in a Rural Community, Malaysia

Dr. Dalila Roslan, Dr. Meram Azzani, Dr. Zahir Izuan Azhar, Dr. Aimi Nadira Mat Ruzlin, Assoc. Prof. Xin Wee Chen, Dr. Nik Nairan Abdullah, Assoc. Prof. Ahmad Taufik Jamil, Dr. Mohamad Ikhsan Selamat

ABSTRACT:
Health promotion programs are widely conducted in rural communities to improve health outcomes. Hence, understanding the health literacy (HL) of a community is crucial in planning purposeful health promotion programs. However, HL data on the rural setting in Malaysia is scarcely known. This study aimed to determine the prevalence and determinants of HL among adults living in the district of Sabak Bernam, Malaysia. 382 villagers participated in this cross-sectional study by answering questionnaires. Most of the villagers had adequate HL, with 14.1% having limited HL. Results show that the elderly, males, and those with non-communicable disease (NCD) comorbidities were significantly associated with limited HL. Whereas being employed and non-Malay residents were protective determinants. Male was a predictor of having limited HL in this research. These findings highlight the importance of tailored health promotion programs focusing on vulnerable groups, including elderly men with NCD. Public health activities in rural communities should consider demographic, cultural and educational status when developing health education materials and interventions. Improved health interventions, curated to address these identified determinants, are the stepping stone towards bridging health literacy disparities in alignment with other efforts to achieve Sustainable Development Goals (SDGs) 3-5 and 10.
(197 words)

Keywords: Health literacy, rural, elderly, men, health promotion, community, non-communicable disease.

Dr. Dalila Roslan is a Public Health Medicine Specialist and Medical Lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM), Malaysia. Her expertise is on family health, focusing on children, adolescents, the elderly and reproductive health education. She brings valuable experiences from her previous role in the Global Health sector of the Ministry of Health Malaysia and as an epidemiology officer at the district health level. She actively engages in health-based community programs, collaborating with the university and various NGOs. Currently, Dr Dalila is dedicated to educating and mentoring future doctors and public health specialists while embracing her role as a full-time mother of five.

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Dr Zahir Izuan is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia.

Dr Aimi Nadira is a senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia.

Associate Professor Xin Wee Chen is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia.

Dr Nik Nairan Abdullah is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia.

Associate Professor Ahmad Taufik Jamil is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia. Affiliated Organization : Universiti Teknologi MARA (UiTM), Selangor, Malaysia.

Dr Mohamad Ikhsan Selamat is a Public Health Medicine Specialist and senior medical lecturer at the Department of Public Health Medicine, Faculty of Medicine, Universiti Teknologi MARA (UiTM) Malaysia. Affiliated Organization : Universiti Teknologi MARA (UiTM), Selangor, Malaysia.

33. Neuroticism and Artificial Intelligence Anxiety. The mediating role of Illusory Beliefs

Assoc. Prof. Dan Florin Stănescu,
Dr. Marius Constantin Romașcanu

ABSTRACT:
This study investigates the influence of Neuroticism on AI anxiety and examines the mediating role of Illusory Beliefs in this relationship. As AI technologies rapidly evolve and become increasingly embedded in workplaces, education, and everyday decision-making, addressing AI anxiety is essential for fostering technological adaptation and mitigating unwarranted fears. A total of 197 participants (32 males and 165 females) completed surveys assessing their levels of Neuroticism, AI anxiety, and Illusory Beliefs. Data were collected via Google Forms using structured questionnaires, including the Neuroticism Scale, the Artificial Intelligence Anxiety Scale (AIA), and the Illusory Beliefs Inventory (IBI). The results revealed significant positive correlations between Neuroticism and AI anxiety ($r = .301$, $p < .01$), Illusory Beliefs and AI anxiety ($r = .331$, $p < .01$), and Neuroticism and Illusory Beliefs ($r = .309$, $p < .01$). These findings suggest that individuals with higher levels of Neuroticism are more prone to experiencing AI anxiety, likely influenced by their tendency toward Illusory Beliefs. Furthermore, Illusory Beliefs emerged as a strong mediator in the relationship between Neuroticism and AI anxiety. Understanding the role of Neuroticism and Illusory Beliefs in shaping attitudes toward AI, particularly AI anxiety, can inform the development of targeted strategies to mitigate these concerns and foster a more balanced perception of AI.

Keywords: Neuroticism, Artificial Intelligence, Anxiety, Illusory Beliefs, mediation

Dan Florin Stănescu, Ph.D., National University of Political Studies and Public Administration – associate professor at the Faculty of Communication and Public Relations and coordinator of the Social Cognition & Communication of Emotions Laboratory of the National School of Political and Administrative Studies, Bucharest. Ph.D. in psychology at Hamburg University since 2006, Dan currently teaches "Strategic Management of Human Resources. Organizational Change", "Occupational health" and "Organizational counseling" courses within different Master programs. His research interests are primarily focused on areas such as human resources development, emotions study, organizational psychology, lifelong learning, and clinical psychology.

Marius Constantin Romaşcanu Ph.D., National University of Political Studies and Public Administration - is a senior lecturer in Communication and Public Relations, at the National University of Political Studies and Public Administration, Bucharest, Romania. His specific interests are primarily focused on interpersonal communication, public speaking, human resources, and adult training. In the last 18 years, he has been involved in different types of training activities for both private and public organizations.

34. Energy management gamification as an educational resource for social justice and global cooperation

Prof. Daniel Campos, Dr. Xavier Alvarez

ABSTRACT:
The energy sector accounts for 80% of the anthropogenic greenhouse emissions, yet most citizens still struggle to understand the general advantages, disadvantages and limitations of the different solutions and technologies proposed to mitigate the problem (renewable energies, green hydrogen, degrowth, …). In this contribution I will present an educational toolkit that is being developed as a part of the innovation project EUR2J (see https://eur2j.cat/recursos/the-game/) in order to train young students and citizens in the questions and challenges related to energy management and the energy transition. Such tools allow participants to play the role of policymakers trying to manage the energy resources of a particular region in order to get a low-carbon emission energy system. In particular, I will show specific ways (adapted to different educational stages/levels) to communicate how optimal solutions to the energy transition problem (i) are different from one country/region to another as a result of their particular demographic, geographical, geological… situation, and (ii) require from the international cooperation between the different world regions. This becomes then an effective way to introduce in the classroom practical and relevant discussions about global sustainability, social justice between regions, or geopolitical conflicts, among others.

Keywords: Global warming, energy transition, gamification, challenge-based Learning

Dr. Daniel Campos He is a Full professor at the Physics Department in the Universitat Autonoma de Barcelona (UAB). His main interests are in the application of statistical physics and stochastic models to different problems in ecology and biology, and (ii) scientific divulgation of concepts related to the energy transition. He has over 80 publications in peer-reviewed journals and a book published in the prestigious Springer Series in Synergetics. Additionally, he has given around 25 oral presentations in International conferences, meetings and courses. He has also collaborated as a reviewer for 17 scientific journals. As a result of this activity, in 2020 I was distinguished as an "Outstanding Referee" by the American Physical Society, and I am currently part of the Editorial Board of Physical Review E.

Dr. Xavier Alvarez He is associate professor at the Physics Department in the Universitat Autonoma de Barcelona (UAB). His main interests are in (i) nanothermal transport and materials, and (ii) scientific divulgation of concepts related to the energy transition. He has over 50 publications in peer-reviewed journals and has given/organized around 25 oral presentations in International conferences, meetings and courses. He has also collaborated as a reviewer for 14 scientific journals.

35. Social Rehabilitation, Reintegration of Substance abusers and Sustainable Development Goals: Assessing attitudes of college students of Delhi NCR, India

Prof. Upma Gautam, Dr. Priya Das, Dr. Vaishnavi Jaiswal, Dr. Ankita Mishra, Kanishka Verma, Kriti Marjara, Dr. Deeksha Bajpai Tewari

ABSTRACT:
Background: Effective and sustainable drug policy for youth in alignment with Sustainable Development Goal 3.5 encompasses two primary approaches: addressing the etiological factors and consequences of substance abuse and enhancing the health outcomes of young substance users while expanding rehabilitation opportunities. Aims and objective: Effective social reintegration of young substance abusers requires understanding stigma among peers regarding the possibility and effectiveness of rehabilitation. Methods: A self-designed questionnaire containing 28 Questions was administered to 453 (n=453) college students in Delhi NCR. Of the total 453 respondents, 281 (62.03 percent) were male and 172 (37.97 percent) female students. Results: The mean attitude score for the substance abuse and abuser subscale was 28.84 (min = 20, max = 34). The mean score for the impropriety of substance abuse subscale was 60.13 (min = 18, max = 80). The mean score for the legal and policy response subscale was 22.69 (min = 9, max = 33). The mean score for the rehabilitation and reintegration subscale was 106.03 (min = 66, max = 142). More male respondents (75.44%) than female respondents (69.18%) believed substance abuse is a habit, not a disorder. Conclusion: Out of all social-demographic factors, none significantly impacted the average attitude score on substance abuse and the abuser. However, average attitude scores on the impropriety of substance abuse subscale varied significantly across the course and year of study categories. Average attitude scores on the rehabilitation and reintegration subscale varied significantly across the gender and categories of respondents with drug users among their known groups. An integrated cohesive approach where various stakeholders' contributions are mutually reinforcing and holistic in addressing the social issue of substance abuse among college students needs to be adopted.

Keywords: Rehabilitation, Social Reintegration, Institutional Interventions, College Students, Substance Abuse.

Dr. Upma Gautam is a Professor of Law at the University School of Law & Legal Studies, Guru Gobind Singh Indraprastha University, Delhi, India. Over the span of her extensive teaching career of more than 20 years, Dr. Gautam has been a visiting guest faculty at distinguished institutes of the country such as Indian Law Institute, National Institute of Criminology and Forensic Sciences amongst others and has undertaken various training modules for officers of Central Bureau of Investigation, Union Territory Civil Services. She has also been working on various research projects sponsored by national agencies such as Ministry of Law & Justice and ICSSR. Her articles, comments and contributions have been published in the acclaimed law journals of national and international repute, various edited books and the national daily 'The Indian Express'. The areas of interest include but not limited to criminal law, criminal procedural laws, criminology, victimology and penology.

Dr. Priya Das is an Assistant Professor at Symbiosis Law School, Noida (a unit of Symbiosis International University). Her area of interest includes criminal law, constitutional law, criminal process, victimology and population studies. Her work has been published in reputed journals, news editorial and book chapter.

Vaishnavi Jaiswal, is PhD Research Scholar at University School of Law and Legal Studies, Guru Gobind Singh Indraprastha University, New Delhi. She has Masters in Law from Lucknow University, Uttar Pradesh. Her area of interest is Criminal law, Criminology and Victimology. She wants to further her research pursuits by working on projects that would address critical legal issues and help formulate legal policies suitable with contemporary legal standards.

Ankita Mishra, is PhD Research Scholar at University School of Law and Legal Studies, Guru Gobind Singh Indraprastha University, New Delhi. She has Masters in Law with specialisation in Access to Justice from Tata Institute of Social Sciences, Mumbai. Her area of interest is Criminal law, Criminology and Victimology. She wants to further her research pursuits by working on projects that would address critical legal issues and help formulate legal policies suitable with contemporary legal standards.

Ms. Kanishka Verma is a Junior Research Fellow pursuing her doctoral research from the Department of Geography, University of Delhi. Her curiosity and excitement to learn and unearth the existing spaces and its dynamics drives her quest of research. As an aspiring urban geographer, she has been involved with various research projects sponsored by agencies such as Ministry of Justice and ICSSR.

Ms. Kriti Marjara holds a post graduate in geography from Delhi School of Economics. She is currently placed with the University of Delhi as a Research Assistant. She has a diverse experience of working on research projects funded by national agencies like ICSSR on issues of safe urban spaces, women's safety and adolescent substance abuse. Her research interests lie at the intersection of urban studies, gender, and geography, with a focus on understanding the spatial dynamics that shape diverse social experiences. Kriti is passionate about and aspires to have her academic work translate into actionable policy, with an aim to find effective solutions to real-world challenges at the grassroots level.

Dr. Deeksha Bajpai Tewari is an Associate Professor associated with Department of Geography, Dyal Singh College, University of Delhi, India. Her area of interest includes but not limited to population studies, human geography, intersections of law and geography and gender and geography. A Geographer by profession, her articles, comments and contributions have been published in the acclaimed high impact factor journals of national and international repute, various edited books as well as the national daily 'The Indian Express'. She has also been working on various research projects sponsored by national agencies such as Ministry of Law & Justice and ICSSR.

36. Women in Public Spaces: Lived Experiences through a Safety Audit Approach

Prof. Upma Gautam, Dr. Deeksha Bajpai Tewari, Kanishka Verma, Kriti Marjara, Sanjeev Kumar, Dr. Priya Das

ABSTRACT:
Background: Rapid 21st-century urbanization has spurred city growth and socio-economic development, offering diverse opportunities. However, cities remain paradoxical, promising better lives while excluding many. Urban experiences, shaped by social identities, result in complex, unequal spatial dynamics, with gender significantly influencing these. Women often perceive urban spaces differently than men, facing conditional access and heightened public vulnerability. A 2021 NCRB report revealed Delhi's lead in crimes against women among Indian cities, with a 40% increase from 2020 to 2021.
Data Methods, Materials and Methodology: This study evaluates women's safety and access to public spaces in Delhi, aligning with SDG goals. Safety audits and structured questionnaires were employed in 10 locations with higher walkability and visibility, examining both objective and subjective factors. The study emphasizes that cities are not inherently designed for women's safety; instead, women 'create' their own spaces, termed "HerSpaces," through constant negotiations in their daily lives. Furthermore, the three A's—accessibility, affordability, and accountability—widen the gap between existing city spaces, their design, and actual usage by women.
Findings: This unequal and highly differentiated access, resulting from and in turn leading to the marginalisation of women, presents itself as a multi – faceted challenge exacerbated by institutional inefficiency, among other things, serving as obstacles in the way of transforming Delhi into a city for everyone - safe and inclusive in every sense of the words.

Keywords: Urban Safe Spaces, Women, Safety Audit, Marginalization, Access.

Dr. Upma Gautam is a Professor of Law at the University School of Law & Legal Studies, Guru Gobind Singh Indraprastha University, Delhi, India. Over the span of her extensive teaching career of more than 20 years, Dr. Gautam has been a visiting guest faculty at distinguished institutes of the country such as Indian Law Institute, National Institute of Criminology and Forensic Sciences amongst others and has undertaken various training modules for officers of Central Bureau of Investigation, Union Territory Civil Services. She has also been working on various research projects sponsored by national agencies such as Ministry of Law & Justice and ICSSR. Her articles, comments and contributions have been published in the acclaimed law journals of national and international repute, various edited books and the national daily 'The Indian Express'. The areas of interest include but not limited to criminal law, criminal procedural laws, criminology, victimology and penology.

Dr. Deeksha Bajpai Tewari is an Associate Professor associated with Department of Geography, Dyal Singh College, University of Delhi, India. Her area of interest includes but not limited to population studies, human geography, intersections of law and geography and gender and geography. A Geographer by profession, her articles, comments and contributions have been published in the acclaimed high impact factor journals of national and international repute, various edited books as

well as the national daily 'The Indian Express'. She has also been working on various research projects sponsored by national agencies such as Ministry of Law & Justice and ICSSR

Ms. Kanishka Verma is a Junior Research Fellow pursuing her doctoral research from the Department of Geography, University of Delhi. Her curiosity and excitement to learn and unearth the existing spaces and its dynamics drives her quest of research. As an aspiring urban geographer, she has been involved with various research projects sponsored by agencies such as Ministry of Justice and ICSSR.

Ms. Kriti Marjara holds a post graduate in geography from Delhi School of Economics. She is currently placed with the University of Delhi as a Research Assistant. She has a diverse experience of working on research projects funded by national agencies like ICSSR on issues of safe urban spaces, women's safety and adolescent substance abuse. Her research interests lie at the intersection of urban studies, gender, and geography, with a focus on understanding the spatial dynamics that shape diverse social experiences. Kriti is passionate about and aspires to have her academic work translate into actionable policy, with an aim to find effective solutions to real-world challenges at the grassroots level.

Sanjeev Kumar is a researcher with experience in projects affiliated with organisations like ICSSR and Ministry of Law and Justice, where he served as a research intern and field investigator. He demonstrates a strong foundation in remote sensing and GIS, showcasing his ability to apply these technologies in practical research settings.

Dr. Priya Das is an Assistant Professor at Symbiosis Law School, Noida (a unit of Symbiosis International University). Her area of interest includes criminal law, constitutional law, criminal process, victimology and population studies. Her work has been published in reputed journals, news editorial and book chapter.

37. 'CREATE'-ing Educator Capacity: Online Learning Modules for Climate and Energy Literacy

Dr. Divya C. Senan, Prof. Marcus Grace, Prof. Susan E. Powers, Dr. Jan DeWaters, Prof. Shaji Erath, Prof. Asha J.V., Dr. Reshma John Kuleenan, Dr. Annie Feba Varghese, Ms. Jijitha Gilton

ABSTRACT:
Amidst increasing environmental challenges, enhancing energy and climate literacy among educators has emerged as a global necessity. The CREATE (Climate Science Research, Energy Education and Training for Ecological Sustainability) project, launched under the SPARC initiative, fulfils this requirement by developing and providing innovative online learning modules to empower teacher educators, pre-service teachers, and academic professionals in India. This paper outlines the pedagogical design, execution, and initial effect evaluation of the online modules created through international collaboration with the University of Southampton (UK) and Clarkson University (USA). The modules, rooted in multidisciplinary place-based pedagogies and Indian Knowledge System, amalgamate climate science, energy education, and sustainability principles, prioritizing socio-scientific decision-making. Initial results from training programs and participant feedback suggest improved pedagogical content knowledge, heightened confidence in incorporating energy and sustainability themes into classroom practices, and a transition towards inquiry-based, contextually relevant teaching methodologies. The research examines the scalability and adaptation of these modules in various educational contexts, asserting their efficacy as instruments in globally initiatives to enhance educator capacity for sustainable development education.

Keywords: Online Learning Modules, Climate Science Education, Energy Literacy, Teacher Training, Sustainability Education

Dr. Divya C. Senan is Associate Professor of Education and Director of Centre for Learning Engineering & Sustainability Education, University of Kerala, India. She leads the CREATE project, a tri-country collaborative project where University of Kerala join hands with University of Southampton, UK and Clarkson University, USA for developing online learning modules on climate and energy literacy for 'Training the Trainers'.

Prof. Marcus is currently Emeritus Professor, University of Southampton, UK. He was Director of the Life Lab hospital-based classroom in Southampton, Chair of the European Researchers in Didactics of Biology (ERIDOB) Academic Committee, Associate Editor of the Journal of Biological Education, and Chair of the Royal Society of Biology's CSciTeach Review Panel.

Prof. Susan is the Professor / Director, ISE; Spence Professor of Sustainable Environmental Systems, Institute for a Sustainable Environment Clarkson University, Potsdam NY, USA. Dr. Powers serves as Clarkson's campus sustainability leader. Dr. Powers has received funding from NASA and the US-India international education fund for climate related education and outreach.

Dr. Jan is the Associate Professor, Wallace H. Coulter School of Engineering, Clarkson University, Potsdam, USA. Developed a variety of project-based curricula focused on environmental/energy/climate themes, and designed associated learning assessment strategies, for middle/high school students. She has developed questionnaires to measure Energy Literacy and Climate Literacy.

Prof. Shaji Erath is Professor of Geology, University of Kerala, Thiruvananthapuram, India.
Prof. Asha J.V. is Professor of Education, Mahatma Gandhi University, Kottayam, Kerala, India.
Dr. Reshma is the Associate Professor of Environmental Sciences All Saint's College, Thiruvananthapuram, Kerala, India.
Dr. Annie Feba Varghese is post-doctoral scholar and SPARC fellow, University of Kerala.
Jijitha Gilton is doctoral scholar and SPARC fellow, University of Kerala

38. Environmental Impact of ESG Investments: Addressing the lack of cross-industry Calibration in current ESG-Ratings

Assoc. Prof. Dr. Michael Hedegaard, Anna Maria Bracio, Dina Kusnezowa, Dr. Rodrigo Salvador

ABSTRACT:
Investment funds pursuing environmentally sustainable portfolios use ESG ratings as a basis for selection. However, environmental ratings are scored only relative to peers within the same industry creating an investor bias resulting in missed opportunities to invest in companies and portfolios with a higher potential for environmental impact. We develop an Environmental Delta Score (EDS) that recalibrates traditional ESG metrics by incorporating industry group (IG) weighting. This adds a layer of cross-industry consideration by assigning a larger weight to IGs that have a greater environmental impact and higher potential to improve this impact than IGs with a lower potential for improvement. Our theoretical framework is rooted in portfolio theory and the Capital Asset Pricing Model, which we combine with the Environmental score and magnitude weights of ESG categories for industries from Refinitiv's rating methodology. Tested on Danish investment funds, we show that portfolios can be optimized towards better environmental performance without compromising financial returns. However, the EDS has limited generalizability and application. Future research may expand the sample universe and develop new measures to refine its approach. Overall, we urge for more granular and transparent metrics to assess environmental impacts and rethink ESG practices in investment.

Keywords: ESG; absolute sustainability; investment funds; portfolio optimization; sustainable investment; Environmental Delta Score; Portfolio Theory

Michael Hedegaard is an Associate Professor and Head of Studies at the Technical University of Denmark (DTU). He has a long experience within business economics, international economics, investment and finance, and sustainable business. He authored books on business economics, investment, finance and globalization. His research is centered around sustainable business, Foreign Direct Investments, and how to turn technology into sustainable business – lately with a particular focus on Generative AI.

Anna Maria Bracio is a research assistant at the Technical University of Denmark with an M.A. in Leadership and Organization for Sustainability from Malmö University (Sweden). She works in the research section for Business Development at the Department of Engineering Technology and Didactics. There, her research is focused on socio-technical transitions, diffusion of innovations, sustainable business models and intermediaries in the context of energy transitions and climate change. Anna is currently in the process of securing funding for a PhD position.

Dina Kusnezowa is a Manager at Ramboll Mangement Consulting where she advises companies and financial market participants on sustainability strategies and implementing EU sustainability regulations and international standards. Prior to her current position, she worked for several years as an ESG analyst at the ESG rating agency ISS ESG assessing the environmental, social and governance risks of publicly listed companies and advising institutional investors on the use of ESG ratings and other ESG data. Ms. Kusnezowa has a M.Sc. in Business and Development Studies

from Copenhagen Business School (Denmark) and a B.Sc. in International Business and Economics from Maastricht University (Netherlands).

Dr. Rodrigo Salvador holds a Ph.D. (2021) in Industrial Engineering from the Federal University of Technology - Paraná (UTFPR) (Brazil). He is currently a tenure-track Assistant Professor at the Department of Engineering Technology and Didactics of the Technical University of Denmark (Denmark). His research and teaching cover the topics of Life Cycle Assessment, Planetary Boundaries, Circular (Bio)Economy, and Circular Business Models.

39. Circular Business Models for Composting Waste Seaweed: Potential, Barriers, and Enablers

Assoc. Prof. Dr. Martha Lynn Aulbaugh Eriksen, Assoc. Prof. Dr. Victor Lund, Assoc. Prof. Dr. Michael Hedegaard, Assoc. Prof. Dr. Niels Christian Kjærsgaard, Assoc. Prof. Dr. Torben Knudby, Dr. Rodrigo Salvador

ABSTRACT:
This paper examines potential circular business models for valorizing beach-cast seaweed through composting within coastal communities. Drawing from a systematic literature review of 78 peer-reviewed publications (2017-2024) examining aquatic and terrestrial biomass waste streams, we focus specifically on findings related to seaweed valorization through composting applications. We analyze the agricultural applications of seaweed-derived composts, identifying specific barriers and enablers across technological, ecological, financial, and regulatory dimensions. Our findings indicate that while seaweed composting faces implementation challenges including supply unpredictability, quality standardization issues, and regulatory constraints, these are counterbalanced by increasing external enablers such as rising fertilizer costs and growing policy support for circular economy initiatives. We propose four distinct business model archetypes—municipal service integration, cooperative biorefinery, public-private partnership, and distributed micro-enterprise—each suited to different contextual circumstances and stakeholder configurations. The analysis demonstrates that successful implementation requires coordinated interventions across technological development, supply chain design, regulatory reform, and value proposition development. This research contributes to the emerging literature on operationalizing circular bioeconomy principles through concrete business models that transform problematic waste streams into valuable agricultural inputs, while acknowledging the context-specific nature of implementation pathways.

Keywords: Circular Economy; Circular Bioeconomy; Seaweed; Composting; Business Models; Waste Valorization

Dr. Lynn Eriksen holds a Ph.D. (2012) in Marketing Management from Copenhagen Business School (CBS), Copenhagen, Denmark. She is a tenured Associate Professor at the Department of Engineering Technology and Didactics of the Technical University of Denmark (Denmark). She is part of the business development section and her research and teaching cover international marketing management, business science and technology management, and sustainable business development.

Associate Professor Michael Hedegaard Technical University of Denmark (DTU).

Associate Professor Victor Lund Technical University of Denmark (DTU).

Assoc. Prof. Niels Kjærsgaard Technical University of Denmark (DTU).

Assoc. Prof. Torben Knudby Technical University of Denmark (DTU).

Assistant Professor Rodrigo Salvador Technical University of Denmark (DTU).

40. From grass to biogas: benefits and challenges of a circular business model

Assoc. Prof. Dr. Michael Hedegaard, Assoc. Prof. Dr. Martha Lynn Aulbaugh Eriksen, Assoc. Prof. Dr. Niels Christian Kjærsgaard, Assoc. Prof. Dr. Torben Knudby, Assoc. Prof. Dr. Victor Lund, Dr. Rodrigo Salvador

ABSTRACT:
Utilizing waste biomass is a viable strategy to meet market demands while reducing reliance on virgin resources. This paper explores the benefits and challenges of using grass for biogas production, contributing to a circular bioeconomy. To achieve this, the paper outlines a potential business model for converting grass into biogas, addressing key requirements for (i) collection and logistics, (ii) the state of the biomass and necessary pre-treatment, (iii) scalability of supply and processing, and (iv) economic and environmental impacts of utilizing waste biomass for bioenergy. The benefits include reducing greenhouse gas emissions associated with fossil fuel consumption, repurposing an otherwise waste biomass, and creating local energy solutions. Cost savings emerge from reduced waste management expenses and the substitution of conventional energy sources with renewable biogas. However, challenges remain, including seasonal fluctuations in grass availability, variability in biomass quality, pre-treatment requirements for efficient processing, and the need for infrastructure investment. Overcoming these barriers may require policy incentives and financial support to enhance the feasibility of grass-based biogas production and establish it as a stable contributor to the renewable energy market

Keywords: Biogas Production, Waste Biomass Utilization, Circular Bioeconomy, Grass Feedstock, Renewable Energy

Michael Hedegaard is an Associate Professor and Head of Studies at the Technical University of Denmark (DTU). He has a long experience within business economics, international economics, investment and finance, and sustainable business. He authored books on business economics, investment, finance and globalization. His research is centered around sustainable business, Foreign Direct Investments, and how to turn technology into sustainable business – lately with a particular focus on Generative AI.

Dr. Rodrigo Salvador holds a Ph.D. (2021) in Industrial Engineering from the Federal University of Technology - Paraná (UTFPR) (Brazil). He is currently a tenure-track Assistant Professor at the Department of Engineering Technology and Didactics of the Technical University of Denmark (Denmark). His research and teaching cover the topics of Life Cycle Assessment, Planetary Boundaries, Circular (Bio)Economy, and Circular Business Models

41. Acoustic panels from waste eelgrass: benefits and challenges of a circular business model

Assoc. Prof. Dr. Niels Christian Kjaersgaard, Dr. Rodrigo Salvador, Assoc. Prof. Dr. Martha Lynn Aulbaugh Eriksen, Assoc. Prof. Dr. Michael Hedegaard, Assoc. Prof. Dr. Victor Lund, Assoc. Prof. Dr. Torben Knudby

ABSTRACT:
Innovative utilization of eelgrass from beach waste presents a promising opportunity for sustainable product development and production. In this paper, we aim to be as concrete as possible by conducting an in-depth investigation of a specific product: acoustic panels made from eelgrass. The objective of this research is to develop and evaluate circular business models for converting waste eelgrass into sustainable acoustic panels and to present the benefits and challenges associated with this application. The mapping includes establishing requirements for the condition of the biomass at the time of collection, the collection process, pretreatment, as well as the scalability of both collection and production. The benefits of using waste eelgrass to make acoustic panels include reduced greenhouse gas emissions and decreased resource utilization compared to conventional materials, supporting the circular economy by repurposing waste and offering potential cost savings. The product can be marketed to an attractive segment of green consumers who are willing to pay a premium for environmentally friendly products. Despite the potential benefits, several challenges must be addressed. Initial investments in technology and infrastructure can be substantial, the cost of harvesting and processing may vary, and seasonal availability could disrupt the supply chain.

Keywords: Circular Economy; Bioeconomy; Biomass Waste; Circular Business Model; Acoustic Panels; Build Environment

Niels Christian Kjaersgaard is Associate Professor at the Technical University of Denmark (DTU) and holds a Ph.D. in Operations Research (raw material optimization). He has a long experience within finance and investment, managerial economics and optimization of raw material utilization. Research covers areas such as raw material utilization, optimal levels of nitrogen (fertilizer) in the fields etc

Dr. Rodrigo Salvador holds a Ph.D. (2021) in Industrial Engineering from the Federal University of Technology - Paraná (UTFPR) (Brazil). He is currently a tenure-track Assistant Professor at the Department of Engineering Technology and Didactics of the Technical University of Denmark (Denmark). His research and teaching cover the topics of Life Cycle Assessment, Planetary Boundaries, Circular (Bio)Economy, and Circular Business Models

Dr. Lynn Eriksen is Associate Professor at the Technical University of Denmark (DTU)

Michael Hedegaard is Associate Professor at the Technical University of Denmark (DTU)

Victor Lund is Associate Professor at the Technical University of Denmark (DTU)

Torben Knudby holds a BSc. eng. (1983) in Manufacturing Management from the Technical University of Denmark (Denmark), and a MSc. in International Technology Management (2011) from Aalborg University (Denmark). After an international carrier in the private sector in different leading positions, he returned to academia in 2009, and is currently Associate Professor and Head of Studies at the Department of Engineering Technology and Didactics of the Technical University of Denmark (Denmark). His research and teaching cover the topics of Technology Implementation, Operations Management and Upscaling of Production.

42. Building elements from waste straw: benefits and challenges of a circular business model

Dr. Rodrigo Salvador, Assoc. Prof. Dr. Martha Lynn Aulbaugh Eriksen, Assoc. Prof. Dr. Niels Christian Kjærsgaard, Assoc. Prof. Dr. Michael Hedegaard, Assoc. Prof. Dr. Victor Lund, Assoc. Prof. Dr. Torben Knudby

ABSTRACT:
Making use of waste biomass is an alternative to meet market demands while narrowing the flows of virgin resources. The objective of this paper is to present the benefits and challenges to make use of straw, a biomass waste from agricultural practice, to make a building component, fostering a circular bioeconomy. To that end, a potential business model for making wall blocks from straw is mapped, including requirements for (i) collection processes, (ii) the state of the biomass and the need for pre-treatment, (iii) scalability of collection and treatment; (iv) economic and environmental benefits and challenges in relation to using waste biomass as feedstock. Benefits include emission savings related to the extraction and transportation of alternative virgin feedstock (also often not-bio-based), and the replacement of conventional construction products with a straw (bio-based) alternative. Costs are also saved relating to waste management and acquisition of conventional virgin feedstock. Challenges include maintaining a constant flow of products, due to seasonality, as well as quality control, due to variations in biomass waste, schedule for collection and processing, and economies of scaling up. Challenges can be eased with governmental support for the development of businesses making use of biomass waste and other incentives.

Keywords: Circular Economy; Bioeconomy; Biomass Waste; Circular Business Model; Built Environment

Dr. Rodrigo Salvador holds a Ph.D. (2021) in Industrial Engineering from the Federal University of Technology - Paraná (UTFPR) (Brazil). He is currently a tenure-track Assistant Professor at the Department of Engineering Technology and Didactics of the Technical University of Denmark (Denmark). His research and teaching cover the topics of Life Cycle Assessment, Planetary Boundaries, Circular (Bio)Economy, and Circular Business Models.

43. Challenges and facilitators in the collection and treatment of aquatic biomass waste for the production of high-value products

Assoc. Prof. Dr. Torben Knudby, Assoc. Prof. Dr. Martha Lynn Aulbaugh Eriksen, Assoc. Prof. Dr. Niels Christian Kjærsgaard, Assoc. Prof. Dr. Michael Hedegaard, Assoc. Prof. Dr. Victor Lund, Dr. Rodrigo Salvador

ABSTRACT:
The objective of this paper is to present challenges and propose solutions for the collection and treatment of aquatic biomass waste, specifically beach wreck, such as seagrass and seaweed, in the promotion of a circular bioeconomy. This study explores various methodologies for the collection and treatment of beach wreck to optimize the recovery of valuable compounds contained within these biomass wastes.
In order to do so, we: (i) identify and assess the efficacy of different collection techniques, including manual collection and mechanical raking, across diverse coastal environments; (ii) subsequently, the requirements of the state of biomass in post-collection treatment processes, such as cleaning, drying and quality tests (e.g., laboratorial analysis) are mapped to analyze the need to enhance the yield and quality of the recovered materials.
Utilizing beach wreck as an alternative to virgin feedstock contributes significantly to advancing a circular bioeconomy, and the effectiveness and efficiency of collection techniques are crucial for making waste biomass suitable for the value recovery of the components contained in it.

Keywords: Aquatic biomass, waste biomass, collection, treatment, circular economy, bioeconomy

Torben Knudby holds a BSc. eng. (1983) in Manufacturing Management from the Technical University of Denmark (Denmark), and a MSc. in International Technology Management (2011) from Aalborg University (Denmark). After an international carrier in the private sector in different leading positions, he returned to academia in 2009, and is currently Associate Professor and Head of Studies at the Department of Engineering Technology and Didactics of the Technical University of Denmark (Denmark). His research and teaching cover the topics of Technology Implementation, Operations Management and Upscaling of Production.

44. Biochar - a versatile outcome of various biomasses - benefits and challenges

Assoc. Prof. Dr. Victor Lund, Assoc. Prof. Dr. Martha Lynn Aulbaugh Eriksen, Assoc. Prof. Dr. Niels Christian Kjærsgaard, Assoc. Prof. Dr. Michael Hedegaard, Dr. Rodrigo Salvador, Assoc. Prof. Dr. Torben Knudby

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ABSTRACT:
Aquatic and terrestrial biomass wastes present great potential as feedstock for biochar, which in turn has a plethora of applications, fomenting a functional circular bioeconomy (CBE). This paper examines the benefits and challenges of making biochar from four waste biomasses: seaweed, eelgrass, grass, and straw. Challenges include: (i) the quality of biochar produced from these biomasses will vary, and the pyrolysis process will differ slightly due to the characteristics of each biomass; (ii) different pretreatments might be needed; for instance, seaweed and eelgrass must be cleaned of sand, as sand can melt during pyrolysis and potentially damage the machinery; similarly to aquatic biomass, grass may require drying. Benefits include: (i) biochar from these biomasses contains varying levels of soil-enhancing substances, particularly useful in areas with poor to very poor soil conditions; (ii) biochar can store the sequestered CO2 for potentially thousands of years (depending on the application); (iii) biochar can absorb water and gradually release it into the soil, thereby reducing nitrate leaching into watercourses and helping keep moisture in the soil. In summary, even though not without challenges, the potential benefits of biochar make a positive case for its utilization, benefitting from value recovery from waste.

Keywords: Biochar, biomass, CO2, waste-recovery, bio-economy

Victor Lund holds a Master degree (1988) in economics from Copenhagen Business School CBS) (Denmark). He is currently an Associate Professor at the Department of Engineering Technology and Didactics of the Technical University of Denmark. His research and teaching covers the topics Macroeconomics, Marketing, Financial Accounting, Business Intelligence and Circular Business Models.

Dr. Lynn Eriksen is an Associate Professor at the Technical University of Denmark (DTU).

Dr. Niels Kjærsgaard is an Associate Professor at the Technical University of Denmark (DTU).

Michael Hedegaard is an Associate Professor at the Technical University of Denmark (DTU).

Dr. Rodrigo Salvatore is an Assistant Professor at the Technical University of Denmark (DTU).

Torben Knudby is an Associate Professor at the Technical University of Denmark (DTU).

45. The activities of the Polish Red Cross as an element of cultural integration of Ukrainian migrants

Dr. Dorota Rynkowska

ABSTRACT:
Russia's aggression against Ukraine, which began on February 24, 2022, has resulted in a rapid influx of refugees into Poland, numbering several million. The armed conflict on the territory of Ukraine, which began in 2022, has entailed a number of social consequences. Local governments, public institutions, social, non-governmental and church organizations, entrepreneurs and residents have all joined forces to provide assistance to Ukrainian citizens. NGOs play a key role in helping the Ukrainian community in Poland. Their activities include helping refugees in Poland, providing humanitarian support to Ukraine, as well as countering disinformation and building communication bridges. The Polish Red Cross is one of the many entities that actively participate in adaptation and integration processes for Ukrainian citizens. This institution focuses primarily on helping people from Ukraine within long-term integration programs.
The Polish Red Cross is constantly developing activation programs that provide refugees from Ukraine with stabilization and social integration.
As part of the active activities of the Polish Red Cross, refugees receive comprehensive assistance in the areas of education, employment, health care and psychological support. The aim of this article is to attempt to analyse the forms of assistance and support for Ukrainian refugees implemented by the Polish Red Cross.

Keywords: non-governmental organizations, humanitarian aid, support, integration, adaptation

Dr Dorota Rynkowska - sociologist, doctor of humanities. Assistant professor at the Institute of Sociology of the University of Rzeszów. Scientific interests focus on the issues of old age and aging, attitudes towards old age and the changes in contemporary social assistance in the area of care and activation activities with the participation of non-governmental organizations, including the Polish Red Cross. Author and co-author of numerous publications on sociological and gerontological topics.

46. Urbanization as a Tipping Point: Threshold Effects on Carbon Emissions in EU Countries

Dr. Jana Chovancová, Dr. Igor Petruška

ABSTRACT:
This study explores how the impact of structural drivers on CO_2 emissions varies across different levels of urbanization in EU countries. For this purpose, we apply a threshold panel regression model. Using urbanization as the threshold variable, the model identifies a statistically significant threshold at 92.572% share of population living in cities, dividing the sample into two regimes: less urbanized and highly urbanized countries. The results reveal that the effect of energy use on emissions is strong and positive in less urbanized contexts, but becomes insignificant above the threshold, suggesting enhanced energy efficiency or decarbonization in urban settings. Renewable energy consistently reduces emissions in both regimes, with a notably stronger effect in highly urbanized areas. Land use and forestry (LULUCF) exhibit a mitigating effect only in less urbanized countries. Interestingly, the effect of urbanization itself is non-linear: while moderate urbanization reduces emissions, further urban growth beyond the threshold increases them, likely due to infrastructure saturation and lifestyle changes. These findings provide empirical evidence for a tipping point in the urbanization-emissions nexus and highlight the importance of differentiated decarbonization strategies tailored to the degree of urban development.

Keywords: Urbanization, CO_2 emissions, Threshold regression, Renewable energy, LULUCF, Energy use, EU countries

Jana Chovancová is lecturer and researcher at the Faculty of Management and Business, University of Prešov, Slovakia. As a member of Department of environmental economy and management, she specialize in environmental management, sustainability, the energy–economy–environment nexus, and circular economy. Her research focuses on decarbonization pathways, renewable energy sources, green energy transition, and their socio-economic impacts. She has published on topics such as CO_2 emissions, smart city indicators, and the influence of energy diversification. She has been actively involved in both national (e.g., KEGA, VEGA, APVV) and international (e.g., Erasmus+, EEA grants, COST Action) research and educational projects. She applies innovative teaching approaches such as design sprints to engage students in solving real-world sustainability challenges. Through her interdisciplinary work, she strives to connect academic research with practice and policy to support climate resilience and sustainable development.

Igor Petruška, PhD, CSc., Department of Finance, Accounting and Mathematical Methods, FMEO, UNIPO His research interests include econometrics and the application of statistical methods in various areas of micro and macro economics. In the field of econometrics, he is concerned with the application of techniques that take into account not only cross-sectional , but also time. His recent scholarly work includes co-authoring studies on CO_2 emissions and renewable energy pathways in the EU and the analysis of financial indicators within the Slovak engineering sector. He combines rigorous quantitative methods with interdisciplinary applications in environmental and economic development.

47. Rebuilding Education under Global Challenges

Dr. Emília Huttmanová, Radoslav Mikča,

ABSTRACT:
Current global challenges and the dynamics of ongoing changes significantly influence modern university education. Despite the diversity of study programs across universities, it is essential to consider the appropriate integration of contemporary social and environmental topics into educational curricula. The Faculty of Management and Business (FMB) at the University of Prešov focuses on education in the fields of economics and management. Therefore, the education of future economists, entrepreneurs, and managers should also incorporate elements of sustainability, circular economy, and proenvironmental approaches in both production and consumption activities. The aim of this paper is to evaluate the perceptions and attitudes of students (future entrepreneurs, economists and managers), towards the integration of "green topics" into educational content and their application in practice. The results of the questionnaire survey were complemented by the perspectives of teachers through structured interviews, aimed at identifying the need for and possible ways of incorporating green topics into the curriculum from the their point of view. The collected data were analyzed using a mixed methods approach, combining both qualitative and quantitative research methods, including inductive inference methods. The results served as input for the development of new study programs. Based on these findings, we also formulate proposals aimed at "greening" the existing curricula through the use of creative and participatory forms of education.

Keywords: global challenges, education, green topics, sustainability

doc. Ing. Emília Huttmanová, PhD. holds the position of Associate Professor in the Department of Environmental Economy and Management at Faculty of Managemet and Business (FMB), Univesity of Prešov. Her scientific and pedagogical activities are primarily focused on the national economy and green economic trends oriented towards sustainability and circularity. She actively participates in both international and national scientific research and development projects. She is a (co)author of scientific monographs, university textbooks, and peer-reviewed articles indexed in the Web of Science and Scopus databases, along with other scholarly publications, which have received corresponding citation responses.Throughout her career, she has held the positions of Vice-Dean for Education and Communication (2010–2018). Currently, she is Head of Department of Environmental Economy and Management and a member of the FMB Scientific Council, the FMB Doctoral Studies Committee, the FMB Academic Senate, and the Study Committee of the Academic Senate at the University of Prešov.

Mgr. Radoslav Mikča completed his bachelor's and master's degrees at the Faculty of Management and Business at the University of Prešov (UP) in the Management study program, specializing in Economics and Management. In his thesis, he focused on the driving forces of economic growth in EU countries and the latest sixth Kondratiev wave. Since the 2023/2024 academic year, he has been working as an internal doctoral student at the Department of Environmental Economy and Management. His dissertation focuses on sustainable development and new trends on the path to sustainability. His professional interests are mainly in the fields of economics, management, and the environment, with the aim of contributing to the development of innovative sustainable solutions. He is the principal investigator of two institucional projects supported by the UP Grant Agency, focusing on environmental taxes and green economy issues. He also actively collaborates on several national projects as a member of research teams.

48. Innovating Soil Health Education – Creating Tools and Resources in Response to Identified European Needs

Dr. Claire McDonnell, Dr. Emma McKenna, Dr. Divya Pandey, Dr. Valentina Tassone, Dr. Réka Matolay, Dr. Márta Frigyik

ABSTRACT:
The LOESS project has created useful and accessible tools to support educators to embed education for soil health in their teaching. The initial project phases involved desk research, focus groups and interviews with stakeholders across Europe to map gaps and needs in soil health education. Several findings emerged. For example, outdoor activities encouraging personal connections to soil and reflecting real-world situations, and collaborations with societal partners were insufficiently integrated into current educational approaches. A strong desire to address this was also identified. As a result, we prepared guidelines for Community Engaged Research and Learning (CERL) for further and higher level educators. We also:

- Developed a CERL module for lecturers which begins in October 2025
- Developed an online workshop to help educators design a research question from a problem (running October 2025 and February 2026)
- Designed and ran a MOOC (completed by 400 educators)
- Created a soil glossary, AR app and crowd mapping tool
- Developed and piloted four soil health learning scenarios for primary and secondary school levels. Next steps are piloting CERL across Universities, using evaluation and feedback to optimise resources and sharing tools and resources with the wider education and policymaker communities. Information is available on the LOESS website: https://loess-project.eu/.

Keywords: soil health, education, resources hands-on, engaged research, public engagement

Dr Claire McDonnell is a lecturer in chemistry at Technological University Dublin in Ireland and has research interests in heavy metal contamination of soil and community engaged research and learning (CERL). She is a partner in the LOESS project, Literacy boost through an Operational Educational Ecosystem of Societal actors on Soil health.

Dr Emma McKenna co-ordinates The Science Shop in Queen's University Belfast and has a particular interest in embedding community engaged research and learning in academic curricula. She is a Principal Fellow of the Higher Education Academy and a National Teaching Fellow. She is the UK partner in the LOESS project and previously co-ordinated the Erasmus + project CIRCLET which used learning circles as a way to support lecturers to embed engagement in their teaching.

Divya Pandey is a postdoctoral researcher at Wageningen University, working within the LOESS project. She is a researcher in soil, agriculture, and environmental systems, with a strong interest for translating scientific evidence into meaningful action—particularly by contributing to education, raising public awareness, and informing policymaking

Valentina Tassone is an assistant professor in sustainability education at Wageningen University, and partner in the LOESS project. She is dedicated to explore sustainability-oriented educational design, transformative and relational pedagogies that empower learners to be responsible agents in our complex world. Her research studies take place in the context of (higher) education, community setting or society at large, and often at their crossroads.

Dr Réka Matolay is co-founder and Head of the Science Shop in Corvinus University of Budapest.

Dr Márta Frigyik is manager of the Science Shop in Corvinus University of Budapest.

49. The use of rainwater harvesting in a multifamily building

Eng. Lucas Carvalho Delowski, Igor Catão Martins Vaz PhDc, Prof. Enedir Ghisi, Prof. Liseane Padilha Thives

ABSTRACT:
Water is an indispensable resource for life on Earth, and the means to obtain potable water are increasingly more expensive and challenging due to climate change and pollution of natural freshwater sources. Therefore, encouraging the rational use of water and implementing water-saving methods are fundamental to promoting sustainable development. Among the measures increasingly adopted to save potable water, rainwater harvesting for non-potable use in residential buildings stands out as a simple and efficient alternative. Thus, this study aims to assess the potential for potable water savings and the economic feasibility of using rainwater in a multifamily building in Florianópolis. The Netuno computer programme was used to estimate the potential for potable water savings and perform the economic feasibility analysis. Daily rainfall, rainwater catchment area, average daily water demand and rainwater demand were some input data necessary for the computer simulations. Once the ideal tank capacities were obtained, the potable water savings amounted to 11.78%, and the costs involved in implementing the rainwater harvesting system were R$15,293.19, with the payback period of seven months, and the internal rate of return of 14.92% per month, making it economically viable.

Keywords: Rainwater Harvesting; Potable Water Savings; Netuno; Multifamily Buildings; Sustainability.

Mr. **Lucas Carvalho Delowski** graduated in Civil Engineering at the Federal University of Santa Catarina, in Florianópolis, Southern Brazil.

Igor Catão Martins Vaz is a PhD student at the Federal University of Santa Catarina. His research topics include Life Cycle Assessment of Buildings, Rainwater Harvesting, Climate Change and Sustainability of the Built Environment

Prof. Enedir Ghisi obtained his PhD in Civil Engineering from the University of Leeds, in the UK, in 2002. He is currently a professor in the Department of Civil Engineering at the Federal University of Santa Catarina, located in Florianópolis, southern Brazil. So far, he has edited 10 books, published 14 book chapters, 181 conference articles and 169 journal articles. He has concluded the supervision of 14 PhD and 40 master's students. Currently, he supervises 12 PhD and 3 master's students. His research topics are thermal performance of buildings, energy efficiency in buildings, lighting, sustainability, building simulation, life cycle assessment, water consumption and rainwater harvesting in buildings. In studies carried out at Stanford University in 2023 (DOI 10.17632/btchxktzyw.6), 2022 (DOI 10.17632/btchxktzyw.4), 2021 (DOI 10.17632/btchxktzyw.3) and also in 2020 (https://doi.org/10.1371/journal.pbio.3000918) Prof. Enedir Ghisi was recognised as one of the 100,000 most influential scientists in the world for the whole career and also for 2022, 2021, 2020 and 2019.

Prof. Liseane Padilha Thives obtained her PhD in Civil Engineering from the University of Minho, Portugal, in 2009. She is currently a professor in the Department of Civil Engineering at the Federal University of Santa Catarina, located in Florianópolis, southern Brazil.

50. The Impact of Circular Economy Practices on Business Performance: A Systematic Literature Review

Prof. Ewelina Szczech-Pietkiewicz

ABSTRACT:
This systematic literature review examines the impact of circular economy (CE) practices on business performance by analyzing a selection of peer-reviewed studies. The findings indicate that CE practices generally contribute positively to both economic and environmental performance, enhancing resource efficiency, reducing costs, and increasing profitability. However, some studies suggest a non-linear, inverted U-shaped relationship, indicating that excessive CE activities may lead to diminishing economic returns. Specific CE strategies such as life cycle assessment, eco-design, and product upgradability are linked to improved performance. The review identifies key mediating factors, including cost reduction, supply chain cooperation, innovation, and digital transformation. Furthermore, the impact of CE adoption varies across industry types, enterprise scales, and geographical contexts. Based on these insights, a categorization of impact factors is proposed, highlighting the direct and indirect channels through which CE practices influence business success. The study underscores the importance of strategic implementation and incorporating circular practice into business model to maximize the benefits of CE practices for sustainable corporate development.

Keywords: Circular Economy, business performance, literature review

Ewelina Szczech-Pietkiewicz is a Professor at SGH Warsaw School of Economics, where she works as a Director of Institute of International Economic Policy and Vice-Dean of Doctoral School. Her scientific interests are focused on issues of: circular economy, sustainable development, and urban development.

51. A semantic interoperability-enabled environmental digital twin for predicting coastal floods: Port of Figueira da Foz

Dr. Feroz Farazi, Dr. Ana Catarina Zózimo, Dr. Md Hanif Seddiqui, Dr. Mohammad Azizur Rahman, Kollol Chakraborty, AL Hashemi Rafsan Jani, Rojab Khan, Dr. Jethro Akroyd, Dr. Sebastian Mosbach, Dr Liliana Pinheiro, Maria Manuel Cruz, Prof. Markus Kraft

ABSTRACT:
The purpose of this paper is to create an environmental digital twin with nearshore and offshore bathymetric data and wave conditions at selected locations to support the analysis of wave overtopping at breakwaters and the prediction of coastal flooding in ports. A dynamic, ontology-driven virtual knowledge graph-based digital twin framework has been developed to represent both the current and historical states of the coastal environment. At its core lies a semantic interoperability layer that allows numerical models such as SWAN and DREAMS to seamlessly obtain input data from the knowledge graph for simulating wave propagation and subsequently feed the NN_Overtopping2 neural network tool for estimating mean overtopping discharges. Ontological rule-based models have been developed and integrated with the knowledge graph to analyse wave and overtopping data for flood prediction. A digital twin of the port of Figueira da Foz, located in the central region of Portugal, has been created using the framework to generate predictive insights into flood events. This enables the planning and implementation of flood defence measures to enhance sustainability and resilience in port operations, especially in light of the increasing frequency and intensity of coastal flooding due to climate change.

Keywords: environmental digital twin; wave overtopping; coastal flood prediction; ontology; knowledge graph; semantic interoperability; SWAN wave model.

Dr Feroz Farazi is a Research Associate in the Computational Modelling (CoMo) Group within the Department of Chemical Engineering and Biotechnology at the University of Cambridge. Dr Farazi has expertise in ontological modelling, knowledge representation, AI, digital twin, knowledge graph, semantic and technical interoperability, rule-based systems, ontology and knowledge graph-based methodology. He was actively involved in the Universal Digital Twin for UK Energy System project funded by Turing Institute. He also developed GeoWordNet, a geospatial semantic resource built by integrating WordNet and GeoNames. Dr Farazi has been pivotal in creating ontologies, a virtual knowledge graph and a digital twin for multi-hazard prediction and risk management and climate change adaptation in the C2IMPRESS Horizon Europe project. His research interests include intelligent system design and development for policy recommendation and adaptation strategies for disaster risk management.

Dr Ana Catarina Zózimo is a Post-doctorate Researcher at the National Laboratory of Civil Engineering (LNEC) in Portugal. Dr Zózimo has expertise in numerical modelling in maritime hydraulics and coastal engineering, especially in wave propagation from offshore to onshore and wave

disturbance in harbours and coastal areas. She is actively involved in forecasting, alerts, and emergency planning and management systems of wave overtopping and flooding in coastal and port areas in the context of the C2IMPRESS project. She developed wave disturbance numerical models and applied GIS systems for coastal engineering studies. Her research interest includes applying numerical models in ports for flood prediction and digital twins for "what-if" scenario analysis in the port area for effective planning of flood protection mechanisms.

Dr Md Hanif Seddiqui is a Research Associate in the Department of Chemical Engineering and Biotechnology at the University of Cambridge. Dr Seddiqui completed his PhD in Ontology Engineering at Toyohashi University of Technology in Japan, where he received several research awards. He significantly contributed to modelling flood, wave overtopping, landslide, earthquake, wildfire and heatwave ontologies in the C2IMPRESS project. He has experience in ontological instance matching, Semantic NLP, machine learning, artificial neural networks, data mining and semantic web. His interests include interoperability and seamless interactions across data spaces and heterogeneous systems for disaster risk management, climate change adaptation and sustainable environment.

Dr Mohammad Azizur Rahman is the Technical Director at Technovative Solutions Ltd in the UK. Dr Rahman received his PhD from Georg-August University of Goettingen in Germany. He has 23 years of experience in research and consultancy in the domains of water, energy and environmental management. He has extensive experience working with different types of simulation and optimisation techniques to improve energy and environmental sustainability. One of his areas of expertise is the development of decision support tools for disaster risk management. He is involved in developing an integrated decision support system for resilience studies across the domains of climate, environment, water and society. One of his main focuses is investigating the sustainability of renewable energy in various sectors, such as solar, geothermal and wind energy.

Mr Kollol Chakraborty is a Senior Software Engineer at Technovative Solutions Ltd in the UK.

Mr AL Hashemi Rafsan Jani is a Software Engineer with experience in developing knowledge graphs at Technovative Solutions Ltd in the UK.

Mr Rojab Khan is a Software Engineer specialising in user interface and interaction development at Technovative Solutions Ltd in the UK.

Dr Jethro Akroyd is a Senior Research Associate in the Computational Modelling (CoMo) Group within the Department of Chemical Engineering and Biotechnology at the University of Cambridge. Dr Akroyd is a research-focused Chartered Engineer who works at the interface of academia and industry, with experience cutting across multinationals, start-ups and universities. His current research focuses on the development of computational models and digital twins for sustainability applications.

Dr Sebastian Mosbach is a Senior Research Associate in the Computational Modelling (CoMo) Group of the Department of Chemical Engineering and Biotechnology at the University of Cambridge. His research interests include the development of ontologies, knowledge-graph technologies, in particular autonomous agent systems and rule-based models for sustainability applications, as well as Digital Twins for Smart City and energy systems applications. Dr Mosbach recently led the construction of a knowledge-graph-based Digital Twin of a mid-sized city in continental Europe. This geospatial Digital Twin features three-dimensional models of tens of thousands of buildings, with selected buildings at a high level of detail, including building information models that incorporate sensor data measuring for example water and energy consumption. Commissioned by the local government, one of the achievements of the project was to employ the Digital Twin to assess the potential for installing solar panels in order to decarbonise city infrastructure.

Dr Liliana Pinheiro is an Assistant Researcher at the National Laboratory of Civil Engineering (LNEC) in Portugal. Dr Pinheiro has participated in various consultancy projects involving numerical modelling of wave propagation, wave agitation characterisation, resonance studies, shelter and operability study of port terminals, impact assessment of the construction of port infrastructures and numerical testing of moored ships. She has also been part of various consultancy projects of physical scale model tests for the assessment of stability and overtopping of coastal structures and wave agitation tests and various field campaigns with in-situ free surface elevation measurement. Her research interests include Maritime Hydraulic and Coastal Engineering, Computational Fluid Dynamics, Numerical and experimental modelling of free floating and moored ships' behaviour.

Mrs. Maria Manuel Cruz is the Environmental Manager at Port of Aveiro in Portugal. Mrs. Cruz is responsible for the Sustainability and the Environmental Management of Port of Aveiro and Port of Figueira da Foz. She contributes to research and development projects related to the port and the surrounding environment.

Prof. Markus Kraft is Professor of Chemical Engineering in the Department of Chemical Engineering and Biotechnology at the University of Cambridge. Prof. Kraft is one of the world's experts in the computational modelling of combustion phenomena and particle formation. His research is interdisciplinary and has contributed results in computational methods, computer science and chemical physics. He pioneered the application of stochastic methods to models of combustion and particle formation, supporting applications such as clean fuels, processes to produce novel materials, and understanding fundamental processes responsible for the formation of nanostructured particles. More recently, he has shifted his research focus to investigate applying the semantic web, knowledge graphs, and ontologies to address large-scale interconnected societal problems. His research interests include fluid ontologies, dynamic knowledge graphs, artificial intelligence (AI), interoperability and digital twins.

52. Documents digitalization to reduce paper consumption in small family business

Florina Atanase (Murar) PhDc, Mihaela Gologan PhDc

ABSTRACT:
The growing importance of sustainability has influenced the country's legislators to establish new environmental rules. Romania started this lane by supervising the recycling, yet with limited interest in reducing consumption. Without having any external constraints, several small businesses, especially family businesses, understand the need to contribute to environment maintenance from a competitiveness point of view. The research completed and published until 2025 are concentrating on Sustainable Development Goals (SDG), Corporate Social Responsibility (CSR) general impact on business. Despite the low volume contribution of small businesses to global paper consumption, they are no less important. This paper initiates the analysis of factors contributing to a family business's decision to start document digitisation and the obstacles they face during the process. The data acquired from directors' interviews establish the ground for future empirical studies that could confirm the elements contributing to organisational readiness to change. The findings can be replicated in similar family businesses to achieve economic and environmental objectives.

Keywords: documents digitization, family business, paper consumption, small business, organizational readiness for change, ORC

Mrs. Florina Atanase (Murar) is a PhD student at Bucharest University of Economic Studies, specializing in Innovative Methods in Small Family Businesses. Her research focused on identifying and analyzing the innovative practices and strategies that small family businesses can adopt to ensure their growth, sustainability and competitiveness in an ever changing market environment. In addition to her doctoral studies, Ms. Atanase (Murar) is actively involved in teaching economics and entrepreneurship at the secondary school level.

Ms. Mihaela Gologan is a phd student researching leadership's contribution to organizations' digital transformation. Digital transformation includes document digitalization with a great impact on sustainability. Leadership roles in small family businesses are decisive for digital change.

53. Harmful Algal Blooms and wind-related variables association

Georgia Xanthopoulou, Dr. Dionysios Kehagias, Dr. Konstantinos Koukaras, Dr. Katerina Aligizaki, Dr. Charalambos Bratsas

ABSTRACT:
Harmful algal blooms (HABs) are rapidly expanding in marine environments, posing serious risks to ecosystems, public health, and water quality. There is a growing need for more accurate forecasting techniques and intelligent systems that can generate accurate forecasts about the presence of HABs and, as a result, evaluate the effects of them on water quality. Direct forecasts of HABs presence are extremely difficult to be implemented due to the nature of the problem. Many studies use chlorophyll concentrations to detect HABs but such an alternation in chlorophyll concentration consists an immediate effect and not the root of the problem. Trying to early detect a forthcoming HAB, by investigating the impact of wind-related variables in the appearance of a HAB event in the marine system of Thermaikos gulf (NW Aegean Sea) with in-situ data, is the purpose of this research. Primary results have shown a causation among them, especially to east and north-west winds, leading to research paths towards to the spatial distribution of the phenomenon. An outcome that demonstrates the potential transporting of the HAB and also could assist in the creation of early warning systems.

Keywords: HABs, wind, causal inference, prediction, early warning

Mrs Georgia Xanthopoulou works as a Research Associate at CERTH/ITI. Her research activity mainly lies on Data Analysis and Machine Learning. Mrs Xanthopoulou is a graduate of the Department of Mathematics of the University of Ioannina (2015). During her studies she held an internship at Aristotle University of Thessaloniki in the Department of Informatics. She also obtained her MSc entitled "Complex Systems and Networks" of Aristotle University of Thessaloniki (Dep. of Mathematics) in 2017, with her thesis to be centered on forecasting power output of photovoltaic systems with machine learning techniques. She is a PhD Candidate of the Department of Information and Electronic Engineering of International Hellenic University since September 2023. Mrs Xanthopoulou has been working at CERTH/ITI since 2018, having actively participated in 10 research and development projects funded by both the European Commission and the General Secretariat for Research and Technology. During her research activity over the past 7 years, she has published 8 papers in esteemed scientific journals and international conferences.

Dr. Dionysios Kehagias received his Diploma and Ph.D. degrees in Electrical and Computer Engineering from the Aristotle University of Thessaloniki, Thessaloniki, Greece, in 1999 and 2006, respectively. He is currently a Research Director with the Information Technologies Institute of the Centre for Research and Technology Hellas (CERTH). His research interests include time-series analysis and forecasting, big data analytics, machine learning and algorithms for software engineering. He also received 4 distinctions and awards and worked in more than 40 national and European research projects, in many of which he had the role of coordinator and scientific manager.

Konstantinos Koukaras holds a BSc in Biology, a MSc in hydrobiology and aquaculture and a PhD in environmental monitoring, from Aristotle University of Thessaloniki, Greece. He has over 25 years' experience in integrated coastal zone management focusing on water monitoring (environmental impact analysis and carrying capacity) and aquaculture activities. Over the past decade, he has participated in more than 40 projects related to environmental monitoring, water management strategies, coastal monitoring and resilient strategies against climate crisis effects.

Katerina Aligizaki, MSc-PhD has been involved in more than 100 projects concerning monitoring of coastal areas and she is responsible of the official Laboratory that conducts the HAB monitoring in Greece

(Laboratory Unit on Harmful Marine Microalgae, Aristotle University of Thessaloniki). Her expertise concerns microalgae taxonomy and ecology with a special interest on potentially toxic planktonic and benthic dinoflagellates, while she has published more than 20 scientific papers and participated in over than 70 national and international conferences.

Charalambos Bratsas is an Assistant Professor at the Department of Information and Electronic Engineering of the International Hellenic University, Greece and also founder and chairman of the board of directors of the Open Knowledge Foundation of Greece. His main research areas are Intelligent Software Systems, Open Data, Semantic Web, Knowledge Graphs, Open Linked Data (Coordinator of the Greek DBpedia), Data Science, Data Mining, and Big Data applications with Artificial Intelligence algorithms. He holds a degree in Mathematics (1999), an M.Sc. in Medical Informatics, and a Ph.D. in Knowledge Graphs in Medical Informatics (2008). He has participated in several European Commission research projects as a researcher, eight of which as Scientific Manager. His authored work accumulates more than 1800 citations (h-index 20, i10-index 39, Google Scholar, June 2024) in the areas of Semantic Web, Big Data, Artificial Intelligence and Data Analysis, Graph Analysis and Machine learning.

54. Aggregation and engagement of end users as key enablers of a sustainable energy transition

Andrea Giuliano, Sara Khorasani Ghanatghazi, Danmeng Yang, Filippo Verdi, Umar Shahzad, Dr. Gianluca Carraro, Dr. Sergio Rech

ABSTRACT:
A sustainable energy transition cannot focus solely on the technical aspect of switching to renewable energy generation, but must also involve end users, who are most affected by its economic and social changes. Within this broader vision, the activity of the student project Catharsis aims to evaluate two complementary strategies: users aggregation into Renewable Energy Communities and modification of users' energy consumption habits.
Regarding the first strategy, a mixed integer linear programming approach was developed to optimize user aggregation in a certain geographical area targeting minimum costs and CO2 emissions. The study of the second strategy explored how effective communication can promote adoption of sustainable habits with measurable impacts.
Results show how smart aggregation of users with complementary consumption and generation patterns enhances technical and economic benefits of energy communities and ensures these benefits fall on the whole society, even reducing costs for users outside the communities. Additionally, adopting sustainable practices, such as lowering red meat consumption, using artificial intelligence and search engines efficiently and shifting electric loads maximizes the use of locally produced renewable energy. With the increasing capabilities of AI, daily choices such as mobility, cooking, and household chores can be optimized lowering the overall energy consumption.

Keywords: Renewable Energy Communities, Sustainable Habits, User Aggregation, Climate Change Mitigation, Artificial Intelligence

Mr. Andrea Giuliano is a Master's student in Energy Engineering of the Department of Industrial Engineering of the University of Padova, Italy. He graduated with a bachelor's degree in Energy Engineering with a thesis on Energy Education for a sustainable society. He's the Project Leader of the university students' project "Catharsis" where he researches innovative solutions to reduce climate change impact of human activities on society and environment. In the project he has assessed energy related issues ranging from social acceptability of renewable energy sites to energy consumption perception with the aim of fostering the transition to a sustainable society through online articles and informative events for students and citizens.

Ms.Sara Khorasani is a Master's student in Energy Engineering at the University of Padova, Italy, with a bachelor's background in Chemical Engineering. Her current work focuses on Renewable Energy Communities (RECs) and the implementation of shared energy storage systems. Her main research interests include optimization, sustainability, and the integration of renewable energies into local energy systems. She uses programming tools such as Python to develop models that support efficient energy sharing and cost reduction within energy communities.

Ms. Danmeng Yang is a graduate student in Data Science at the University of Padua, Italy. She works on climate justice in developing countries and grassroot climate action. She did analytics and forecasts on heatwaves with IPCC datasets. She focuses on a scientific approach to current environmental and social emergencies. She is a member of Catharsis project, in which she worked on sustainable

utility of IT applications. Her current work focuses on measuring daily habit sustainability to improve the sustainable action of both individuals and society.

Mr. Filippo Verdi is a Master's student in Energy Engineering of the Department of Industrial Engineering of the University of Padova, Italy. He graduated with a bachelor's degree in Energy Engineering in Padova with a thesis on the potential of agrivoltaic in the decarbonization of the electricity grid. He is a member of the Catharsis project, in which he is currently working on sustainable habits in food consumption, with a special focus on meat and animal-derived products. He is also working on the realization of an idea related to plastic recycling, created in the In-Motion Contest Hackathon in Brunico in May 2025. After the victory of the Hackathon, he and his team will receive funds and expertise from Bolzano University to turn the idea into a real product.

Umar Shahzad is currently pursuing a Master's in Energy Engineering at the University of Padua, Italy, after earning a Bachelor's degree in Electrical Engineering. He has solid grounding in power-system studies and machine-learning techniques. His technical focus is the design and development of low-cost phasor-measurement units for distribution lines, capable of capturing voltage, current, and frequency in real time and feeding these data into ML routines for advanced grid analysis. He also took first place at the In-Motion Contest in Brunico, where his team proposed a product solution that resolved a real production issue for a battery maker. Guided by a strong belief in sustainability, he intends to keep using his cross-disciplinary skills on projects that deliver dependable, affordable, and clean energy.

Gianluca Carraro is an Assistant Professor (RTDa) of the University of Padova in the scientific-disciplinary sector "Energy and Environmental Systems". He received the Master's Degree in Energy Engineering, in 2017, and the Ph.D. in Industrial Engineering (curriculum Energy Engineering), in 2021, at the University of Padova, Italy. After the PhD he won a one-year Research Grant to work on the project "Smart optimization of multi-energy systems, storages and interactions with energy networks". His research activities include two main topics: 1) experimental evaluation, study of theoretical aspects and of the dynamic behavior of energy production and recovery systems powered by renewable, waste heat and fossil fuels; 2) design and off-design modeling, and optimization of the design and operation of complex energy systems, which are composed of groups of generating units that convert fossil, renewable, and unconventional energy sources into different forms of energy required by users. Author of 39 papers, 22 of which in peer-reviewed International Journals. He is the teacher in charge for the course "Design and optimization of sustainable energy systems" in the international degree in Energy Engineering at the University of Padova. Since October 2023 he has been the coordinator of the student project "Catharsis – realistic energy strategy to mitigate climate change", started in 2022 at the University of Padova.

Dr. Sergio Rech is an Assistant Professor at the Department of Industrial Engineering at the University of Padova, Italy. His research focuses on the analysis, design and off-design modeling and optimization of multi-energy systems, which consist of groups of energy conversion and storage units that convert fossil and renewable sources into various forms of energy required by end users. Particular attention is devoted to the study of energy storage technologies and the assessment of their potential role in enhancing the flexibility of multi-energy systems with a high share of renewables. He has authored or co-authored more than 50 scientific papers published in international journals and presented at major conferences. He is also the principal investigator of institutional and industry-funded research projects, actively involved in organizing international ASME conferences, and serves as a reviewer and guest editor for international journals.

55. Pottery in Perspective: Life Cycle Thinking and Environmental Priorities in Craft Practice

Dr. Giorgio Salani

ABSTRACT:

This paper applies a comparative Life Cycle Thinking (LCT) approach to assess the environmental significance of pottery-making within the broader context of everyday lifestyles. While craft ceramics are often seen as local, small-scale, and sustainable, they are also energy- and material-intensive. Drawing on the author's Life Cycle Analysis (LCA) of handmade pottery, ethnographic research in UK pottery workshops, and literature review of LCA studies on lifestyles and products, the study examines impact categories including carbon emissions, resource scarcity, and water use.

Although many practitioners are already improving efficiency in their studios, this paper argues that placing pottery within a wider lifestyle context reveals overlooked opportunities. The findings compare the impacts of pottery-making with activities such as transport, housing, digital media use, and diet, offering a more proportionate view of environmental responsibility. The paper identifies priority interventions for the craft sector, supporting its role in the broader transition to more sustainable and decarbonized ways of living.

Keywords: Life Cycle Thinking, Craft ceramics, Pottery, Life Cycle Analysis, Environmental Priorities

Dr. Giorgio Salani is Specially Appointed Associate Professor at STADHI, Institute of Science Tokyo, Japan. He is Creative Director of the Hybrid Innovation programme for industry he co-founded in 2021 and teaches and conducts research in Methodologies for Transdisciplinary Science and Engineering. Giorgio set up a Ceramic Workshop at the School of Environment and Society in 2022, where he researches the Sustainability of Craft Ceramics. He is PI on the JSPS-funded project "Assessing the Sustainability of Best Available Technologies (BAT) for Craft Ceramics", which includes ethnography of pottery communities and Life Cycle Analysis. He is currently conducting collaborative research in the areas of Sustainable Natural Materials for Architecture, Art and Science, and Science Communication.

56. Scaling Up Exclusive Breastfeeding: A call to Implement NEBAP in Ghana

Goodews Joseph

ABSTRACT:

The National Exclusive Breastfeeding Acceleration Plan (NEBAP) is a 10-year, multisectoral intervention aimed at increasing Ghana's exclusive breastfeeding rate (EBF) from 42% to 67% by 2035. NEBAP employs an interdisciplinary approach that integrates healthcare, education, and community empowerment to address the ongoing decline in EBF rates, particularly in the Ashanti, Eastern, and Western regions. Through the establishment of human milk banks, the training of health workers, and the inclusion of maternal nutrition education in high school curricula, NEBAP strengthens Ghana's health system by leveraging global evidence from WHO/UNICEF's strategy on breastfeeding and previous accomplishments from Burkina Faso's GASPA Program. At the community level, the strategy forms peer-led Mother-to-Mother support groups and engages traditional leaders and men to change breastfeeding norms. To increase awareness, campaigns and educational materials will be utilized. Implementation will involve coordination among ministries, non-governmental organizations, and foreign agencies. Evaluation will be conducted every two years using health surveys and real-time monitoring tools. This proposal demonstrates how structured, culturally sensitive, and scalable practice frameworks like NEBAP can improve food security, lower malnutrition, and improve maternal and child health. It has wider ramifications for low and middle-income countries seeking to meet WHO breastfeeding targets through community-driven, multisectoral policy action.

Keywords: NEBAP, Ghana, Exclusive Breastfeeding, Community-based Intervention, Multisectoral

Mr Goodews Joseph is a master's student currently pursuing a Food Security program at the American University of Beirut, in Beirut, Lebanon. As an agricultural enthusiast, Goodnews Joseph pursued an undergraduate program in Agricultural Economics and Extension at the University of Port Harcourt, Nigeria, where he gained insight into understanding the dynamics of the food sector, especially the workability of food systems in Nigeria and globally. Over time, Goodnews Joseph has been involved in several agricultural jobs and projects, including his work as a Content Creator Intern at Agrisiti, where he was tasked with the role of using the Agri-Tech company's social media platforms to sensitize farm families on urban farming and other modern farming systems that can be adopted to address urban food insecurity. His extracurricular activity is centered around his volunteering work for Oore Africa, a technology-focused donation platform that facilitates seamless donations to social projects in Nigeria. Through this platform, he and his team have successfully executed several projects, including donating food packages containing rice, beans, and meat to targeted beneficiaries in Nigeria.

57. Community Engagement and Adaptive Regulation in Sustainable Urban Change: Assessing New Jersey's Cumulative Impacts Program

Grayson Pitcock

ABSTRACT:
Cumulative Impact Assessment has been widely endorsed by governments, scientists, community organizations and environmental groups as an important framework for addressing environmental injustice in communities that are overburdened with multiple sources of pollution. In 2020, the first state cumulative impacts legislation within the United States was passed in New Jersey, which has served as a potential model for other states and cities. Finalized on April 17, 2023, New Jersey's cumulative impacts program adopts a community-engagement approach before approving permits for major pollution generating facilities and uses a community-level mapping tool providing localized environmental and public health data to enable cumulative impacts assessment. Through a case study of this regulatory program, the paper will assess the legislative and regulatory program's strengths and weaknesses in achieving overall reductions in pollution levels within overburdened communities in furtherance of Sustainability Goal 10. The purpose of the study is to provide guidance to other states and cities also seeking to adopt cumulative impact programs.

Keywords: Environmental Justice, Cumulative Impact Assessment, Sustainable Urbanism

Grayson Pitcock is a Student at Bergen Catholic High School in Oradell, New Jersey, United States, whose interests include ethics, economics, public policy and philosophy.

58. Ecotoxicity responses of land snail Helix aspersa exposed to sub-chronic soil metal pollution under laboratory conditions

Assoc. Prof. Hadjer BELHIOUANI, Djihane MEHIMMEDETSI, Abir BENGUERRA, Leila SAHLI

ABSTRACT:
The main objective of this study is to confirm the aptitude of Helix aspersa to accumulate metallic trace-elements in their tissues, and to define the dose-response relationship between Cd and Pb concentrations and the weight growth of this species by calculating the concentrations that inhibit 50% of the tested population's growth (IC50). Hence, after exposing a population of Helix aspersa to soils with increasing concentrations of Cd and Pb under controlled conditions for 28 days, we measured the levels of these two elements in the soft tissues of the tested species. The results obtained revealed a relationship between the concentrations of Cd accumulated by H. aspersa and those present in the soil. In fact, accumulation is dose-dependent; it increases as the concentrations of Cd in the soil increase. These results were confirmed by calculating the bioaccumulation factors for both elements, which led us to conclude that H.aspersa is cadmium macroconcentrator and lead deconcentrator. Additionally, the calculation of IC50 revealed a dose-response relationship between the accumulated cadmium in the soft tissues of H. aspersaand the decrease in weight growth of this species used as a biological model. The IC50 obtained for cadmium is 1153.01 µgCd/g of soft tissues. For lead, we were unable to determine this ecotoxicological value; this indicates that the element's toxicity threshold is significantly higher than the maximum amount found in H. aspersa in this study. Overall, the tested species demonstrated a relatively significant accumulation capacity, especially for cadmium, confirming its utility in processes of bioindication and risk assessment related to soil contamination by trace elements, considered as potentially toxic.

Keywords: Ecotoxicity responses, IC50, Helix aspersa, Soil, Metals

Hadjer BELHIOUANI has a PhD in Ecology and Environment. She's an associate professor at The National Higher School Of Biotechnology(ENSB) - Taoufik Khaznadar, Constantine, Algeria. She's also a member of laboratory of Biology and Environment, Mentouri Brothers Constantine 1 University (Algeria). Her research revolves around the use of terrestrial gastropods and vegetation in bioindication and biomonitoring of terrestrial ecosystems alterations.

Professor SAHLI Leila is a teacher-researcher at Mentouri Brothers University-Constantine1 (Constantine, Algeria). She is also a team leader at the laboratory of biology and environment. She received her Ph.D. in Ecology and Environment from Constantine University. Her current research interests are in the areas of environmental disturbance, preservation of natural systems and biodiversity, and use of living organisms as biological indicators to screen the health of ecosystems.

59. Students for Future?! A systematic review on the effectiveness of climate education

Hilke Schulz, Dr. Eva Kalinowski, Dr. Johanna Kranz, Prof. Dr. Peter Wulff, Paula Becker, Dr. Annelie Schulze, Assoc. Prof. Dr. Andrea Westphal

ABSTRACT:
Including climate change education into STEM curricula has become increasingly important in dealing with climate change. Our systematic review examines intervention studies in schools from 1997 to 2024 that aim to change climate-related attitudes and behaviors. We report on the effectiveness of these interventions (regarding action-oriented climate education) and evaluate the quality of the studies. To this end, 32 studies were evaluated that report quantitative results (and use a pre-post-test design). Interventions focused on various aspects of climate education, such as scientific processes, human influences on the climate and options for action. Three-quarters of the studies measuring attitudes indicated positive effects of climate change education interventions on students. It seems constructs such as self-efficacy, concern, and motivation can be changed more easily, while fewer effects were achieved for outcomes such as beliefs, values and norms. Behavior has been measured through self-reported current or recent climate-related actions, self-reported future climate-related behavior, and observed climate-related behavior and again, positive effects were reported for three-quarters of the studies measuring behavior. The quality of the studies (reliability, validity, design, etc.) is very heterogeneous. We propose developing standardized measurement instruments, above all to improve comparability.

Keywords: Climate education, climate-related attitudes, climate-related behavior, STEM education, systematic review

Hilke Schulz is a research associate at the University of Greifswald, Germany. Her research focuses on the effectiveness of climate change education in the school system. She is also interested in gender differences and the promotion of girls and women in science.

Eva Kalinowski is a postdoctoral research associate at the Chair of Empirical Instruction and Intervention Research at the University of Potsdam, Germany. She conducts research on the effectiveness of teacher professional development interventions and teacher collaboration.

Johanna Kranz is a postdoctoral research associate at the Rhineland-Palatinate Center of Excellence for Climate Change Impacts in Trippstadt, Germany and works and researches in the field of climate communication and climate education.

Peter Wulff is Associate Professor of Physics and its Didactics at the Heidelberg University of Education, Germany. His research focuses on gender-inclusive physics teaching and machine learning.

Paula Becker is a research associate at the Heidelberg University of Education, Germany. Her research focuses on gender-inclusive physics teaching, the effectiveness of climate education interventions and promotion of girls in science.

Annelie Schulze is a postdoctoral research associate at the Chair of Interdisciplinary Research on Teaching and Learning and School Development at the University of Greifswald, Germany and at the Chair of Empirical Instruction and Intervention Research at the University of Potsdam, Germany. Her research focuses on social inequalities, teacher education, and the university dropout of student teachers

Andrea Westphal is Associate Professor for Interdisciplinary Research on Teaching and Learning and School Development at the University of Greifswald, Germany. Her research focuses on teacher professionalization, student teachers' university dropout, and climate change education.

60. Enhancing Disaster Evacuation Planning with Cognitive Agent-Based Models and Co-Creation

Dr. Hossein Moradi, Dr. Rouba Iskandar, Dr. Sebastian Rodriguez, Dr. Dhirendra Singh, Prof. Julie Dudgale, Dr. Dimitrios Tzempelikos, Dr. Athanasios Sfetsos, Evangelia Bakogianni, Evrydiki Pavlidi, Josué Díaz, Margalida Ribas Muntaner, Alexandre Moragues, Dr. Joan Estrany

ABSTRACT:
Agent-based models (ABMs) are increasingly used in disaster evacuation simulation to capture system-level dynamics. While ABMs are often combined with human behavior models (HBMs), few approaches integrate these with infrastructure and demographic data that are carefully modeled using local knowledge, along with hazard-specific impacts and policy settings. Even fewer embed this integration within a co-creation loop that involves local stakeholders throughout the entire development lifecycle, from conception and design to implementation, testing, and beyond. This paper introduces the methodology that we developed to address this gap by combining a structured co-creation process with technical simulation development. The co-creation process engages local stakeholders, planners, and experts to iteratively shape evacuation scenarios, define assumptions, and validate outcomes, ensuring the model aligns with local realities. These inputs are translated into a multi-dimensional simulation framework built in MATSim, integrating network and infrastructure models, hazard effects, population, and behavior modeling enhanced through Belief-Desire-Intention cognitive architectures. We applied this methodology in different case study areas, demonstrating its capacity to simulate heterogeneous evacuation dynamics and provide diverse performance metrics. Finally, we explore how this methodology can be applied in other hazards, geographic regions, and evacuation scenarios, offering pathways for broader application and future development.

Keywords: Agent-Based Models, Human Behavior Models, Co-creation Processes, Disaster Evacuation Simulation, Disaster Preparedness

Dr. Hossein Moradi holds a PhD in Intelligent Transportation Systems from Ghent University, Belgium, where his research focused on data-driven modeling for active and sustainable mobility using connected vehicle data. He is currently contributing to projects aimed at enhancing disaster resilience through agent-based simulation and behavioral modeling of evacuation dynamics. His interdisciplinary background spans civil engineering, transportation planning, and data science, with a focus on supporting more effective, equitable, and resilient urban mobility systems.

61. Migrants from Ukraine - social and economic implementations for Poland in the context of development processes

Assoc. Prof. Dr. Hubert Kotarski

ABSTRACT:
In recent years, Central and Eastern Europe has become a key receiving region for migrants from Ukraine, with significant challenges and opportunities for the receiving countries. This article will focus on the analysis of the consequences of Ukrainian migration for Poland, taking into account social and economic aspects. This discussion is highly relevant in the context of current migration trends and their impact on local communities and national economies. The armed conflict in Ukraine, which began in 2014 and reached an unprecedented scale in Europe in February 2022. It has brought serious social and humanitarian consequences, forcing hundreds of thousands of people to flee their homes and seek refuge both inside and outside the country. This article focuses on the impact of the war on social and economic policy, analysing the challenges of the labour market, the integration of refugees, and the economic impact of the refugee influx on Polish society.

Keywords: Ukrainian migration, Poland, Labour market, Refugee integration, Economic impact

Hubert Kotarski - doctor of humanities in the field of sociology, Assistant professor at the Institute of Sociology of the University of Rzeszów, Poland. Sociologist, carries out research in urban sociology, sociology of social problems and regional differences in human, social and cultural capital. Author of books, articles, reports, strategies and analyses. Participant of several foreign and national scientific conferences, workshops and seminars in the social sciences. In recent years, he has held research internships at the Universities: University of Melbourne (Australia), University of Brasilia (Brazil), University of Bologna (Italy), Erasmus University Rotterdam (Netherlands), University of Cordoba (Spain) and University of Peloponnese (Greece).

62. Design and Motivation in Digital Approaches to Pro-Environmental Behavior

Hüseyin Hussein Keke PhDc, Prof. Christian Meske, Assoc. Prof. Dr. Christiane Lehrer

ABSTRACT:
Understanding human motivation in digital environments represents a critical challenge for promoting sustainable behaviors. Current behavioral theories provide limited guidance on how psychological mechanisms translate into effective interface design for environmental applications. This comprehensive research synthesis investigates how digital behavior change tools correlate with underlying motivational principles to drive pro-environmental actions. Previous studies have explored various persuasion strategies—including choice architecture, gamified elements, and economic incentives—yet lack cohesive understanding of how interface characteristics interact with psychological drivers to achieve desired outcomes. Our investigation systematically analyzes online experiments across multiple areas to construct an integrated model linking user interface elements with theoretical behavioral foundations. The analysis reveals connections between specific interface configurations and outcome measures across different digital contexts. This research produces evidence-based principles for developing psychologically-informed applications that foster sustainable actions in diverse settings. By connecting interface design with motivational science, this work establishes a comprehensive foundation for creating more impactful digital tools addressing environmental challenges.

Keywords: Digital behavior change, Interface design, Motivational principles, Online experiments, Pro-environmental behavior

Hüseyin Hussein Keke is a PhD at the Chair of Socio-technical System Design and Artificial Intelligence at the Institute of Work Science, Faculties of Mechanical Engineering and Computer Science, at Ruhr University Bochum, Germany. He has an interdisciplinary background in Cognitive & Media Science (M.Sc.) and Business Psychology (B.Sc.). His work focuses on human behavior in information systems, with a particular emphasis on (digital) nudging to promote behavior change, especially in the context of sustainability.

Christian Meske is a Full Professor of Socio-technical System Design and Artificial Intelligence at the Institute of Work Science, Faculties of Mechanical Engineering and Computer Science, at Ruhr University Bochum, Germany. His research on the design and management of information systems has been published in journals such as Business & Information Systems Engineering (BISE), Business Process Management Journal (BPMJ), Communications of the Association for Information Systems (CAIS), Information Systems Frontiers (ISF), Information Systems Journal (ISJ), Information Systems Management (ISM), Journal of Enterprise Information Management (JEIM), or MIS Quarterly Executive (MISQE).

Christiane Lehrer is an associate professor in the Department of Digitalization, Copenhagen Business School. She holds a Ph.D. from the Ludwig-Maximilians-Universität (LMU), Munich, Germany, and was a visiting scholar at the London School of Economics. Following her Ph.D. studies, she gained several years of industry experience as a strategy and M&A manager in a large telecommunications company. Before joining CBS, Christiane was an assistant professor and the head of the Competence Center for Digital Service Innovation at the University of St. Gallen, Switzerland. Christiane's research specialization concerns user behavior and data-driven innovation. Her work

has appeared in the Journal of Management Information Systems, European Journal of Information Systems, and Electronic Markets, among other outlets, and has been presented at leading conferences such as the International Conference on Information Systems. Christiane currently serves as an associate editor for European Journal of Information Systems and Electronic Markets. ORCiD: https://orcid.org/0000-0003-3401-3216

63. Legal Regulation of Building Energy Efficiency and Housing Rights: Balancing Sustainability and Social Justice

Assoc.Prof. Dr. Inga Kudeikina,
Prof. Dr. Sandra Kaija

ABSTRACT:
The European Union has set ambitious climate and sustainability goals, which include stringent energy efficiency requirements for buildings. The Energy Efficiency Directive (EED) and the Energy Performance of Buildings Directive (EPBD) establish minimum efficiency standards, mandatory renovations, and carbon reduction targets. While these regulations promote environmental sustainability and economic efficiency, they also raise legal and social concerns. A key issue is the proportionality of energy efficiency obligations in relation to property rights. While mandatory renovations serve the public interest by addressing climate change, they impose significant financial burdens on property owners, particularly vulnerable social groups. These requirements may restrict owners' decision-making freedom, raising concerns about compliance costs and potential property devaluation. Moreover, energy efficiency mandates impact housing affordability, potentially exacerbating social inequality. Although energy-efficient homes reduce long-term utility costs, initial renovation expenses can drive up property prices, limiting access to housing for low-income populations. This paper examines the legal implications of EED and EPBD, assessing their proportionality, impact on property rights, and social security risks. It also explores policy recommendations to balance environmental objectives with legal certainty and social justice, ensuring that sustainability measures do not disproportionately burden homeowners or deepen housing inequalities.

Keywords: Housing Rights; Legal Regulation of Energy Efficiency; Proportionality; Social Justice; Sustainability

Dr. iur. Inga Kudeikina is Assoc. Professor of Riga Stradiņš University and Director of the Law Study Program at the Faculty of Social Sciences, Expert of the Latvian Council of Science, Inga Kudeikina studies the perspective of the development of civil rights in the context of sustainable development of society and regularly publishes the results of her scientific activities.

Dr. iur. Sandra Kaija is Professor of Riga Stradiņš university and Expert of the Latvian Council of Science, and Judge of the Supreme Court of the Republic of Latvia. Sandra Kaija is a leading criminal procedure expert in Latvia who regularly publishes scientific research on current criminal procedure problems.

64. The impact of institutions on income inequality in EU Member States

Dr. Ionuț Jianu, Dr. Maria-Daniela Tudorache

ABSTRACT:
This paper aims to analyze the influence of institutional quality on income inequality across the 27 EU Member States during the period 2011-2022. To achieve this, we employed the Panel Estimated Generalized Least Squares (EGLS) method. Our findings demonstrate that enhancing institutional quality-measured through key institutional factors published by the World Bank under the Good Governance Indicators, such as political stability, regulatory quality, and government efficiency - plays a significant role in reducing income inequality. Furthermore, the study confirms a strong positive correlation between the unemployment rate and income inequality, with additional social factors, such as early school leavers and housing cost overburden, further exacerbating inequality. Conversely, an increase in government spending on social protection appears to mitigate these disparities. Additionally, we identify a strong inverse relationship between income inequality and human development. The robustness of our model has been validated, reinforcing confidence in the reliability of the estimated parameters and the study's overall conclusions.

Keywords: Institutions, human development, income inequality, government efficiency, political stability, regulatory quality

Dr. Ionuț Jianu is assistant professor within the Department of Economics and Economic Policies, Bucharest University of Economic Studies, and also works for Ministry of Finance of Romania / General Directorate for European Affairs and International Cooperation. He completed his Ph.D in economics, following the presentation of the doctoral thesis entitled: „The Change in the Economy as a Strategy of Moderating Income Inequalities". His research interests are related to: social and economic developments, income inequality, poverty, Stability and Growth Pact, economic governance, fiscal rules / discipline, fiscal sustainability, institutions, macroeconomics, econometrics, macroeconomic imbalances, European Semester, policy coordination, economic and financial crises.

Dr. Maria-Daniela Tudorache is assistant professor within the Department of Economics and Economic Policies, Bucharest University of Economic Studies, and also works for Ministry of Finance of Romania / General Directorate of Synthesis and Budgetary Policies. She completed his Ph.D in economics, following the presentation of the doctoral thesis entitled: „Post-crisis economic development. Theoretical views and practical approaches". Her research interests are related to: social and economic developments, poverty, macroeconomics, econometrics, macroeconomic imbalances, policy coordination, economic and financial crises, industrial revolutions, European Union budget and Multiannual Financial Framework, EU cohesion policy, economic development, regional development, regional policies, human development, digitalisation.

65. Strategic Communication for Post-Consumption Engagement in Sustainable Fashion: Extending Consumer Responsibility

Dr. Iuliia Iliashenko, Prof. Patrizia Gazzola, Prof. Roberta Pezzetti

ABSTRACT:
The fashion and textile industry is increasingly confronted with critical sustainability challenges, particularly concerning the post-consumer textile waste generation provoked by the rapid change of consumption trends. While progress has been demonstrated in the domain of sustainable production approaches development, the post-consumption phase as an essential dimension within the circular economy paradigm remains insufficiently addressed within both academic discourse and industrial strategy. This paper introduces the conceptual framework for the Extended Consumer Responsibility (ECR) as a complementary to Extended Producer Responsibility strategic approach to foster sustainable consumers behaviour, providing reconsideration of the post-consumption as a strategic frontier for sustainable value creation by engaging consumers actively after the use phase. Based on the systematic literature review and EU policy-driven key post-consumption strategic elements for circular fashion and textile related to the consumers awareness and engagement within the REsolve frame: reuse, repair recycling, this study discloses the potential to enhance sustainability through digitalized post-purchase communication strategy development that leveraging advanced digital technologies encourages closed-loop behaviours and long-term value co-creation in the evolving fashion ecosystem. Moreover, it highlights the strategic role of digital transformation processes as enablers of dynamic and personalized communication, supporting the development of transparent, purpose-driven post-consumption engagement frameworks.

Keywords: Sustainable consumption, fashion industry, consumers behaviour, post-consumption, communication strategy, digital technologies

Iuliia Iliashenko is a post-doctoral researcher within the NODES (Nord Ovest Digitale e Sostenibile) project at the Department of Economics, University of Insubria, Varese, Italy. Her research focuses on the intersection of digitalization, innovation, and sustainability, with a particular emphasis on the role of digital technologies in advancing sustainable production and consumption models in the fashion and textile industry. Her scientific interests include the convergence of digital and circular economy frameworks, aiming to foster more resilient and sustainable value chains. She earned her Ph.D. in "Methods and Models for Economic Decisions" from the University of Insubria, where she developed expertise in survey-based studies related to the interrelation disclosure between entrepreneurial thinking of managers and employees and organizational innovativeness.

Patrizia Gazzola is a Full Professor in the Department of Economics at the University of Insubria, Varese, Italy. She is the author of numerous peer-reviewed scientific publications in high-impact journals, including Corporate Social Responsibility and Environmental Management, Journal of Cleaner Production, and British Food Journal. Her research in these journals addresses pressing global challenges related to environmental responsibility, ethical business practices, and the integration of sustainability principles into organizational decision-making, offering both theoretical advancements and practical insights for academics, policymakers, and industry professionals. She is an active member of the Governance, Accountability and Sustainability Research Centre (GAS)

at the University of Aberdeen. Her primary research interests include sustainability reporting, corporate social responsibility, strategic management, and stakeholder engagement.

Roberta Pezzetti is an Associate Professor of International Business and Marketing Management at the Department of Economics, University of Insubria, Varese, Italy. She holds a Ph.D. in Marketing and Strategic Management from the University of Milano-Bicocca. She serves as the Scientific Director of the International Study Centre for Smart Organizations Management and Smart Territory Valorization (SMARTER), promoted by the University of Insubria. Her current research interests lie in the development of emerging sustainable strategies and innovative business models, particularly within science-based industries, the luxury sector, and the tourism industry. Her academic work is characterized by a multidisciplinary approach, addressing the challenges related to the strategic marketing in dynamic global contexts.

66. Applying the Cynefin framework to ESG challenges: A conceptual framework for managing sustainability challenges in companies

Dr. Iwona Gorzeń-Mitka

ABSTRACT:
Purpose - The purpose of this study is to explore the application of the Cynefin framework to ESG management, proposing a conceptual model that enhances decision making and adaptability. By mapping ESG challenges to Cynefin's domains - clear, complicated, complex and chaotic - it provides a structured yet flexible approach to sustainability in company. Methods – This study employs a conceptual analysis methodology, integrating theoretical insights from complexity theory and ESG management. The Cynefin framework is utilised as the analytical tool to classify ESG challenges into clear, complicated, complex, and chaotic domains. The research employs qualitative content analysis of ESG frameworks to map decision-making processes within these domains.
Results – The analysis uses the Cynefin framework to categorize ESG challenges. Clear issues include regulatory compliance, such as standardized carbon emissions reporting. Complicated challenges require expert-driven risk modeling, like climate scenario analysis or supply chain impact assessments. Complex issues involve shifting stakeholder expectations, for example, corporate diversity or ethical sourcing. In chaotic crises, immediate responses are crucial. This applies to industrial accidents, environmental disasters, or major corporate scandals affecting governance credibility. Conclusions – This study makes a novel contribution to the extant literature on the subject by integrating the Cynefin framework into ESG management challenges in company. The integration of the Cynefin framework provides a structured yet flexible approach, there by enhancing the ability of the company to adapt to regulatory shifts, stakeholder demands, and crises.
Practical implications – This study provides practical insights for ESG management by applying the Cynefin framework to enhance decision- making and risk management. Categorizing ESG challenges into clear, complicated, complex, and chaotic domains helps companies allocate resources effectively and develop adaptive strategies. It also supports crisis response in chaotic situations. By integrating this model into ESG frameworks, businesses can balance compliance with flexibility, improving sustainability performance.
Limitations - This study is conceptual and lacks empirical validation, limiting its real-world applicability. The classification of ESG challenges within the Cynefin framework is subjective, and its static structure may not fully capture the evolving nature of ESG issues.

Keywords: Cynefin framework, ESG management, complexity theory, decision-making, risk management, sustainability strategy

Iwona Gorzeń-Mitka, Ph.D., is an Assistant Professor, Department of Corporate Finance and Insurance, Faculty of Finance, University of Economics in Katowice (Poland). Her research interests include risk in corporate decision-making, enterprise risk management (application of ERM to ESG risks), risk management standards and methodologies, risk in organizational culture. She is the author (co-author) of 3 books and more than 120 scientific papers. She is deputy editor-

in-chief of the journal "Problems of Management in 21st Century". She is a member of scientific and professional associations, e.g. AOM, IRM Institute of Risk Management, Polish Economic Society, ERRN European Risk Research Network, The Global Association of Risk Professionals.

67. Climate change, investments, and discount rates for monetary and environmental goods

Assoc. Prof. Dr. Monika Foltyn-Zarychta, Dr. Rafał Buła

ABSTRACT:
Thesis statement: Climate change investments are long-term, spanning decades or even centuries. As Discounted Cash Flow based appraisal becomes highly sensitive to the discount rate over time, determining an appropriate discounting scheme is crucial. However, extant literature lacks consensus on elicitation approaches and recommended values, with discrepancies also found in investment impact types.
The research aims to elicit individual discount rates (IDR) for three types of goods: private monetary, public monetary and public non-monetary ones, and identify their main drivers.
Methodology: IDRs are elicited in an online survey using the Contingent Valuation method combined with the Value-Belief-Norm (VBN) model to provide insight into the motivations behind the willingness to act pro- environmentally. We use the descriptive statistics followed by a SEM-PLS approach.
Results: IDRs are higher for monetary than for environmental goods. VBN's environmentally-friendly personal norms positively impact the IDRs value. Greater trust in public authorities correlated with lower rates.
Conclusions and Implications: The results contribute to the discussion on project evaluation and discounting in climate change policy. The findings offer valuable insight for authorities making informed intergenerational decisions, particularly regarding energy transition and achieving the EU Green Deal goals.

Keywords: intertemporal preferences; discount rate; money; environmental goods

Monika Foltyn-Zarychta, PhD, Associate Professor, is a faculty member in the Department of Investment at the University of Economics in Katowice. Her research focuses on sustainability and ethical questions in capital and financial investments, with particular focus on intergenerational and climate change issues. She has been a visiting scholar at the Interdisciplinary Institute of Ethics and Human Rights at the University of Fribourg, Switzerland (2024). Additionally, she was a scholarship holder at the European Philosophy of Science Association at the Erasmus Institute of Philosophy of Economics, Rotterdam University (2015) . In 2019, she received the Beta Award for outstanding achievements in financial management. Since 2020, Monika Foltyn-Zarychta has chaired the Social Responsibility Team at the University of Economics in Katowice and participates in the Working Group on University Social Responsibility at the Polish Ministry of Development Funds and Regional Policy. She is also a member of the Society for Benefit-Cost Analysis (SCBA) and the East European Network of Philosophy of Science (EENPS).

Rafał Buła, Ph.D. is an assistant professor at the University of Economics in Katowice. His Ph.D. thesis focused on the fractal analysis of financial markets. His research interests include financial and capital investments, risk measurement, long-term discounting, and asset valuation. He teaches bachelor's, master's, and postgraduate courses on financial and international investments, risk management, and Excel and VBA applications in portfolio analysis. Rafał Buła has been a visiting lecturer at Esslingen University of Applied Sciences, Universidad CEU San Pablo in Madrid, Škoda Auto University, Széchenyi István University in Győr, University of Maribor, Agricultural University in Tirana, Technical University of Ostrava, and others. He was also a visiting scholar at the University of Southampton. Additionally, he is the manager of the Finance and Accounting for Business study program.

68. Heterogeneity of ESG Factors in the Context of Economic and Environmental Transformation: A Scientific Mapping of the State of the Art

Assoc. Prof. Dr. Joanna Błach, Dr. Iwona Gorzeń-Mitka, Dr. Małgorzata Lipowicz

ABSTRACT:

Purpose - The purpose of this study is to synthesize the extant literature on ESG research in the context of transformation/evolution drivers. It aims at identifying key factors determining the sustainable business evolution through the scientific mapping of 418 articles published in 2020-2025. Methods – This research methodology is based on different techniques, implemented through using SciMat software: bibliometric techniques, scientific map analysis and content analysis of research documents from Scopus. This approach enables the authors to examine the intellectual structure of the ESG research from the perspective of sustainable business transformation drivers, and trace its evolution over time. Results – The study shows the evolution of ESG research in the context of transformation drivers, highlighting recent topics such as: sustainable development goals, ESG investment, green economy, renewable energy and innovation. Conclusions – This study is a novel contribution to the ESG research focusing on sustainable business transformation drivers, using big data analytics to identify evolutionary changes, recent trends and promising directions for future research. Practical implications – This study identifies key drivers of ESG transformation/ evolution process indicating areas/actions that should be taken by managers and policy makers in order to enhance this process. Limitations - The main limitations stem from the selection of the Scopus database and the SciMAT software and its parameters.

Keywords: Sustainable business evolution, responsible business transformation, sustainable development goals

Joanna Błach, Post-Ph.D., is an Associate Professor of Finance and Head of the Department of Corporate Finance and Insurance, Faculty of Finance, University of Economics in Katowice (Poland). She is the director of the Finance and Accounting study programme (at Bachelor and Master level). Her research interests include corporate finance, sustainable finance, financial innovations, corporate governance and enterprise risk management. She is the author and editor of more than 100 book chapters and scholarly publications, in addition to several monographs and handbooks on financial management. Her teaching experience include finance-related courses for bachelor and master students, as well as post-graduate and doctoral programmes, both in Polish and English. Joanna Błach was invited as a visiting professor to several European universities e.g.: University of Verona, University of Split, University of Florence, Universidad CEU San Pablo in Madrid, Berlin School of Economics and Law, and Inholland University of Applied Sciences.

Iwona Gorzeń-Mitka, Ph.D., is an Assistant Professor, Department of Corporate Finance and Insurance, Faculty of Finance, University of Economics in Katowice (Poland). Her research interests include risk in corporate decision-making, enterprise risk management (application of ERM to ESG risks), risk management standards and methodologies, risk in organizational culture. She is the author (co-author) of 3 books and more than 120 scientific papers. She is deputy editor-

in-chief of the journal "Problems of Management in 21st Century". She is a member of scientific and professional associations, e.g. AOM, IRM Institute of Risk Management, Polish Economic Society, ERRN European Risk Research Network, The Global Association of Risk Professionals.

Małgorzata Lipowicz, Ph.D., is anv Assistant Professor, Department of Corporate Finance and Insurance, Faculty of Finance, University of Economics in Katowice (Poland). Her research interests include corporate finance, raising capital by enterprises, sustainable finance, corporate governance and green bonds and blue bonds. She is the author of more than 10 scientific publications. She is a member of scientific and professional associations, e.g. Polish Economic Society, Data Management Association (DAMA). Her teaching experience include finance- related courses for bachelor and master students.

69. Sustainable financing of local government activities through the use of bonds - the perspective of individual investors

Dr. Małgorzata Lipowicz

ABSTRACT:
Purpose - The aim of the article is to present the results of research identifying factors that influence the decisions of local government units to obtain funds for investments by issuing bonds and factors that encourage individuals – households to make responsible investments. The approach of units included in the GZM metropolis and their residents to sustainable financial instruments and socially responsible investments was verified.
Methods - Analysis of survey results. The surveys were addressed to local government units and individuals. The responses received were the basis for identifying factors related to the use of bonds in financing and investing.
Results - The research questions posed were answered positively. Confirmed: 1. Local government units are guided by the use of bonds in financing, in which the local community invests. 2. Individuals are willing to invest in instruments that belong to socially responsible investments (SRI).
Conclusions - Bonds, including green bonds, are an instrument that has great potential in financing the activities of the GZM Metropolis and its constituent local government units. For individual investors, green bonds are beneficial due to their low investment risk, the possibility of engaging in local investments and the investment diversification.
Practical implications - Local government units should use bonds and green bonds to a greater extent to finance investments. This will also contribute to expanding the catalog of socially responsible instruments that can be used by individual investors.

Keywords: bond, green bond, local government unit, individual investor, socially responsible investments, survey study,

Małgorzata Lipowicz, Ph.D., is an Assistant Professor, Department of Corporate Finance and Insurance, Faculty of Finance, University of Economics in Katowice (Poland). Her research interests include corporate finance, raising capital by enterprises, sustainable finance, corporate governance and green bonds and blue bonds. She is the author of more than 10 science publications. She is a member of scientific and professional associations, e.g. Polish Economic Society, Data Management Association (DAMA). Her teaching experience include finance-related courses for bachelor and master students. Małgorzata Lipowicz has many years of extensive banking experience in a financial corporation where she implemented projects in the field of IT and she managed project in area of data.

70. Sustainable dividend policy and its impact on companies' market performance

Dr. Rafał Buła

ABSTRACT:
Thesis statement A dividend policy is one of the crucial factors influencing companies' relations with investors. A fundamental question regarding the dividend puzzle posed by Black is why investors pay attention to dividends. Thus, the main aim of the paper is to determine the influence of a sustainable dividend policy on market performance. The hypothesis states that companies conducting sustainable dividend policies generate abnormal returns for investors. Methodology ANOVA methods and their non-parametric analogs (Wilcoxon test, Friedman test) were used to analyze US, German and Polish stock-listed corporations over the period 2016-2023. Companies were analyzed taking into account the P/E and P/BV ratios (growth vs. value) as control variables. Results No significant relationship between dividend sustainability and market performance has been found. Investors' actions seem to be driven by other factors than sustainable dividend policy. The abovementioned hypothesis has been rejected in favor of the no effect hypothesis. Conclusions and Implications The impact of dividend policy sustainability on investors' abnormal rate of return seems to be exaggerated. The dividend policy should not be the sole criterion of making investment decisions.

Keywords: sustainable dividend policy, market performance, dividend puzzle, abnormal return

Rafał Buła, Ph.D. is an assistant professor at the University of Economics in Katowice. His Ph.D. thesis focused on the fractal analysis of financial markets. His research interests include financial and capital investments, risk measurement, long-term discounting, and asset valuation. He teaches bachelor's, master's, and postgraduate courses on financial and international investments, risk management, and Excel and VBA applications in portfolio analysis. Rafał Buła has been a visiting lecturer at Esslingen University of Applied Sciences, Universidad CEU San Pablo in Madrid, Škoda Auto University, Széchenyi István University in Győr, University of Maribor, Agricultural University in Tirana, Technical University of Ostrava, and others. He was also a visiting scholar at the University of Southampton. Additionally, he is the manager of the Finance and Accounting for Business study program.

71. Re-purposing E-Waste to Address Social Needs and Sustainable Development

Assoc.Prof. James Colwill, Prof. Jenny Harding

ABSTRACT:
The recent UN Sustainable Development Goals Report highlights the continued inequality that exists between nations. Between 2019 and 2022 an additional 23 million people were pushed into extreme poverty, over 100 million more suffered from hunger, half the world's population experienced severe water scarcity, while over 2 billion live without safe drinking water. Meanwhile a record 62 million tonnes (Mt) of e-waste was produced in 2022, up 82% from 2010 and predicted to rise another to 82 million tonnes by 2030. Despite targeted legislation and investment in waste management, the world's generation of electronic waste is rising five times faster than documented e-waste recycling, demonstrating an intrinsic failure of current e-waste management options. This paper argues that re-purposing is the most effective e-waste management option, achieving measurable benefits whilst simultaneously addressing global sustainable development needs in each of the four dimensions: environmental, social, economic and cultural. Several case studies are presented that highlight the effectiveness of this approach, demonstrating how products, manufactured locally via social enterprise, can satisfy the social, economic and cultural needs of the community served and provide sustainable economic growth without environmental degradation. Finally, proposals that promote wider adoption of this method are discussed.

Keywords: Re-purposing, e-waste, sustainable development, social enterprise, social needs

Dr. James Colwill is Associate Professor in Sustainable Manufacturing and Design, and the Program Director for Product Design Engineering and Manufacturing Engineering UG Degrees at Loughborough University, UK. James's research focuses on sustainable product design, LCA, and eol management. He is also the MD of Seven Earth Ltd, supporting businesses in their transition to sustainable production.

Dr Jenny Harding is a Professor in Intelligent Manufacturing Knowledge Systems at Loughborough University. Her research aims to support manufacturing practitioners through the provision of the most appropriate knowledge at the right time, (whether this relates to product design or manufacture or to the design or control of the manufacturing systems). Her industrial experience includes textile production and engineering, including 7 years working in R&D at Rank Taylor Hobson Ltd.

72. Opinions of students on the role of universities in improving digital competencies in the context of achieving sustainable development goals

Dr. Jaroslaw Kujawski, Prof. Arleta Szadziewska

ABSTRACT:
Digitalization is a key driver of economic competitiveness, innovation, and quality of life, transforming various aspects of human activity. Technologies like AI, machine learning, cloud computing, blockchain, robotic process automation, and big data accelerate information flow and processing, reshaping global economic, socio-political, and cultural landscapes. In this evolving reality, universities play a crucial role in both developing students' digital competencies for effective use of digital tools and achieving particular sustainable development goals. This article examines students' perspectives at the University of Gdansk's Faculty of Management on universities' role in enhancing students' digital skills. Research methods included:

- literature analysis on digitalization in education along with sustainable development goals,
- a survey of 261 students (258 responses analyzed, representing 64.8% of the target group),
- descriptive statistical analysis.

Findings suggest universities have a limited impact on digital competency acquisition, with only 26% of students attributing their skills to academic studies. The primary sources of digital skills were personal Internet use (67%) and work experience (60%). However, 55% acknowledged universities' role in skill enhancement, particularly in information search (50%), spreadsheet use (51%), and text editing (47%). The study is limited to one university and specific courses, preventing broad generalization. Nonetheless, it expands knowledge about the importance of universities in acquiring and improving students' digital competencies. It also highlights the importance of universities in digital skill development, which is essential for students' employability and career success in an increasingly digital world.

Keywords: digital competencies, sustainable development goals, students, universities

Dr Jaroslaw Kujawski is associate professor at the Department of Accountancy at the Faculty of Management of the University of Gdansk, Poland. His areas of interest are research and practice in robotic process automation in accounting, managerial accounting, digital competencies of students, gamification and use of business simulation games in finance and accounting education. He is also professionally active in implementing modern data processing solutions in the field financial and management accounting into business practice. Jaroslaw also delivers training and consultancy in business performance control, planning and restructuring.

Prof. Arleta Szadziewska is head of the Department of Accountancy at the Faculty of Management of the University of Gdansk, Poland. She concentrates her research on the role accounting plays in measuring and reporting the effectiveness of socially responsible activities, non-financial information in the assessment of enterprise activities, quality of non-financial reporting (including the credibility and usefulness of reporting for stakeholders and sustainable development). Arleta also conducts and participates in research on non-financial risks, ethics in the accounting profession, digitization of non-financial reporting, and use of learning methods in teaching accounting (specifically, digital platforms such as MS Teams and Moodle).

73. Scarcity of primary data in life cycle assessments of lithium-ion battery manufacturing: A systematic review

Jean Carlos Bassani, Dr. Marcell Mariano Correa Maceno

ABSTRACT:

With increasing greenhouse gas emissions, lithium-ion batteries (LIBs) are becoming a promising technology for decarbonization, particularly in the urban mobility sector. However, their production involves critical materials and large energy consumption processes, requiring robust environmental evaluation. Life Cycle Assessment (LCA) plays a key role in assessing the environmental impacts of the manufacturing phase. This study presents a systematic literature review (SLR) focused on identifying the use of primary data in LCAs of LIB manufacturing. The review was conducted using Scopus and SciFinder databases through an iterative search strategy combining keywords related to LIBs, manufacturing, LCA, and primary data. From an initial pool of over 205,000 articles, only four met the inclusion criteria of applying primary data to the manufacturing phase. Most studies focused on LMO and NMC chemistries, primarily in pouch or prismatic formats, and used cradle-to-gate boundaries. Despite being labeled as primary-data-based, these studies showed strong reliance on secondary datasets, limited geographical coverage, and no recent publications within the last five years. The variability in reported CO_2 emissions further reflects methodological inconsistencies. These findings indicate a substantial literature gap in recent, geographically diverse, and methodologically transparent LCA studies using primary data for LIB manufacturing, raising concerns about the reliability of current environmental assessments.

Keywords: "Lithium- ion batteries", "life cycle assessment", "manufacture" and "primary data".

Mr. Jean Bassani is a Master's student at the Federal University of Paraná (UFPR) in Curitiba, Brazil. Passionate about life cycle assessment (LCA), his dissertation focuses on the nationalization of lithium-ion battery production and its role in Brazil. He also collaborates with the Instituto SENAI de Inovação em Eletroquímica, where, as part of Brazil's pioneering lithium-ion megafactory initiative, he is responsible for the life cycle assessment of all manufacturing stages. His work investigates the sustainability and viability of these processes to support the development of a national supply chain for lithium-ion batteries.

Dr Marcell Mariano Correa Maceno Master's and a PhD in Water Resources and Environmental Engineering from UFPR. Currently, he is an Adjunct Professor IV at UFPR in the Production Engineering program, focusing on Environmental Management and Product Design. He also serves as the vice-coordinator of the Graduate Program in Production Engineering and is a professor in the Graduate Programs (PPG) in Production Engineering and Civil Engineering at UFPR. His research interests include Environmental Management Systems (EMS) (implementation, certification, and diagnosis in private companies), cleaner technologies for process improvement, Environmental Flow Accounting, Life Cycle Assessment (LCA) of products, Design for X (DfX) for improvements and material reduction, and Circular Economy. He is a member of RAICV (Life Cycle Impact Assessment Network) and the ACPN (Advances in Cleaner Production Network)

74. Symbolic or Substantial: Firms' Adaptive CSR Compliance Strategies in Developing Country

Dr. Wooyoung Yang, Dr. Jiyeon Kim

ABSTRACT:
This study examines how institutional development and pressure influence corporate social responsibility (CSR) compliance strategies among firms in developing country contexts. The research uses CSR report data from Chinese A-market companies across 31 provinces over nine years to investigate the relationships between institutional development, pressure on CSR compliance, and firms' strategic responses. The study employs institutional theory to analyze how firms adjust their CSR compliance behaviors as institutional environments evolve. It explores whether companies engage in symbolic compliance (superficial adoption) or substantial compliance (meaningful integration) of CSR practices. Key findings reveal a significant link between institutional development and pressure levels influencing CSR compliance. The combined effect of development and pressure surpasses the influence of pressure alone. Evidence of symbolic and substantial CSR compliance suggests firms strategically adjust their efforts based on the institutional environment. This research offers valuable insights for policymakers and stakeholders seeking to encourage meaningful CSR practices. Understanding how firms respond to institutional pressures across different development levels can inform the design of more effective regulatory frameworks and drive impactful CSR initiatives in emerging markets.

Keywords: CSR, institutional development, institutional pressure, institutional theory, symbolic, substantial

Wooyoung Yang (Ph.D., Kunsan National University, South Korea) is an Assistant Professor of International Trade at Kunsan National University. His research focuses on Corporate Social Responsibility, business ethics, organizational behavior, and other relevant topics in international business.

Jiyeon Kim (Ph.D., University of South Carolina, U.S.A.) is an Associate Professor of Retailing in the College of Hospitality, Retail & Sport Management at the University of South Carolina. Her research interests are consumer behavior, retail management, marketing, and sustainability. Her work has been published in journals including the Journal of Retailing and Consumer Services, Psychology & Marketing, International Journal of Retail and Distribution Management, and European Journal of Marketing.

75. Corruption, Rule of Law, and Sustainable Development in Africa: A Human Rights Perspective

Prof. John Cantius Mubangizi

ABSTRACT:
This paper explores the relationship between corruption, the rule of law, and sustainable development in Africa from a human rights perspective. It argues that pervasive corruption undermines legal and institutional frameworks, weakens public trust, and obstructs the enforcement of human rights essential to sustainable development. The paper contends that the erosion of the rule of law enables the mismanagement of public resources, fosters inequality, and impedes the realization of the Sustainable Development Goals (SDGs). Through case studies from diverse African contexts, the paper highlights the urgent need for institutional reforms that strengthen legal accountability and integrate human rights principles into governance and development strategies. The paper concludes that combating corruption and reinforcing the rule of law are not merely technical governance challenges, but moral and legal imperatives rooted in the obligation to protect and promote human dignity. Sustainable development in Africa, it argues, is contingent upon legal systems that uphold justice, equity, and the rule of law for all. The paper recommends a human rights-based approach to combating corruption and to sustainable development. It also recommends promoting transparency, strengthening judicial independence, and enhancing civic society participation, among other things.

Keywords: Corruption; rule of law; sustainable development, human rights, Africa.

Professor John C Mubangizi is a Research Professor in the Free State Centre for Human Rights, Faculty of Law at the University of the Free State (UFS), South Africa. Before that he was Dean of the Faculty of Law (UFS) from 2018 to 2023. He joined the UFS after serving as Deputy Vice-Chancellor and Head of College of Law & Management Studies at the University of KwaZulu-Natal from 2007 to 2017. He is the author of The Protection of Human Rights in South Africa: A Legal and Practical Guide (Juta: 2004 and 2013) and editor of Corruption in South Africa: A Legal Perspective (Juta: 2024). He has also published numerous peer-reviewed journal articles and chapters in books. He is a Member of the Academy of Science of South Africa (ASSAf) and served as Advisor and Member of the ASSAf Council (2012 – 2015). He also served as Chair of the Higher Education Quality Committee (HEQC) and a Member of the Council on Higher Education (CHE) of South Africa (2015 – 2018).

76. A Salesian Sustainable Model to ensure the Education and Skills Training of the underprivileged youth in the Philippines. The Don Bosco – One TVET Philippines (DB1TVET) Sustainability Plan (2022-2025)

Fr. Jose Dindo Vitug

ABSTRACT:
Poverty and the lack of access to education and employable skills remain a major concern in the Philippines. In the year 2023, the Philippines Statistics Authority (PSA) recorded a staggering 10.9% national poverty incidence among families. This is equivalent to 2.99 million Filipino families without enough income to meet their basic food and non-food needs (Philippine Statistics Authority, 2024). On the other hand, youth unemployment remains high at 6.85% (Macrotrends, 2025). As regards government appropriation on education, the Philippine Institute for Development Studies (PIDS) revealed students' poor learning outcomes and low quality of education may be attributed to low education funding (PIDS, 2023). The numbers are not encouraging especially as they represent past decades and current struggles confronting the socio-economic conditions of the country.
The Salesians of Don Bosco (SDB) was founded by St. John Bosco, a nineteenth-century Italian educator, who dedicated their missionary work at the service of young people, especially the poorest and most abandoned (sdb.org). St. John Bosco defines the beneficiaries as those who "must be provided with shelter, food and clothing and, at the same time, must be instructed in the truths of the faith; in addition, they will be initiated into an art or a trade. Thus, the birth of the "Vocational Training Center". The Vocational Training Center and Salesian school were born in Valdocco, Turin to respond to the concrete needs of young people and to include them in a global project of education and evangelization, especially the most needy (SDB Frame of Reference, 2024). In the Philippines, the Salesian congregation started its work in Technical Vocational Education and Training (TVET) since 1971, not only to give employment opportunities and alleviate poverty, but more so to guarantee the integral development of poor youth (St. John Bosco Today, 2019). The TVET centers are struggling to pursue their apostolic work. They are faced with multiple issues that challenged their survival and the pursuit of their impact in the socio-economic conditions of their beneficiaries. Through the years, the centers depend heavily on donations both locally and internationally. Sadly, diminishing foreign grants, dwindling benefactors, ageing facilities, higher cost of operation, and limited funds persists in the educational centers (CPSC, Models of Effective Institution – Industry Collaboration, 2022). Faced with long-term financial sustainability or closure at worst, the Don Bosco – One TVET Philippines (DB1TVET) National office which takes care of the animation and governance of the 18 TVET centers formed an Ad hoc committee on April 2022 to craft the Sustainability Plan to ensure the continuation and the resurgence of the TVET ministry in the post pandemic era. The Salesian Sustainable Model (Sustainability Plan) identified six (6) critical areas to drive its growth and sets the future direction for the sustainability of the 18 TVET centers. The Framework consists of "Salesian Mission" at the core, complemented by Governance and Management, Financial stewardship, Quality systems, External relations, and green programs (DB1TVET, Crossroads, 2024). The DB1TVET's Sustainability plan ensures the commitment to the very purpose of its establishment and mission as espoused by the St. John Bosco.

To achieve this end,

1. Governance structure must be professional, responsive and efficient.
2. Integrity, transparency, and accountability are the hallmark of its stewardship.
3. A culture of excellence and perpetual learning is distinctive among members.
4. Drives stakeholders towards the growth and continuity.
5. Strong proponent towards green programs and initiatives.

Keywords: Salesian Sustainable Plan, Underprivileged Youth, DB1TVET, Sustainability Plan, Sustainability Framework

Fr. Jose Dindo Vitug, SDB, is a notable leader in the field of education and vocational training. He holds a Ph.D. in Educational Leadership and Management from De La Salle University in Manila. His professional development includes participation in specialized programs such as the Leadership in Education Program at the National Institute of Education (NIE) in Singapore, and Management training for Technical and Vocational Education and Training (TVET) administrators at the Internationales Institut Fur Berufsbildung (IfB) in Mannheim,Germany. Currently, he serves as the Chancellor of the Don Bosco Educational Centers (DBEC) and as the Executive Director of Don Bosco – One TVET Philippines, which encompasses 18 vocational institutions. Additionally, he holds the position of Coordinator of Don Bosco TECH ASEAN, overseeing 36 TVET centers across 8 ASEAN countries, and is a Trustee in the DBEC network's schools and TVET centers. His extensive background highlights a commitment to educational leadership and vocational training in the region, fostering the growth and development of future generations.

77. Converging Technology and its Contribution to Corporate Sustainability

Prof. Juan David Cruz Negrete

ABSTRACT:
The objective of this study is to detect the relationship about the use of converging technology into companies in Magdalena (Colombia) and its contribution to corporate sustainability practices. The methodology used was bibliographic review (qualitative) as well as the development of a survey (quantitative) to companies leaders, academics/researchers, and government representatives; this to obtain data to proceed to detect the most important technologies for stakeholders to contribute to sustainable development in Magdalena (Colombia), also to develop the scheme of materiality (prioritizing) designed by the Global Reporting Initiative -GRI- to figure out the most relevant management approach for adopting technologies as well as the most relevant technologies to impact sustainably. Among the findings it was detected that the most relevant technologies for adopting technologies are Renewable Energy Technologies (60,8%), Artificial Intelligence AI (48,5%), Smart Transportation (44,6%), Biotechnology (28,5%), and Cybersecurity (28,5%); the prioritized management approaches were Total Quality Approach, (10 points), Corporate Social Responsibility (9), Scientific Management Theory (9), Knowledge Management Approach (8); and the most powerful challenges for companies to adopt converging technologies are Financial restrictions (68,5%), Training of employees in technologies topics (48,5%), and the context (40%).

Keywords: O33 Technological Change, O32 Management of Technological Innovation and R&D, M1 Business Administration, M15 IT Management, M14 Corporate Culture

Prof. Juan David Cruz Negrete is student of the Doctoral Program in Sustainable Development (Universidad de Manizales, Colombia); Master Degree in Management (Deusto Business School, Spain), Specialist is in Investment Projects (Magdalena University, Colombia), Degree in International Business (Magdalena University, Colombia). He works as a project management and corporate sustainability professor at Magdalena University (since 2016), also worked as a management intern at DKV International Insurance (Donostia, Spain - 2015); He was a Member of International Support Panel at Ugam Solutions (Mumbai, India - 2012). In his researching role, he has been studying mainly in topics related to sustainability like convergent technology, 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, Norway, etc.

78. The Ones Left Behind: Policy Coherence and Sustainable Development in Ethiopia

Ms. Julia van Stenis

ABSTRACT:
The United Nations' 2030 Agenda strives to 'leave no one behind'. The Policy Coherence for Sustainable Development framework employed by the Netherlands, aims to leverage mutually-beneficial relationships in its development cooperation efforts and aspirations towards SDG attainment. The assessment of its merits is situated in the context of Ethiopia's pastoral communities, investigating the interplay of SDG 13 (climate action) and SDG 16 (peace, justice and strong institutions) as well as the role of resilience in addressing consequential hardships. This research integrates critical and inclusive development theory in understanding the dynamism of the development arena between the Netherlands and Ethiopia, their underlying national policy priorities, and the (non-)inclusive efforts towards pastoral engagement. The qualitative research design employs in-depth interviews and informal meetings with experts and policy makers complemented by a two-step policy analysis. Findings indicate a prominent focus on short-term threat assessments, declining medium-term risk management mechanisms, and unfavorable long-term resilience building efforts dictating the lived experiences of Ethiopia's pastoralists. Furthermore, the inherently politicized nature of the policy process reveals the dominating ideas, interests and institutions of the Netherlands, Ethiopia, and other international actors in shaping the pastoral policy arena and its outcomes. The substantial and procedural incoherence of policy translates into the continuing marginalization and exclusion of pastoral communities from national and global development agendas. Hence, policy recommendations call for participatory horizontal and vertical dialogues on an international scale and the enhancement of consultative practices in working towards policy coherence and striving to achieve the universal pillar of 'leaving no one behind'.

Keywords: Climate-Conflict; Pastoralism; PCSD; Ethiopia; The Netherlands;

Ms. Julia van Stenis is a researcher affiliated with the University of Amsterdam specializing in sustainable development and pastoralism. Her master's thesis explored the socio-economic and environmental dimensions of Ethiopian pastoralist communities, focusing on resilience, land governance, and adaptation to climate change. Her research highlights the critical role of Policy Coherence for Sustainable Development (PCSD) in ensuring effective governance and policy interventions that support pastoralist livelihoods. She examines the interactions between SDG 13 (Climate Action) and SDG 16 (Peace, Justice, and Strong Institutions), emphasizing how climate change exacerbates conflicts over land and resources, and the need for inclusive governance frameworks to enhance resilience. With a background in international development, Julia is committed to bridging academic research and policy implementation to drive sustainable solutions. She is currently involved in projects addressing the Sustainable Development Goals (SDGs), advocating for integrated approaches that strengthen environmental and social justice policies.

79. Cultural bias and cultural values in the academic field of diplomacy

Prof. Assoc. Dr. Julianna Nádai

ABSTRACT:
It has always been a challenge to instruct students with various cultural and national background at universities; it is especially true when it comes to the complex issues of diplomacy. The aim of the presentation is to highlight the challenges experts have to face when teaching the subject of diplomacy in higher education institutions. Both professors and students must be aware of the potential cultural bias when the focus is laid on international issues. Nevertheless, there is a demand for being well informed about the current diplomatic activities, which require open-mindedness and an objective approach, which are very hard to reach. The study reveals the competences necessary both for professors and students to avoid or minimize a biased perception of reality and besides, which values are definitely obvious and emphasized when discussing crucial and sensitive topics. The method of analysis is based on secondary literature results and semi-structured interview with professors and international students at Széchenyi University in Hungary. The study attempts to find out the solutions to minimize bias and strengthen values in the academic discipline of diplomacy.

Keywords: bias, diplomacy, higher education, international students, values

Dr PhD 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 countires to have a deep scientific cooperation.

80. Where worlds collide: Resilience in Indigenous cultural heritage and climate change

Assoc. Prof. Dr. Kabini Sanga

ABSTRACT:
For peoples of the Pacific Islands region, there is a complex relationship and connectedness between cultural heritage and climate change. This symbiotic relationship has meant that Pacific peoples' cultural heritage is vulnerable to and threatened by human-induced climate change. Yet, cultural heritage is the sound basis from which Pacific Islands peoples can develop resilience to, and adaptation mechanisms in response to the climate crisis. Part of a multi-year ethnographic project, this study of the Indigenous Gula'alā people of Solomon Islands (South Pacific Ocean), by an Indigenous Gula'alā knowledge guardian (as the researcher), focuses on sili, an Indigenous Gula'alā heritage art of knowledge creation and repository. The study sought to capture aspects of the spiritual heritage of Indigenous Gula'alā people and how they respond to the damaging impacts of climate change to their tribal shrines, sacred sites, burial grounds and kastom (Indigenous) beliefs and daily ways of life. The study places Indigenous Gula'ala sili and its repositories of Indigenous knowledge within the totality of cultural heritage. Methodologically, the presentation will be undertaken as an Indigenous lament, thereby demonstrating the complexities of relationships between all-worlds relationalities, loss, resilience, and potential restorations of cultural heritage within dynamic changing times. Implications and lessons from the study for other Indigenous peoples and global audiences are shared. Attendees of this session are invited to a tok stori (Melanesian dialogic group conversation) on the complex relationships between (spiritual) heritage and climate (physical worlds) change.

Keywords: Heritage, climate resilience, Solomon Islands, Melanesian Tok stori, Indigenous knowledges,

Dr Kabini Sanga holds an associate professor role in Education at Victoria University of Wellington, New Zealand. Born in the Solomon Islands, he went to university in Fiji and obtained his graduate qualifications in Canada. While living in New Zealand, he remains a tribal alafa (guardian) of the Gula'alaa people of Mala'ita Island in the Solomon Islands archipelago. He is an educator and mentor. He teaches, researches and speaks on subjects including leadership, education and Indigenous knowledges throughout the Pacific Islands region.

81. Rethinking the Role of Circular Economy in Socially Sustainable Organizations Case: Ekomaa Recycling Store

Kati Viljakainen, Marika Kurkinen

ABSTRACT:

Thesis Statement:

Studies of the circular economy are often approached from the perspective of the economic and environmental impact. Using the case study of Ekomaa Recycling Store in Kouvola, Finland, this study examines the intersection of four dimensions of sustainability, highlighting social dimension. The comprehensive sustainability framework is recognized as a key component of strategic decision-making, particularly in the circular economy context. Methodology: In February 2025 semi-structured interviews (6) were conducted with stakeholders, including the organization's operational staff, managers, and strategic planners. The analysis is framed using dimensions of sustainability and the United Nations Sustainable Development Goals (SDGs). Results:

Our findings indicate that Ekomaa's impact extends beyond social sustainability, reinforcing the economic and environmental aspects of the circular economy. The workplace acts as a transformative environment where employees internalize sustainable practices. However, strategically incorporating sustainability could improve stakeholder engagement, resource distribution, and long-term adjustment. Conclusions and Implications: This study highlights Ekomaa as a best practice for integrating circular economy practices with social sustainability principles. It emphasizes the need for stronger sustainability strategies that foster participatory work cultures, behavioral transformation, and knowledge sharing. The results reveal that organizations that engage in circular economy initiatives can enhance social sustainability by embedding sustainability principles into their decision-making processes.

Keywords: Sustainable Development, Circular Economy, Social Sustainability

Mrs. Kati Viljakainen, Master of Design, is an RDI specialist at the Creative Industries Research Unit at South-Eastern Finland University of Applied Sciences. She specializes in service design-driven development within sustainability and the circular economy. In the "Treasures Lost at the Waste Sorting Station" project, Viljakainen is working to create a service concept that reduces waste generation and promotes circular economy opportunities. Through collaboration with various stakeholders the project aims to improve material flows and resource efficiency. Her approach integrates design thinking, research, and user-centered innovation to support systemic sustainability transitions. With a strong background in cross-sectoral cooperation, she focuses on developing scalable and adaptable solutions that align with circular economy principles. Viljakainen's work reflects a commitment to fostering sustainable practices through practical implementation and strategic foresight, helping organizations navigate the challenges and opportunities of a resource-conscious future.

Ms Marika Kurkinen, Master of Design, is project manager at Forest, the Environment and Energy Unit at South-Eastern University of Applied Sciences, Kouvola, Finland. She specializes in sustainable development, circular economy, and service design. She leads the "Treasures Lost at the Waste Sorting Station" project, which aims to develop innovative solutions, new operating models, and forms of cooperation to prevent waste generation and promote the recycling of usable goods. By focusing on service concept development at the consumer interface, her work contributes to advancing circular economy practices and promoting sustainable resource management.

82. Same Plastic, Same Footprint? Towards a Harmonized Plastic Footprint Benchmark

Dr. Khaoula Houssini, Prof. Jinhui LI, Prof. Quanyin Tan

ABSTRACT:
Global Plastic Treaty negotiations call for the urgent need to curb plastic pollution, yet fragmented policies persist due to a lack of standardized footprint metrics. While countries prioritize production caps, narrow reduction strategies risk shifting burdens across ecosystems. We introduce a harmonized footprint benchmark evaluating seven metrics—carbon footprint, energy, water, land use, recyclability, renewable to non-renewable, and ecotoxicity—across the lifecycle of conventional and bio-based plastics in Europe and China. These metrics are integrated into a Footprint Impact Score (FIS) and normalized into a Sustainability Index Score (SIS), weighted by expert evaluation. Results show China's coal energy mix drives 20–50% higher greenhouse gas emissions and PM2.5 pollution than Europe. Recycling reduces emissions by 3.9 kg CO_2 eq/kg when comparing to production. Polylactic acid (PLA) offers lower carbon footprints but exacerbate water (129–148 kg/kg) and land use (0.53–0.62 m^2a/kg). The harmonized benchmark reveals disparities due to resource, energy and ecotoxicity performance: HDPE (SIS=0.87) and PP (0.82) in Europe, vs. HDPE (0.71) and PET (0.69) in China, while PVC and ABS rank lowest in both regions. The findings address gaps in holistic sustainability benchmarking, offering actionable insights for region-specific policy and strategies to end plastic pollution.

Keywords: plastics footprint, metrics, benchmark, footprint impact score, sustainability

Dr. Khaoula Houssini is an Italo-Moroccan Postdoctoral Research Fellow at the School of Environment, Tsinghua University. She earned her Ph.D. from Shanghai Jiao Tong University and her undergraduate studies at the University of Milan. Dr. Houssini has made significant contributions to the field of environmental material science and footprint through her extensive research and publications in leading scientific journals such as Environmental Science and Pollution Research, Journal of Cleaner Production, Resources Policy, Resources, Conservation & Recycling, Global Environmental Change and Communication Earth and Environment. Her research focuses on anthropocentric resource flows, material footprints, circular economy, and resource efficiency. She is committed to advancing sustainable practices in resource management to enhance circular economy practices and reduce environmental impacts.

Prof . Jinhui LI, Ph. D, started his research on environmental sciences since 1983. He takes full time position of professor in Tsinghua University, and is responsible for the operation of Asia-Pacific Regional Centre for Hazardous Waste Management Training and Technology Transfer (Basel Convention Regional Centre in China) which is hosted by Tsinghua University, supervised by the secretariat of Basel Convention, UNEP. His research focus on management and treatment technology of e-waste and hazardous waste, pollution control engineering of solid waste, environmental risk assessment, soil pollution remediation. His working experiences are as followed: 1990.8-1991.4, official, assistant engineer. Qinghuangdao Beidaihe Environmental Protection Agency 1991.4-1994.3, staff, assistant engineer, engineer. Dahua Refined Chemicals Ltd. in Qinhuangdao. 1997.8-1999.6, postdoctoral researcher. Department of Environmental Science an Engineering, Tsinghua University 1999.7 to present, associate professor, Professor. Department of Environmental Science an Engineering, Tsinghua University.

Prof. Quanyin Tan obtained his PhD in Environmental Science and Engineering, Tsinghua University, China. He was Visiting Researcher at University of Strathclyde, UK in 2012. His expertise includes solid waste management, circular economy and material flow analysis.

83. Validating the Theory of Planned Behaviour in Sustainability and Analysing Gender and Regional Disparities

Kushagra Mutreja, Ishaan Mukherjee, Keshab Gupta, Keshav Mehrotra

ABSTRACT:
This study investigates the applicability of the Theory of Planned Behaviour (TPB) in analyzing sustainable behaviour and examines gender-based and regional disparities in sustainability practices. Using survey data from six Indian states, the paper validates TPB's effectiveness in predicting sustainable behaviour by analyzing attitudes, perceived behavioural control, subjective norms, and behavioural intentions. Additionally, the paper explores gender differences by quantifying responses to key sustainability-related decisions, revealing that males are more inclined toward financial sustainability investments, while females demonstrate stronger engagement in household-level sustainable practices. Furthermore, the regional analysis highlights that respondents from regions with strong traditional influences exhibit greater adherence to sustainable practices, likely due to cultural upbringing and early childhood teachings. By combining statistical validation of TPB with numerical scoring for gender and regional disparities, this study provides actionable insights for policymakers and sustainability advocates.

Keywords: Sustainable behaviour, Theory of Planned Behaviour, Gender disparities, Financial Sustainability, Cultural Impact

Mr. Kushagra Mutreja is a 3rd-year Computer Science and Engineering student at Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha, India. He has a keen interest in Machine Learning and Data Science, with research focusing on finance and sustainability. Additionally, he is passionate about applying data-driven insights to real-world problems, leveraging analytical techniques to drive meaningful impact.

Mr. Ishaan Mukherjee is a third-year B.Tech student at Kalinga Institute of Industrial Technology, India. His research focuses on applying behavioural theories to understand and promote sustainability practices. In his current study, he investigates the applicability of the Theory of Planned Behaviour (TPB) to analyze sustainable behaviours, with a special emphasis on gender-based and regional disparities across six Indian states. His findings reveal nuanced patterns, such as men leaning toward financial sustainability investments, while women engage more actively in household-level sustainable practices. Ishaan is passionate about bridging research and policy, aiming to provide actionable insights for sustainability advocates and policymakers.

Mr Keshab Gupta is a 3rd-year Computer Science and Engineering student at Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha, India. With a keen eye for Data Analytics and a solid grasp of financial economics, he thrives on uncovering insights that drive smarter decision-making. Keshab is committed to leveraging analytical thinking to solve problems, always eager to bridge the gap between data and strategy.

Mr. Keshav Mehrotra is a 3rd-year Computer Science and Engineering student at Kalinga Institute of Industrial Technology, Bhubaneswar, Odisha, India. He has a strong interest in Machine Learning, particularly its applications in economics, finance, and sustainability. Passionate about leveraging data-driven insights, he explores predictive modeling and analytical techniques to solve financial problems. His research focuses on developing machine learning models to analyze market trends, optimize investments, and promote sustainable financial practices. Keshav is eager to expand his expertise through hands-on projects and collaborations, aiming to bridge the gap between technology, financial innovation, and environmental responsibility.

84. Youth-led Social Accountability to Defend Marine Space Rights in Indonesia

Lalu Hendri Bagus

ABSTRACT:
Coastal communities in Takalar, South Sulawesi, are being displaced from their marine farming areas due to the expansion of the Takalar Industrial Zone, designated as a Strategic National Project (PSN) by the Indonesian government. The project has led to the conversion of traditional fishing grounds and seaweed farms into industrial areas, threatening local livelihoods and undermining environmental sustainability. These changes have been accelerated by politically exposed investors, raising concerns about transparency and equity. Through the FAIR for ALL program, Transparency International Indonesia (TII) conducted a participatory intervention to equip local youth and student group Hipermata with tools for evidence-based advocacy. Over a year-long process, they received training on social audits, public procurement monitoring, budget analysis, and policy brief writing. What emerged was a civic movement driven by data Hipermata began to independently audit district government spending on marine and fisheries projects. Their findings revealed public funds disproportionately benefited bureaucratic expenditures and companies tied to political elites. The group publicized this evidence through media outlets, elevating local voices and influencing public debates. This presentation shares a tangible, replicable model for youth-led social accountability in politically constrained environments. It explores how civil society can reclaim civic space and shape local development by combining participatory data practices with public advocacy. The case affirms that sustainability must not only be environmental but also democratic and socially just.

Keywords: marine justice, civic space, youth empowerment, social audit, public procurement, Indonesia, participatory governance

Lalu Hendri Bagus works with the Natural Resource & Economic Governance Division, Transparency International Indonesia. He focuses on civic empowerment, participatory governance, anti-corruption, and environmental justice, and supports coastal communities in reclaiming decision making power through data driven advocacy. He has worked extensively with youth and civil society groups in Takalar to strengthen their role in marine space governance.

85. Identifying Designers' Needs for Effective Circular Product Design Tool

Lam Hio Kuan, Dr. Wan-Ling Chang, Ting-Yu Hsu

The circular economy (CE) provides a framework for sustainable production and consumption, with circular design playing a critical role in shifting from linear systems to models that promote continuous reuse of materials and products. However, many existing design tools focus on high-level strategies that assume entirely new business models, making them less applicable to production-oriented industries. This study explores the practical needs of designers in developing tools that support early-stage circular product ideation—where the majority of a product's sustainability impacts are determined.

We conducted two co-design workshops using a participatory design approach to surface user needs and assess current tools. Participants were graduate students in industrial design with foundational CE knowledge and experience in circular design projects. In the first workshop, participants tackled rapid design challenges and evaluated the usability and limitations of existing tools. In the second, researchers introduced key CE frameworks—such as the butterfly diagram, 9R frameworks, and Design for X (DfX) strategies—which participants used to prototype a circular product design card tool.

The study reveals specific, practice-based needs that can guide the development of user-centred circular design tools. These insights offer a foundation for creating more actionable, production-aligned resources to support CE transitions.

Keywords: Circular Economy, Circular Product Design, New Product Development, Product Circularity, Design for X(DfX), Design Strategy

LAM HIO KUAN is a graduate student in Industrial Design at National Cheng Kung University. Her research focuses on sustainable design, especially circular design and explores how design fosters circular transition. She also works as an intern circular designer at a local circular design firm, through design to assist companies more sustainably. She received her bachelor's degree in Interior Design from National Taiwan Normal University.

Wan-Ling Chang is an Assistant Professor of Industrial Design at National Cheng Kung University. Her research focuses on Participatory Design, addressing diverse user groups and technology applications, including elderly communities and AI-driven robotic technologies. She specializes in human-robot interaction, exploring how robots can assist in various contexts, particularly in enhancing older adults' mental health, wellness, and social participation. Her recent work has expanded to sustainable design education and circular design, investigating how design practices can align with circular economy principles to foster sustainability in both education and industry transitions. She received her PhD in Informatics, Computing, and Engineering from Indiana University Bloomington.

Ting-Yu Hsu is a second-year master's student in the Department of Industrial Design at National Cheng Kung University in Taiwan. She received her bachelor's degree in Industrial Design from Tatung University in Taiwan. Her research centres on sustainable design, the circular economy, design cards, and participatory design. She is particularly committed to investigating how circular economy design cards can assist student designers in developing circular products.

86. Is charity a missing link in sustainable development?

Dr. Lawrence Whitmore

ABSTRACT:
This presentation examines the moral virtue of charity and its importance in building a peaceful, sustainable and thriving society. While acts of charity in the form of donations play an important role in a circular economy, reduce the demand for natural resources, and help relieve poverty, the moral virtue of charity inclines individuals in a broader sense to have good will toward each other, to our shared eco-systems, and to future generations. This combination of good will and the desire to contribute to the well being of others and to the greater good is suggested as being a missing link in sustainable development. The tendency towards selfishness is still overwhelming in human life especially in the modern world and this is acting against the good intentions of sustainable development.
The presentation will explore how charity is viewed in different cultures and belief systems, how it relates to empathy, compassion and love, and how it can contribute to sustainability. Charity as a moral virtue gives individuals the power to make positive change in the world, and a culture of charity can transform human society away from a self-centered, destructive and overconsuming culture into one that is benign, peaceful, harmonious and sustainable.

Keywords: morality, virtue ethics, charity, culture of charity, sustainable development, moral philosophy

Lawrence Whitmore studied Pure Physics at the University of Surrey from 1986, graduating in 1994 with a doctorate degree. He has worked in scientific institutions in England, Italy, Austria, America, and Romania; most notably at Cambridge University and the National Institute of Physics in Iasi where he mostly was involved in the study of microstructures and atomic scale characteristics of materials. During the time of Covid, he became involved in sustainable development through 3D printing of scientific equipment. Realising the connection between human consumption and environmental exploitation and decline, he proposed that human moral development, in addition to technological development, was essential to achieving sustainability. He has since written several papers investigating this relationship, applying the classical understanding of moral vices and virtues and drawing particularly upon Dante's Divine Comedy.

87. Using Design Thinking for Sustainable Winter Jacket Design Ideas

Kavya Kashish, Assoc. Prof. Dr. Leela Rani

ABSTRACT:
While clothing is a basic for sustenance, fashion wear plays a special role. Fletcher (2008) states, sustainable fashion (SF) is characterized by "…. ecological integrity, social quality, and human flourishing through products, action, relationships and practices of use". Simply, SF emphasizes minimizing environmental impacts and maximizing social responsibility across SF products'' life cycle. Mukendi et al (2020), show the need for critical developments. Despite innovations like recycling and vegan materials, fashion industry's sustainability challenges remain, as fast fashion perpetuates human rights violations, unsafe labor practices and environmental harm, underscoring the urgent need for alterations in SF design and socio-economic changes It also calls for further strengthening practices like recycling, use of eco-friendly materials and re-design of products as key for sustainability. Sustainable design thinking integrates environmental considerations into fashion, promoting eco-friendly materials, innovative designs thus balancing functionality & aesthetics with environmental protection. An important task for green fashion entrepreneurs who understand a product's geo-social context is idea generation. This research undertook a hands-on approach to generating SF designs for winter jackets.The paper reports how SCAMPER design thinking tool was used by 15 undergraduates at a STEM University during a one-day workshop to creatively re-design winter jackets. The selected students had a mix of prior exposure to SCAMPER & were mentored during workshops for openness and creativity. Their ideas were analyzed and are reported here.

Keywords: Sustainable fashion, fast fashion, environmental impacts, design thinking, SCAMPER

Ms. Kavya Kashish is a pre-final year student pursuing bachelors of pharmacy in BITS Pilani university, India. She has a keen interest in Humanities & Management subject areas like, sustainability fashion and product designing. She aims to pursue her career in these fields only which integrates product designing and environmental conservation.

Assoc. Prof. Leela Rani is a faculty at Birla Institute of Technology and Science Pilani (India). She has 20+ years of experience in teaching and research in Management and Humanities domains at UG and PG levels (with special focus on sustainability and design thinking). She also guides PhD students as Supervisor.

88. Co-production Practices Between Public Officials and Citizens on Human Settlements Delivery in South Africa

Dr. Hlengiwe Precious Maila, Prof. Lianne Malan

ABSTRACT:
Citizen involvement in the creation and production of public services is one of the major topics in current public administration and public management research. The increase in research involving community participation is due to the increasing recognition of the expertise derived from lived experience and awareness of the potential value of incorporating service users as partners in the provision and governance of public services. The objective of this paper is to establish the current orientation of government towards public housing delivery as it pertains to citizen participation because the refrain, sit back and the state will deliver must be challenged – it is neither realistic nor is it in keeping with South Africa's system of government. A qualitative approach was followed and non-probability sampling was used. The sample consisted of Members of the Human Settlements Technical MinMEC, and non-governmental organisations and grassroot movements representing the voice of communities on human settlements matters. Semi-structured interviews were utilised to provide reliable and comparable qualitative data. The data was analysed using thematic analysis. The study found that co-production practices between the officials responsible for human settlements development and the citizens is dysfunctional, the power relations are unequal but there is willingness to collaborate. The study therefore recommends that inclusion strategies be established for multiple forms of knowledge and expertise to encourage horizontal relationships with citizens. A co-production model is introduced.

Keywords: Co-production, Citizen participation, Housing, Human settlements delivery, Public service delivery.

Dr Hlengiwe Maila is a research fellow at the School of Public Management and Administration at the University of Pretoria. Dr Maila's areas of interest and specialty are intergovernmental relations and co-production. Dr Maila works part time as a tutor on the Postgraduate Diploma on Public Management and Administration.

Lianne Malan is an Associate Professor in the School of Public Management and Administration at the University of Pretoria. Her fields of interest are intergovernmental relations and behavioural Public Administration. She has published numerous articles in the field and participated in various national and international conferences

89. Exploring How Future Orientations Shape Pro-Environmental Behaviour Among Finnish Youth

Liisa Mäkinen PhDc

ABSTRACT:
This study explores how young people's future orientations relate to their pro-environmental behaviour. Drawing from psychological and sociological perspectives, the research examines how Finnish youth's expectations regarding their personal and global futures are associated with environmentally responsible actions, such as lifestyle changes and civic engagement on climate issues. Based on a nationally representative Finnish youth survey (n ≈ 2300, aged 15–29), the study addresses three questions: (1) What types of future orientations are prevalent among young people? (2) How do individual-level factors, such as gender, attained education level, and socio-economic status, help explain these orientations? and (3) How are future orientations associated with pro-environmental behaviour? Quantitative analyses are conducted using SPSS, including descriptive statistics, correlations, and linear regression models. As the analysis is still ongoing, this poster will present the research framework, methodology, and selected preliminary observations. The study contributes to the understanding of youth agency in sustainability transitions and informs policy efforts that promote constructive and engaged future thinking among young people.

Keywords: youth, future orientations, sustainability, environmental behaviour

M. Liisa Mäkinen (M.A., M.Ed.) is a Doctoral Researcher at the Jyväskylä University School of Business and s Economics, Finland. Her dissertation explores young people's environmental agency, their future orientations, and the societal pressures they face in the context of the ecological crisis. She has extensive international experience in project coordination and education, having worked with the United Nations Development Programme, the European Parliament, and Finnish universities. With a strong interdisciplinary background and a passion for sustainability and social justice, her academic and professional interests include youth participation, sustainability transitions, and children's rights.

90. Planning a Sustainable and Resilient Electricity Grid

Madeleine Jendernalik, Prof. Dr. Ing. Christian Rehtanz

ABSTRACT:
The planning of electricity distribution networks currently focuses primarily on security of supply and economic efficiency. This paper investigates the hypothesis that integrating additional criteria can make the planning process both more sustainable and resilient. A stronger consideration of more resilient construction methods leads to a more sustainable network infrastructure in the long term, better prepared for extreme weather events. The objective is to develop an enhanced planning approach that facilitates the rapid restoration of power supply following infrastructure failures—such as those caused by the 2021 floods in the Ahr Valley. To achieve this, potential criteria for a more sustainable and resilient power grid are analyzed on two levels: the asset level (e.g., material selection, technological redundancies) and the planning level (e.g., decentralized structures, adaptive network strategies). Resilience and sustainability are not mutually exclusive but should be considered jointly. A resilience-oriented network optimization following the NOVA principle (Optimization before Reinforcement before Expansion) can be designed sustainably from the outset by prioritizing durable, resource-efficient, and flexible solutions in the planning phase. By incorporating these criteria, the resilience of distribution networks to external disruptions can be increased while simultaneously contributing to the sustainable transformation of the energy infrastructure.

Keywords: Climate Resilience, Net Zero Grid Operator, Sustainable Energy Infrastructure, Distribution Grid Operator, Grid Planning Optimization

Madeleine Jendernalik is a scientific researcher at the Institute of Energy Systems, Energy Efficiency and Energy Economics (ie3) at TU Dortmund University, Germany. She studied Industrial Engineering, combining electrical engineering and economics. At TU Dortmund University, she functions as one of the sustainability officers. Her research focusses on sustainability and resilience of distributed electricity grids. A holistic view of sustainability is important, as this is more than just reducing CO2 emissions in the supply chain. Instead, all 17 Sustainable Development Goals should be included. Moreover, planning and building a more resilient grid against extreme weather events naturally leads to a more sustainable grid in the future.

Christian Rehtanz received his diploma degree in Electrical Engineering in 1994 and his Ph.D. in 1997 at the TU Dortmund Univ., Germany. From 2000 he was with ABB Corporate Research, Switzerland and from 2003 Head of Technology for the global ABB business area Power Systems. From 2005 he was Director of ABB Corporate Research in China. From 2007 he is professor and head of Institute of Energy Systems, Energy Efficiency and Energy Economics at the TU Dortmund Univ. The main focus of his research is on system-technical considerations for a future energy and power system. For this, technologies in the areas of control technology, power electronics, central, distributed and renewable energies as well as storage systems are investigated for the special needs of future power and energy systems and related markets.

91. Children and Forced Migration: Education as a Tool for the Integration of Refugees from Ukraine in Poland

Dr. Magdalena Pokrzywa

ABSTRACT:
The invasion of Ukraine by the Russian Federation in February 2022 led to one of the largest waves of forced migration in Europe since World War II. Millions of Ukrainian citizens, including a significant number of school-aged children and adolescents, were forced to leave their homes in search of safety, protection, and support in neighboring countries, including Poland. The influx of refugee children posed an unprecedented challenge to the Polish education system—the urgent and effective integration of hundreds of thousands of students with experiences of forced migration.

The aim of this article is to analyze the role of education as a key tool for the social integration of children with refugee experiences into Polish society. In particular, it examines the impact of forced migration on children's functioning within the school environment, their emotional, linguistic, and cultural needs, as well as the adaptive strategies employed by schools, teachers, and supporting institutions. The article identifies the main barriers to the integration process—such as the lack of preparedness among teaching staff, systemic limitations, language difficulties, etc.—and analyzes the extent to which current educational policies address these challenges.

Keywords: forced migration, educational policies, children and adolescents, integration, Ukraine

Dr Magdalena Pokrzywa, University of Rzeszów, Poland - doctor of humanities in the field of sociology, Assistant professor at the Institute of Sociology of the University of Rzeszów, Poland. Sociologist and social worker conducting research in the sociology of social problems. Her research interests include social inequalities, social exclusion and intersectionality,

92. Colonialism's Legacy and Impact on Forest Ecosystems: Case Studies in Brazil and the Democratic Republic of Congo

Mai Dabees

ABSTRACT:
The deforestation of the Amazon rainforest in Brazil and the illegal copper and cobalt mines in the Democratic Republic of Congo (DRC) are two of the direst environmental crises of the 21st century. Through a historical analysis, this paper determines how the colonial history of both countries affect the modern-day policy and economic choices that exacerbate these crises. This paper finds that institutions put in place by European powers during colonialism remain and continue to determine the role of both countries in the international political economy. Brazil's government continues the conquest of the Amazon and extermination of indigenous communities that began under Portugal in pursuit of economic exploits, and the DRC continues to rely on foreign-owned mines within the country and the export of minerals to support itself. This aligns with the theory of path dependency by indicating that colonial powers determine a country's long-term roles in the global economy long after independence.

Keywords: environmental sustainability, socioeconomics, developing countries, global environmental policy, deforestation, colonialism, neocolonialism

Ms. Mai Dabees is a recent graduate of Bryn Mawr College. She graduated in May 2025 with a BA in Political Science with concentrations in Comparative Politics and Policy Formation and minors in Environmental Studies and Middle East Studies. Ms. Dabees grew up in southwest Florida and acquired an interest in the relationship between nature and human development from observing local projects at her father's coastal engineering firm. At Bryn Mawr, she has done extensive research on environmental justice and written papers on the effects of segregation and colonization on environmental degradation. Starting this fall, Ms. Dabees will be studying at Örebro University in Sweden for a one-year master's program in public planning for sustainable development.

93. A Historical and Contemporary Perspective: Thermal Comfort in Prefabricated Timber Houses

Dr. Maja Lešnik Nedelko, Prof. Dr. Miroslav Premrov, Teja Bohl, Jan Čokolič, Eva Gradišnik, Žiga Tomaž Krajnc, Ivana Manasova, Marko Pavlović, Assoc. Prof. Dr. Erika Kozem Šilih

ABSTRACT:
Timber construction is gaining popularity worldwide due to its advantages over traditional masonry systems, including energy efficiency, sustainability, and fast prefabrication. The technology of prefabricated timber buildings has evolved significantly, affecting the indoor environmental quality (IEQ) of such dwellings, which are generally perceived as offering high living comfort. While contemporary design practices aim to ensure high performance in new buildings, existing timber structures often fail to meet modern standards. In addition to common issues such as ageing, poor energy efficiency, and functional inadequacies, problems like seismic vulnerability, fire risk, and the so-called "sick building syndrome" are increasingly relevant. As part of the project Indoor Environmental Quality in Prefabricated Timber Houses: A Historical and Contemporary Perspective, funded through the Public Call Problem-Based Learning for Students in a Work Environment 2024–2027, we investigated IEQ in two houses built by the Slovenian manufacturer Marles. The project was carried out in close collaboration with the company. Using long-term measurements, we assessed and compared thermal comfort and other parameters in an older and a newer prefabricated timber house. The findings offer guidance for both the renovation of existing buildings and the design of new ones, emphasising the importance of aligning energy performance with indoor comfort.

Keywords: Prefabricated Timber Houses, Indoor Environmental Quality (IEQ), Thermal Comfort, Existing Buildings, Sick Building Syndrome

Dr. Maja Lešnik Nedelko is an architect and researcher, employed as an assistant at the University of Maribor, Faculty of Civil Engineering, Transportation and Architecture (UM FGPA). In her doctoral dissertation, she focused on developing a methodology for energy-efficient building renovation using timber-glass modules. Her research interests include sustainable architecture, energy efficiency, and the renovation of existing buildings. She is the author or co-author of numerous original scientific and professional articles, as well as a national patent in this field. She actively participates in national and international research projects related to sustainable construction and timber architecture, and contributes to teaching through involvement in student projects and mentoring.

Prof. Dr. Miroslav Premrov is an internationally recognized expert in timber structures and the head of the only research program group at the University of Maribor, Faculty of Civil Engineering, Transportation and Architecture (UM FGPA). According to the SICRIS classification, he is the most successful researcher in civil engineering in Slovenia. He is the author of over 90 scientific articles and serves on editorial boards of several high-impact journals. He developed a method for calculating the horizontal load-bearing capacity of prefabricated timber walls, which is included in the national annex to Eurocode 5. His research also focuses on timber-glass construction, summarized in two scientific monographs published by Springer Verlag. He has led key EU and national R&D projects and actively collaborates with industry (e.g., Lumar, Jelovica). As a mentor, he has supervised numerous doctoral students and helped shape sustainable construction

curricula. He is also active in international professional associations, serving as President of NMC FEANI Slovenia and a member of EMC FEANI.

Mrs. Teja Bohl is a student of Architecture at the University of Maribor, Faculty of Civil Engineering, Transportation and Architecture (UM FGPA).

Mr. Jan Čokolič is a student of Chemistry at the University of Maribor, Faculty of Chemistry and Chemical Engineering, (UM FKKT).

Mrs. Eva Gradišnik is a master's student of Civil Engineering, specializing in Structural Engineering, at the University of Maribor, Faculty of Civil Engineering, Transportation and Architecture (UM FGPA).

Mr. Žiga Tomaž Krajnc is a student of Civil Engineering at the University of Maribor, Faculty of Civil Engineering, Transportation and Architecture (UM FGPA).

Mrs. Ivana Manasova is a student of Architecture at the University of Maribor, Faculty of Civil Engineering, Transportation and Architecture (UM FGPA).

Mr. Marko Pavlović is a student of Biochemical Engineering at the University of Maribor, Faculty of Chemistry and Chemical Engineering, (UM FKKT).

Assoc. Prof. Dr. Erika Kozem Šilih is an Associate Professor in the field of Civil Engineering at the Department of Structural Engineering at the Faculty of Civil Engineering, Transportation Engineering and Architecture (UM FGPA), University of Maribor. Her professional and scientific work focuses on structural resistance analysis using numerical methods, particularly on the load-bearing capacity and stiffness of timber frame wall elements, and more recently, timber-glass wall components. She is the author or co-author of numerous original scientific and professional articles, as well as a national patent in this field. She has also participated in various national research and development projects related to timber structures and sustainable construction. In recent years, she has been active in the field of Building Biology, which is based on studying the quality of living environments for modern society. She successfully completed her studies at the IBN Institute in Germany and obtained the certificate of Building Biology Consultant.

94. Multicriteria approach to define adequate areas for the implementation of Ecosystem-based Adaptation strategies

Dr. Tiago Martins, Dr. Manuel Mendes Oliveira, Dr. Teresa Eira Leitão

ABSTRACT:
This concept was developed in the framework of a task of the C2IMPRESS Horizon Europe Project focused on disaster-resilient societies.
It deals with the use of an ecosystem-based adaptation (EBA) approach to increase groundwater resources. The objective is to create storage and water infiltration conditions. By contributing to mitigating water scarcity, if necessary, using treated wastewater, this approach simultaneously develops local ecosystems and helps prevent wildfires.
The main rational is to use in-channel Managed Aquifer Recharge (MAR) methods, making use of natural topographical and geological features coupled with the potential upstream natural erosion and sedimentation processes to generate storage capabilities in areas where aquifers do not occur.
To define the best areas, a multicriteria system is defined and an analytic hierarchy process (AHP) is applied to weight the relative importance of each criterium. The following criteria were defined, based on the objective and available information: Slope, Geology, Land Use, and Sediment generation potential. Use of treated wastewater as an alternate water resource (AWR) for infiltration is also considered.
The methodology is applied to the Alva watershed located in Centre Portugal, where maps were produced to classify each criterium and AHP was used to produce the final maps.

Keywords: Drought resilience, flooding resilience, Multicriteria analysis, Analytic Hierarchy Process, Ecosystem Based Adaptation

Tiago Martins is a Senior Technician at the National Laboratory for Civil Engineering, Lisbon, Portugal. He works in the Water Resources and Hydraulic Structures Unit of the Hydraulic and Environment Department. He has a PhD in Civil Engineering in the subject of Managed Aquifer Recharge (MAR) decision-making. Nowadays main topics of interest are hydrological and hydrogeological related mapping, groundwater modelling and assessment of MAR implementation and suitability.

Manuel M. Oliveira is a Senior Researcher at the National Laboratory for Civil Engineering, Lisbon, Portugal. He works in the Water Resources and Hydraulic Structures Unit of the Hydraulic and Environment Department. He has a PhD in Hydrogeology, concerning the assessment of natural groundwater recharge. Nowadays main topics of interest are groundwater numerical modelling, groundwater risk and resilience assessment, and managed aquifer recharge.

Teresa E. Leitão is a Principal Researcher at the National Laboratory for Civil Engineering, Lisbon, Portugal. She works in the Water Resources and Hydraulic Structures Unit of the Hydraulic and Environment Department. She has a PhD in Hydrogeology with the work "Methodologies for the Rehabilitation of Polluted Aquifers". Her main areas of interest are integrated management of water quality, especially groundwater, managed aquifer recharge, groundwater monitoring, numerical and physical modelling, and pollution prevention, control and rehabilitation on soil, vadose zone and groundwater.

95. Demographic changes and availability of labor force in selected EU countries

Dr. Andrzej Skibiński

ABSTRACT:
The aim of the article is to assess the impact of demographic changes on the availability of labor force in selected European Union countries. Ageing societies, falling fertility rates and diverse migration trends lead to a systematic shrinking of labor resources, which is a significant challenge for the economies of the Member States. The study conducted a comparative analysis for selected EU countries using the examples of Poland, the Czech Republic, Germany, France, Italy, Spain and Denmark, showing differences in their demographic structure. The analysis included changes in the age structure of the population, fertility rates, migration balance and the size of potential labor resources using available EUROSTAT statistical data. The results indicate a clear relationship between ageing societies and the deteriorating balance on labor markets. The work emphasises the need to implement coherent actions in the field of socio-demographic policy, including migration, family policy and increasing professional activity to the changing demographic structure. The conclusions indicate the need for a quick response to the upcoming deficits in labor resources in the context of maintaining the economic competitiveness of the EU.

Keywords: demographic changes, labor force, age structure, statistical data

Andrzej SKIBIŃSKI is an assistant professor at the Department of Economics, Investments and Real Estate at the Faculty of Management of the Czestochowa University of Technology, Poland. His research interests relate to demography, human resources management, socio-economic policy and waste management. An author and co-author of over 100 publications in this field, many of which are indexed in the Web of Science and Scopus databases. He presented the results of the research at international scientific conferences, including in Austria, the Czech Republic, Indonesia, Romania, Slovakia, Spain, Turkey and Italy. An important part of his research work is participation in national and international research projects. He is also a member of: the Polish Economic Society, the Polish Society for Social Policy, the Polish Production Management Society.

96. The role of the risk manager in the context of sustainable development - a systematic literature review

Assoc. Prof. Anna Korombel

ABSTRACT:
The implementation of ESG strategies is a key task for risk managers in organisations that have implemented or are implementing sustainability principles. Indeed, risk management is a process designed to support the achievement of an organisation's objectives by exploiting potential opportunities and minimising the impact of potential risks. The implementation of sustainability principles in an organisation influences the principles and manner of risk management and the role of risk managers. The aim of this article is to identify the actual state of knowledge and ignorance about the role of the risk manager in organisations where sustainability principles have been implemented, and to identify directions for future research. A systematic literature review using bibliometric analysis performed with VOSviewer software was used to achieve the objective. The subject of the review was English-language scientific articles indexed in the SCOPUS database. Knowledge on the role of the risk manager in sustainable organisations and future research directions were identified. The findings presented can be used by theoreticians for further research, as well as by practitioners wishing to improve the role of the risk manager in sustainable organisations.

Keywords: Risk manager, Sustainable development, Bibliometric analysis, Keyword co-occurrence, Author analysis, Thematic-cluster analysis, VOSviewer

Anna Korombel is an Associate Professor of Czestochowa University of Technology and Head of the Department of Economics, Investments and Real Estate, Faculty of Management, Czestochowa University of Technology, Poland. She is the author and co-author of 6 scientific monographs and more than 140 scientific papers. She teaches economics, organizational risk management and investment. Her research interests focus primarily on enterprise risk management (ERM), risk appetite and risk culture. The subject of the study is also the role social media plays in building relationships between companies and Generation Z customers. She is member of Polish Academy of Sciences and Scientific Society of Organization and Management.

97. Evaluation of the deposit system as a mechanism to promote recycling and reuse of packaging in Poland

Dr. Olga Ławińska

ABSTRACT:
According to a European Commission regulation, at least 65% of all packaging waste should be recycled by the end of 2025 and 70% by the end of 2030. Poland is highly likely to fall short of meeting the targets. This is an alarming forecast, as recycling rates play a key role in assessing the efficiency of waste management systems, as well as in monitoring progress towards a circular economy. One of the solutions currently being implemented by the Polish government is the packaging deposit system, which is to become operational in October 2025. The aim of this article is to evaluate the deposit system as a mechanism to promote recycling and reuse of packaging in Poland. The literature review, the analysis of statistical data and conduction of a survey made it possible to formulate conclusions for the science and practice of waste management in the context of the transformation towards a circular economy. The results of the survey indicate that the Polish public positively evaluated the assumptions of the deposit system and its positive impact on reducing environmental pollution. On the other hand, a significant barrier of the deposit system is an insufficient information campaign and a deficient educational activity about its implementation.

Keywords: deposit system, recycling rates, waste management, European Union, circular economy

Dr Olga Ławińska is an assistant professor at Częstochowa University of Technology. She has been working in the Department of Economics, Investment and Real Estate at the Faculty of Management since 2000. She is the author and co-author of 70 national and international publications in the field of management science and economics. She is also co-editor of four scientific monographs. She has co-authored research in the field of circular economy in theory and in practice and changes in municipal waste management in the direction of implementing European good practices.

98. Polish residential real estate market outlook in the context of the development of sustainable construction

Dr. Marcin Sitek

ABSTRACT:
The real estate market is one of the key markets in human life, which, on the one hand, constitutes a large part of the national income and has a large share in creating GDP, and on the other hand, satisfies the basic human need, i.e. the need for housing and utility. Real estate creates therefore an environment in which people spend most of their time, which means that it should become an extremely important element of sustainable development. The above makes that the aim of this work is an attempt to forecast the development of sustainable housing construction in Poland and to identify the factors driving this development. To achieve the above aim, the desk research method was used, which involved a review of available scientific literature, sector reports and statistical data. Additionally, selected results of the author's own research were presented. The research was conducted in the form of a survey among developers implementing projects within multi-family, multi-storey housing construction. The collected data allows for determining the state of the market, the demand gap for apartments and development prospects in the context of sustainable construction. In addition, factors that can drive sustainable and green construction were indicated. The presented results may provide guidance to developers regarding the type and characteristics of new housing projects.

Keywords: Sustainable construction, residential market, innovation, green building, RES, real estate market

Marcin Sitek, Ph.D., is the assistant professor in Czestochowa University of Technology, Faculty of Management, Department of Economics, Investment and Real Estate. He is the author of 1 monograph and more than 90 publications from field of real estate. Previously his interests focused on financing the real estate by banking system – refinancing mortgages by deposits as well as by special financing instruments issued on financing market. Nowadays his field of interests enclose – investment in the real estate market – directly and through financial market , risk on real estate market especially in the relation with implementing the innovations, implementation of innovations on residential market and sustainable construction.

99. The Path to Sustainable Fashion Consumption via The Lens of SOR Theory

Assoc. Prof. Dr. Marhana Mohamed Anuar, Assoc. Prof. Dr. Abdul Hafaz Ngah, Wan Ainur Fatihah Wan Mohsin

ABSTRACT:
This study examines the influence of social media influencers (SMI), green transparency (GT), and brand evangelism (BE) on sustainable fashion consumption (SFC) among Malaysian consumers, utilizing the Stimulus-Organism-Response (S-O-R) theory while assessing the mediating role of consumer attitude (ATT). The data were collected via face-to-face self-administered surveys across four major cities in Malaysia. The findings reveal that SMI, GT, and BE significantly enhance consumer attitudes toward sustainable fashion, which in turn positively impacts SFC. The results also demonstrate that ATT mediates the indirect effects of SMI, GT, and BE on SFC. The study contributes to the S-O-R theory by identifying key drivers of sustainable consumption behavior and incorporating the previously underexplored role of social media influencers on consumption. The results provide valuable guidance for both policymakers seeking to promote responsible consumption and fashion brands aiming to align their strategies with sustainable development objectives. The results suggest investing in social media influencer partnerships, enhancing supply chain transparency, and cultivating green brand communities can effectively promote sustainable consumptions. Managers should prioritize attitude formation through educational content that bridges the knowledge-attitude-behavior gap while policymakers need to regulate green claims among sustainable fashion brands to ensure credibility.

Keywords: Social media influencers, Green transparency, Brand evangelism, Attitude, Sustainable fashion consumption, S-O-R Theory, Mediator.

Marhana Mohamed Anuar is an Associate Professor of Marketing at Universiti Malaysia Terengganu (UMT). She holds a PhD from Universiti Sains Malaysia (USM) and has built a strong academic career in marketing research and education. Her research focuses on sustainable marketing, social marketing, Islamic marketing, consumer behavior, and digital marketing. She has published her work in esteemed journals such as the Journal of Sustainability Science and Management, Sustainability, Australasian Marketing Journal, and the International Journal of Environment and Social Development. She has presented her work in various international business and marketing conferences. As an educator, she teaches key marketing courses, including International Marketing, Marketing Communications, Marketing Management, Marketing Strategy, and Consumer Behavior. Her leadership in postgraduate studies and contributions to marketing scholarship highlight her dedication to advancing knowledge in her field.

Abdul Hafaz Ngah is an associate professor in Marketing at the Faculty of Business, Economic and Social Development, Universiti Malaysia Terengganu (UMT). He received his PhD in Technology Management, focusing on the halal supply chain. His research interests include supply chain management, maritime management, halal studies, tourism, and technology adoption. He has published several articles in many reputable journals in those areas of study. His main expertise is in research methodology using quantitative methods, especially regarding questionnaire design for surveys and data analysis using structural equation modelling with Smart Partial Least Squares (PLS). With his expertise and reputation, in addition to publishing articles with highly reputable researchers, he is also an active reviewer for many reputable journals in a wide range of studies.

Wan Ainur Fatihah Wan Mohsin is a Master postgraduate student at the Faculty of Business, Economy and Social Development, Universiti Malaysia Terengganu (UMT). She graduated her undergraduate with first-class honors in Management (Marketing) from the same institution, reflecting her dedication to academic excellence. Her research interests explore the intersection of marketing and environmental sustainability, driven by a desire to contribute to a more sustainable future. In addition to her studies, she is actively engaged as a research assistant on a funded project, focusing on sustainability initiatives, particularly in the area of sustainable fashion consumption, striving to drive significant environmental impact.

100. Translating EU climate policies into building design requirements. The EIB West Campus Programme – a case study.

Dr. Maria Costi de Castrillo

ABSTRACT:
The European Investment Bank (EIB) is one of the largest providers of climate finance globally and a pioneer in promoting sustainability and circular transition, both through its lending activity and its own projects. This paper presents the EIB West Campus programme (WCP) in Luxembourg as a case study on how to translate and integrate EU climate policies into design and construction requirements from the initial stages of design. The WCP is a large-scale project (GIA circa 77,000 m²) that includes the renovation and energy efficiency upgrading of the EIB historic brutalist headquarters (1980) in Luxembourg and of its Extension building (1995). This paper introduces the methodological approach adopted for the integration into the project brief and the design requirements of sustainability and circularity objectives as translated from EU regulations, directives and guidelines through tasks and deliverables for the concept design stage and further stages of design and construction. A specific challenge has been the structuring of the design requirements to create synergies and promote innovation and novelty around sustainability and circularity aspects. This case study may serve in the future to provide guidance on integration of climate policies in large scale building design processes.

Keywords: Circular Economy, Circularity Assessment, Building Design, Project Brief, Invitation to Tender, Sustainable Management

Dr. Maria Costi de Castrillo, Architect Engineer (Ph.D. University of Cyprus, 2022, M.Sc., National Technical University of Athens, 2005) is the Design Advisor on Architecture for the European Investment Bank (EIB) focusing on the development of the West Campus Programme (WCP) which involves amongst others, the renovation of its heritage building. In this role she has contributed significantly to all phases of planning of the WCP, including competitive procedures and other procurement routes. She is additionally a member of the EIB Climate Task force and focuses on sustainability issues including circularity, climate adaptability and resilience of its real-estate. Her research and professional experience is focused on sustainability of construction and building materials for restoration and new construction and the conservation of built heritage. The outcomes of her research work have been published in refereed scientific journals and peer-reviewed international conference proceedings.

101. Evaluating Site Suitability for Solar Farms: A Systematic Review of Influencing Factors and Methods

Ms. Mariam Kasradze Dr. Mahyar Kamali Saraji

ABSTRACT:
As solar energy becomes a critical pillar in global renewable energy strategies, the selection of suitable sites for large-scale solar farms remains a key challenge. This study conducts a systematic literature review of 103 peer-reviewed articles published between 2005 and 2025 to identify the most relevant factors influencing site suitability for solar photovoltaic (PV) farms. While existing research often focuses on specific geographic or technical variables, this paper integrates different approaches and proposes a comprehensive framework presenting four main dimensions: technical sustainability, economic viability, social acceptance, and environmental feasibility. By applying hybrid methodology based on PRISMA, SALSA and PSALSAR frameworks, synthesizes diverse findings and offers a structured, qualitative model for supporting solar site selection. The results underline the importance of interdisciplinary planning, policy integration, and stakeholder engagement in solar farm siting decisions. The proposed framework serves as a practical tool for researchers, decision makers and policymakers to support solar farm development and guide future research and policy improvements.

Keywords: Solar Farms, Site Selection, Solar Energy, PRISMA, SALSA

Mariam Kasradze is a PhD candidate at the Institute of Social Sciences and Applied Informatics, Vilnius University Kaunas Faculty, Lithuania. Main research focuses on Corporate Social Responsibility (CSR) and sustainability in the energy sector, with a particular emphasis on energy transition, renewable energy, and clean energy generation. Currently investigating site suitability and strategic planning for solar energy projects.

Dr. Mahyar Kamali Saraji is a Senior Researcher at the Institute of Social Sciences and Applied Informatics, Vilnius University Kaunas Faculty, Lithuania. He holds a PhD in Economics and specializes in sustainability transitions, digital technologies for climate action, and multi-criteria decision-making (MCDM) methods. His current research focuses on applying advanced decision frameworks to evaluate low-carbon and circular economy strategies in Europe, particularly in the Baltic region.

102. Gently easing population to 4 billion by 2200 would help people and nature

Dr. Mark Keegan

ABSTRACT:
The past century of increases in human population and resource consumption has produced some undesirable effects, ranging from environmental degradation to political unrest. We are accustomed to seeing these dependent variables charted with time on the x-axis. But this study presents metrics of biodiversity, consumption, and pollution and their extremely strong correlations when charted against human population size. Then we suggest that a more rapid yet non-coercive lowering of global Total Fertility Rates to 1.75 by 2050, and holding there, will produce many benefits for current and future generations of our own species and for nature. Among these benefits are reduced CO2 emissions, habitat recovery, protection of wild species, and reduced conflict over scarce resources.

Keywords: world population growth, sustainability, Total fertility rate (TFR), population projection, demographic transition

Dr. Mark Keegan is an alumnus of Columbia University Teachers College. He holds also a Master of Natural Resources degree from Oregon State University. His work has ranged from health care in Africa to inner city education, wildlife conservation and social and environmental sustainability.

103. Fostering Sustainability through Community Engaged Teaching: A Case Study of University-Community Collaboration

Dr. Katalin Ásványi, Dr. Réka Matolay, Márta Frigyik

ABSTRACT:
The collaboration between an university lecturer and a science shop – an university based community engagement unit – is central to the process promoting individual and corporate responsibility and sustainability through active involvement of community partners. The practical application involved the design and implementation of a community engaged course project embedded in courses on Corporate Social Reponsibility during a series of semesters. Each semester a community partner – a not-for-profit organisation, a social enterprise – was engaged for collaboration with the students in a process facilitated by the lecturer, organized and supported by the science shop. The learnings of the individual course project as well as the implementation journey throughout the semesters provide several insights of how the considerations for community engagement are moving toward the reinforcement of mutuality and reciprocity: how the problem-based learning is enriched by expanding features of partnership and collaborative learning. E.g. how the lecturer gradually aligned class activities with the project to enhance sophistication of final outputs. The implications for future practice suggest that community engaged teaching and learning can be addressed at various levels of university-community partnerships and there are tangible steps for elevating engagement for sustainability, especially when institutionalized support, such as a science shop is available.

Keywords: Community engagement, Community Partner, CSR, Science Shop, Sustainability Education

Katalin Ásványi is the Dean for Sustainability at Corvinus University of Budapest and an Associate Professor and the Head of Department of Sustainability Management and Environmental Economics. As the Chair of the PRME Central and Eastern Europe (CEE) Chapter, she plays a key role in advancing responsible management education across the region. She has received multiple prestigious awards, including the PRME Faculty Teaching Award (2024) and Corvinus Teacher of the Year Award (2023). She has recently developed an innovative ESG postgraduate program, equipping professionals with the knowledge and skills to integrate sustainability into corporate strategies effectively. With extensive research experience and numerous international publications, she is committed to fostering impactful collaborations between academia, businesses, and communities.

104. The Role of Higher Education Institutions in Advancing Sustainable Development Goals: An Environmental Scan of Best Practices

Dr. Maryanne Eva, Dr. Candy Ho, Jacqueline Sim

ABSTRACT:
Across the globe, colleges and universities have implemented initiatives supporting sustainable development, such as embedding sustainability into curricula, fostering community partnerships, and driving research innovation. HEIs also serve as community mobilizers in advancing the SDGs while serving as role models for other sectors. This study investigates the role of higher education institutions (HEIs) in promoting sustainable development through the United Nations' Sustainable Development Goals (SDGs). By conducting an environmental scan of 40 institutions globally, the research identifies and evaluates best practices in sustainability across various categories, including governance, physical campus, academics, and operations. The findings reveal significant trends and highlight exemplary initiatives that can serve as models for other institutions. Cross-cutting themes and strategies include collaboration, resource optimization, community engagement, student leadership, institutional support and leadership, and communication and transparency. The study concludes that HEIs play a crucial role in advancing the SDGs by integrating sustainability into their core activities and fostering partnerships for broader impact. Future research should explore longitudinal studies to assess the long-term impacts of these initiatives, evaluating how sustainability efforts evolve over time and contribute to institutional and community outcomes. Other studies could investigate the measurable environmental and social impacts of these initiatives.

Keywords: Best Practices, Environmental Scan, Governance, Higher Education, Sustainable Development Goals

Dr. Maryanne Eva is an accomplished business advisor, sustainability leader, and educator with extensive professional experience spanning business, government organizations, academia, and NGOs. Her expertise encompasses sustainability strategy & management, education & research, and ethics & governance. She has contributed to a range of research, education, and consulting initiatives across Europe, the Asia-Pacific region, the USA, Canada, and China. Dr. Eva holds a Doctorate in Business Administration from École des Ponts Business School in Paris, with research specializing in sustainable tourism, shared value, innovation, and competitiveness. At Kwantlen Polytechnic University (KPU), she teaches graduate business courses focusing on sustainable development, clean technologies, and business strategy. In addition, she serves as the SDGs Lead and co-chairs the Sustainability Hub, spearheading efforts to embed sustainability into institutional practices and curriculum design.

Dr. Candy Ho An award-winning career development scholar-practitioner, Dr. Candy Ho is University Lead, Sustainable Development Goals at Kwantlen Polytechnic University, and holds teaching positions at the University of the Fraser Valley (Assistant Professor, Integrative Career and Capstone Learning) and Douglas College (Sessional Instructor, Career Development Practitioner Program). She specializes in teaching courses that help students consider their educational and life experiences, and how these experiences can enable them achieve their short- and long-term goals, ultimately helping them design the life they want to live. Finally, Candy currently serves as Chair of CERIC, a Canadian charitable organization that advances education and research in career

counselling and career development, in order to increase the economic and social well-being of Canadians.

Miss. Jacqueline Sim A dedicated sustainability professional with a multidisciplinary background in research, communications, and project management. Experienced in social sciences, music, business, and sustainability, bringing a well-rounded perspective to problem-solving and strategic initiatives. Highly organized with strong critical thinking skills and the ability to manage complex projects effectively. Proficient in a variety of digital tools for project management, collaboration, and web design, including monday.com, Trello, Azure DevOps, Lucidspark, Lucidchart, and Figma. Skilled in database management with Filemaker Pro and adept in Microsoft Office 365, Google Workspace, and both Windows and Apple ecosystems. Trilingual in English, Filipino/Tagalog, and committed to advancing sustainability through research, innovation, and cross-cultural collaboration.

105. The Holistic Stewardship Framework: Revolutionizing Management Education

Dr. Marcelo Machado, Dr. Maryanne Eva, Kavya Saikia

ABSTRACT:
Universities and business schools are expected to play a crucial role in addressing modern challenges, given their key role in society and their vital function in generating and sharing knowledge. Traditional management education, often siloed and focused on economic feasibility, falls short in preparing leaders for today's complex landscape. This paper proposes the Holistic Stewardship Framework, a transformative approach that aligns with the United Nations Principles of Responsible Management Education and the United Nations Sustainable Development Goals. Through a comprehensive analysis of teaching and learning practices, curriculum development, and policies worldwide, this paradigm bridges theory and practice, cultivating leaders who balance economic viability with social responsibility and environmental stewardship. It represents a comprehensive shift in management education, preparing business leaders to thrive in a dynamic, interconnected world and address 21st-century challenges.

Keywords: Sustainability Education; UNSG Goals, PRME Principles

Marcelo is an Educator, Researcher, and Consultant at the forefront of technology and management. His mastery lies in innovation, entrepreneurship, and digital transformation. Equipped with design thinking, innovation, and entrepreneurship prowess rooted in Stanford's renowned methodology. Marcelo is also equipped with sustainability and ESG methodologies from the prestigious Oxford Saïd Business School. Marcelo's journey includes a master's degree in engineering, specializing in operations and systems, and a Doctorate in knowledge, technology, and innovation management from the Japan Advanced Institute of Science and Technology (JAIST). Marcelo is a full-time professor with Kwantlen Polytechnic University for the past 16 years. He is a Canadian citizen born in Brazil, Marcelo's global footprint extends across China, Japan, and Germany.

Dr. Maryanne Eva is an accomplished business advisor, sustainability leader, and educator with extensive professional experience spanning business, government organizations, academia, and NGOs. Her expertise encompasses sustainability strategy & management, education & research, and ethics & governance. She has contributed to a range of research, education, and consulting initiatives across Europe, the Asia-Pacific region, the USA, Canada, and China. Dr. Eva holds a Doctorate in Business Administration from École des Ponts Business School in Paris, with research specializing in sustainable tourism, shared value, innovation, and competitiveness. At Kwantlen Polytechnic University (KPU), she teaches graduate business courses focusing on sustainable development, clean technologies, and business strategy. In addition, she serves as the SDGs Lead and co-chairs the Sustainability Hub, spearheading efforts to embed sustainability into institutional practices and curriculum design.

Kavya is a legal and compliance professional with over five years of experience in corporate governance, regulatory compliance and administrative operations. During her tenure at the National Committee on Corporate Governance in Mauritius, Kavya collaborated on the development of the Corporate Governance Scorecard, a national framework for assessing ESG disclosures. She also participated in the creation of the national Diversity, Equity, and Inclusion Charter for Boards, promoting inclusive leadership. Currently pursuing a Graduate Diploma in Green Business Management and Sustainability at Kwantlen Polytechnic University, she is expanding her knowledge in sustainable business practices and ESG disclosures. Her research interests include the role of ESG in corporate decision-making and the evolving landscape of sustainability education in management programs.

106. Liver Biomarkers as Integrative Indicators Linking Environmental Quality, Human Health, and Sustainable Development

Dr Iris Zacellari, Dr Mirgen Zacellari

ABSTRACT:
The liver's central role in detoxification, metabolism, and homeostasis positions its biomarkers as valuable indicators for assessing both individual and population-level health. Recent developments in molecular biology and environmental medicine have identified novel hepatic biomarkers—such as microRNAs, oxidative stress markers, and enzymes including alanine aminotransferase (ALT), aspartate aminotransferase (AST), and gamma-glutamyl transferase (GGT)—as sensitive measures of exposure to environmental pollutants and lifestyle-related stressors. Within the framework of the United Nations Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being) and SDG 13 (Climate Action), these biomarkers offer an evidence-based means of linking environmental sustainability with human health outcomes. Altered biomarker levels can serve as early biological indicators of environmental degradation caused by air pollution, water contamination, or chemical exposure. Integrating biomarker data into population-level health surveillance systems could enhance early warning capabilities, inform sustainability policy evaluation, and guide interventions to protect vulnerable communities disproportionately affected by ecological hazards. By bridging molecular-level processes and global sustainability frameworks, liver biomarkers provide a novel and actionable tool for advancing the integration of environmental health monitoring into sustainable development strategies.

Dr. Iris Zacellari is specializing in clinical biochemistry and working as physician at Health Center Nr 10, focusing in environmental health and molecular biomarkers. Her work focuses on liver physiology and the use of biomarkers to assess population-level health and environmental exposures, aiming to inform evidence-based health policies and sustainable development strategies.

Dr. Mirgen Zacellari is a clinician at Health Center Nr 5 with expertise in preventive medicine. His research emphasizes the integration of liver biomarkers into clinical and public health practice to monitor environmental and lifestyle-related risk factors, supporting strategies aligned with global sustainability goals.

107. A Key Performance Indicator for an Integrated Assessment of the Social Sustainability of an Enterprise

Assoc. Prof. Mihai Demian, Assoc. Prof. Luminita Grecu, Assoc. Prof. Gabriela Demian

ABSTRACT:
This paper proposes a tool for the integrated assessment of a company's social sustainability. This tool is an integrated indicator, com-posed of two partial indicators, which refer to two different aspects of social sustainability: the impact of the company's activity on employees, its relationship with customers and the local community. To develop this tool, 34 criteria were formulated, as well as ways to quantify the company's responses to them. The criteria were grouped into several categories, depending on the aspects to which each refers. Based on each group, two partial indicators are constructed: one indicator relating to the working conditions of employees and the other indicator relating to the relationship with customers and society. For the company's responses to these criteria, formulas were proposed that lead to normalized values, which allowed them to become comparable and aggregated for the construction of the indicator. The indicator proposed in the paper can be used to monitor progress and results related to social sustainability, as well as to rank companies that aim to achieve sustainable development objectives.

Keywords: measure social sustainability; quantifying responses; key performance indicator; sustainable development.

Dr. Mihai Demian is Assoc. Prof. at the Department of Engineering and Management of Technological Systems, Faculty of Mechanics, University of Craiova, Romania. Background and interest: Environmental Management, Environmental quality assessment, Materials sciences.

Dr. Luminita Grecu is Assoc. Prof. at the Department of Applied Mathematics, Faculty of Sciences, University of Craiova, Romania. Background and interest: Applied Mathematics, Environmental quality assessment.

Dr. Gabriela Demian is Assoc. Prof. at the Department of Engineering and Management of Technological Systems, Faculty of Mechanics, University of Craiova, Romania. Background and interest: Physics, Environmental quality assessment, noise pollution.

108. Navigating the EU Flood Directive Adoption in Montenegro: Challenges, Gaps, and Pathways for Improvement

Milena Ostojic, Prof. Dr. Goran Sekulić, Assoc. Prof. Dr. Ivana Ćipranić

ABSTRACT:
Montenegro, as a candidate country for European Union accession, has undertaken the process of aligning its flood risk management framework with the EU Floods Directive (2007/60/EC). This paper examines the challenges and obstacles encountered in different stages of this process, including Preliminary flood risk assessment, Flood hazard and risk mapping, and the Development of flood risk management plans. It begins with an overview of Montenegro's flood-related legislation before the adoption process, highlighting key shortcomings in regulatory and institutional frameworks. The paper then outlines the steps taken to implement the Directive, identifying difficulties related to data availability, institutional coordination, financial constraints, and technical expertise. Despite efforts to enhance flood risk management, challenges remain in integrating it effectively into national policies and practices. By analyzing these challenges, the paper provides insights into opportunities for improvement and potential lessons for other candidate countries facing similar requirements. The findings contribute to the broader discussion on disaster risk reduction and sustainable flood management in transitioning economies, emphasizing the importance of institutional capacity, long-term planning, and regional cooperation in implementing EU environmental policies.

Keywords: EU Floods Directive, Flood Risk Management, Disaster Risk Reduction, Policy Implementation

MSC Milena Ostojic defended her Master's thesis in the field of hydrotechnical engineering in 2021, at the Faculty of Civil Engineering at the University of Montenegro, and is currently a PhD student. Ms. Ostojic obtained experience through her work as a civil engineer, developing main designs of hydraulic infrastructure and studies concerning various hydrotechnical engineering fields. Ms Ostojic has been employed at the Faculty of Civil Engineering as a teaching assistant since 2020. During this period, she was engaged in different projects related to flood risk assesment, such as BORIS project, BORIS2 project, FLORIAS project, etc. Recently, she has been engaged in the project "Support to implementation and Monitoring of Water Management in Montenegro", where she participated in flood risk assessment and providing input data for preparation of flood risk maps.

Goran Sekulić is employed at the Faculty of Civil Engineering, University of Podgorica, as a full professor in the field of Hydrotechnics. He has published over 170 scientific and professional papers in international journals and at congresses and conferences. He is the author or co-author of six monographs and one university textbook. As part of his scientific development, he spent time at the Technical University of Hamburg, in the Department of Hydraulic Engineering. He has also undertaken several study visits and delivered invited lectures at universities in the Czech Republic, Bulgaria, and Albania. He has participated as a coordinator or member in several international scientific projects at the University of Montenegro and the Montenegrin Academy of Sciences and Arts. He is a member of the Technical Sciences Committee of the Montenegrin Academy of Sciences and Arts. His primary scientific research interests include issues related to water supply for

settlements, wastewater treatment and sewerage, water protection, hydroenergetic potential of watercourses, as well as modeling various hydrological and hydraulic phenomena and problems.

Ivana Ćipranić, Dr-Ing., educated in the field of civil engineering at the University of Montenegro (Dipl-Ing., 2002) and University of Belgrade (PhD, 2015), is an assistant professor at the University of Montenegro (Faculty of Civil Engineering) in courses in Hydraulic, Water supply, Wastewater systems, and Waste Management. Also, she is the vice dean for teaching. Research interests: hydraulic, water management and water protection, flood risk, waste management, green building and sustainable infrastructure. She is the author or co-author of 7 papers published in journals indexed in WoS (SCI/SCIE list) and more than 40 conference papers. She was a participant in the project Erasmus + Capacity Building in Higher Education project, titled: Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders (SWARM), Project number 597888-EPP-1-2018-1-RS-EPPKA2-CBHE-JP. (2019-2022) She was the project leader in the bilateral cooperation project between Montenegro and Slovenia "Climate responsive building envelopes: increasing building's performance under current and future projected climate of Podgorica". She participates in the bilateral cooperation project between Montenegro and Slovenia "The capacity of Montenegrin built environment to resist climate-change-induced overheating". She participated in international scientific projects founded by European Commission – BORIS (https://www.borisproject.eu/).

109. Energy citizenship through crises: Analysis of citizens' letters written during an energy crisis

Dr. Minna Havukainen

ABSTRACT:
The EU has over the years developed and confirmed its vision that citizens should have a central role in the globally significant energy transition. The concept of energy citizenship recognizes citizens as active participants in the energy system instead of passive consumers. In principle, energy citizenship refers to perceived empowerment to make decisions about energy use. The concept has gained interest, because the ongoing much needed energy transition. Traditionally energy transition has been seen mainly as technological progress supported by financial and regulatory instruments and policies. These instruments have been efficient, especially in increasing renewable energy production. While energy consumption habits have been studied extensively in the past, the perceived empowerment to make decisions about energy use has not been covered in studies. This study shapes the concept of energy citizenship by shedding light on citizens personal experiences during the energy crisis and its connection to being active citizens. We employ qualitative data from citizens' letters written after Russian invasion in Ukraine. The study found four different types of energy citizenships: authoritarian, follower, sobrierity and technocratic.

Keywords: Energy transition, energy citizenship, energy crises

Dr. Minna Havukainen is a researher in LUT University. She graduated in 2022 defending her dissertation about climate strategies in Least developed countries. She is part of a group conducting research on social life cycle assessment and societal impacts of energy transition especially in vulnerable communities and energy transition respecting planetary boundaries.

110. Megaphone-Dollar-Diplomacy – for the US financial sustainability or global control?

Mmakoena Mpshane-Nkosi PhDc

ABSTRACT:
The US 47th administration is practising the Megaphone and Dollar diplomacy more than any other administration in US history. Megaphone diplomacy refers to public utterances or statements made by a head of state or his government official accounts over a dispute. This method is a diplomacy approach adopted by one sovereign state in a dispute instead of formal closed-door diplomatic negotiations between states. The state that adopts this position aims to coerce the other state/s to take their desired position. These public statements are released on social media such as Facebook, Twitter, press releases, etc (Khanna, 2011). Dollar diplomacy was first coined in the Taft administration between 1909 and 1913 when he introduced a foreign policy aimed at furthering American interests through the minimisation of military force and extreme use of economic power to advance the US national interests through financial influence (Maddern, 2021). The US employed these diplomatic approaches in South Africa and Ukraine in the last few weeks. This paper investigates the US foreign policy position, the use of megaphone and dollar diplomacy for national interests, and how these actions impact and influence globally. The paper will use a qualitative research method focusing on comparative case studies to analyse the US foreign policy approach on selected states such as South Africa, Ukraine, and Iran from January 2025 to date. While it can be argued that the timeframe is limited to gather sufficient evidence, the reality of the megaphone and dollar diplomacy in the time of digital foreign policy changes rapidly and overnight, providing a concrete argument that the digital age has made yesterday's news old and stale since everyone has the power to report the news. This research paper will employ a theory of technological determinism, which states that media technology frames and influences how society acts, feels, thinks, and overall operates as it moves from one innovation to the next (Hauer, 2017; Mpshane-Nkosi, 2023). This theory choice was influenced by the recent US President's stance on Ukraine, i.e., the use of megaphone diplomacy and dollar diplomacy in South Africa for the financial sustainability of the US. The analysis will draw deeper from the past to understand the history of the US dollar diplomacy from 1901 and changes over different administrations and how technology has brought back and made the concept relevant again. Conclusively, the article will prove why these diplomatic approaches are important for the US's self-determinism discourse, financial sustainability, and national interests.

Keywords: Megaphone, Dollar, Diplomacy, Financial Sustainability, Foreign Policy

Mmakoena Mpshane-Nkosi is a PhD Candidate at the University of Johannesburg (UJ) and a Chief Office Manager in the Office of the Vice-Chancellor and Principal at the University of the Free State, South Africa. She holds an MA in Politics, with her MA, entitled 4IR and the Emergence of Digital Foreign Policy: A Global Comparative Study, obtained from UJ. An NIHSS-SAHUDA 2021/2022 Masters Grant Recipient. Mmakoena researches in the field of International relations: 4IR, foreign policy, security, military, and political economy.

111. Comparative Life Cycle Assessment of 3D Concrete Printing and Conventional Construction: Toward Carbon-Neutral and Efficient Building Practices

Dr. Mohammad Abotalib

ABSTRACT:
Kuwait's construction sector faces dual sustainability challenges of high carbon emissions and excessive waste generation. This study presents a comparative life cycle assessment (LCA) of three-dimensional concrete printing (3DCP) versus conventional concrete construction in Kuwait, focusing on global warming potential (GWP), water consumption, and construction waste. Results: 3DCP showed a markedly lower environmental footprint. Lifecycle GHG emissions (GWP) dropped by roughly 20% and construction waste by about 50% compared to traditional methods, due to precise material deposition and elimination of formwork waste. Water use was only modestly lower (~20% reduction), reflecting the high water requirements of cement mixing in both approaches. However, these benefits come with trade-offs: 3DCP's cement-intensive mixes (cement production accounts for ~70% of concrete's GWP) and significant energy use for printing can offset some GHG gains, especially given Kuwait's fossil-fuel based energy mix (≈53% natural gas, 47% oil).
Despite these challenges, 3DCP in Kuwait demonstrably advances climate change mitigation and waste reduction, supporting national sustainability targets (Kuwait Vision 2035). The findings provide insights to inform carbon-neutral construction strategies in Kuwait and the broader Gulf region, balancing 3DCP's advantages with its material and energy trade-offs.

Keywords: 3D Concrete Printing (3DCP), Life Cycle Assessment (LCA), Global Warming Potential (GWP), Sustainable Construction, Carbon-Neutral Strategies

Dr. Mohammad Abotalib is an environmental scientist and engineer with over 15 years of combined academic and industry experience in Kuwait. He holds a Ph.D. in Environmental Science and Engineering, a Master's degree in Sustainability, and a Bachelor's degree in Environmental Modeling. He currently serves as an Assistant Professor in the Department of Earth and Environmental Sciences at Kuwait University, where he teaches undergraduate and graduate courses on environmental science, solid waste management, pollution, and sustainability in the oil and gas industry. Dr. Abotalib previously worked as an environmental engineer at Kuwait Oil Company (KOC), where he led projects focused on reducing the environmental footprint of energy production. His doctoral research involved developing a novel spatial matrix for matching carbon sources and sinks to produce low-carbon fuels. His ongoing research interests include life cycle assessment (LCA), waste management technologies, and the development of environmental decision-making tools that extend beyond the operational phase. He has supervised multiple student research projects and has presented internationally on topics such as engineered landfills, circular economy principles, and the environmental impacts of desalination. Recommended by the Kuwait Environmental Protection Authority, he aspires to contribute his expertise to global environmental initiatives, particularly through UN-led platforms.

112. Sustainable Development in OPEC Nations: Balancing Economic Growth, Environmental Protection, and Public Health

Dr. Mojtaba Nikzad, Prof. Dr. Eva Gerharz

ABSTRACT:
OPEC member countries face the challenge of balancing economic growth with environmental protection and public health. This study explores the intricate balance between economic growth, environmental sustainability, and public health in OPEC member nations, emphasizing the need for a holistic approach to sustainable development. Using a panel dataset from 1990 to 2024, it employs rigorous econometric techniques—including stationarity tests, fixed effects estimation, and the Hausman test—to analyze key variables such as per capita GDP, capital accumulation, urbanization, education, CO_2 emissions, and adult mortality rates. The findings reveal a complex relationship: while capital accumulation and urbanization drive economic growth, they also contribute to environmental degradation and public health risks. Notably, education plays a crucial role in mitigating these negative effects, improving both environmental quality and health outcomes. Additionally, the results challenge the Environmental Kuznets Curve hypothesis, demonstrating a non-linear relationship between economic growth and environmental impact. Based on these insights, the study recommends a policy framework that includes investments in renewable energy, energy efficiency, and stricter environmental regulations, alongside educational initiatives to foster long-term sustainability. Also, in base of these policy recommendations and Extensive theoretical and contextual research further Complementary, a comprehensive strategy has been proposed for OPEC countries to achieve sustainable economic growth while maintaining environmental and social well-being.

Keywords: Sustainable Development, Economic Growth, Environmental Protection, Public Health, Kuznets Curve hypothesis, OPEC Member Countries

Dr. Mojtaba Nikzad is a Post-Doctoral Researcher in Agricultural Economics at the Department of Social and Cultural Sciences, Fulda University of Applied Sciences, Germany. He is a recipient of a research fellowship from the Alexander von Humboldt Foundation under the Philipp Schwartz Initiative. He holds a PhD in Agricultural Economics, specializing in the marketing and trade of agricultural products, and a Master's degree in agricultural policy and development, both from the University of Tehran, Iran. Previously, he served as an Assistant Professor in Agricultural Economics at Kabul University, Afghanistan. His research focuses on sustainable agricultural development, economic transformation in developing countries, agricultural market and trade analysis, food security, poverty alleviation, alternative livelihood strategies to replace illicit crop cultivation, agricultural sector modeling, and rural economic resilience. His work contributes to understanding global agricultural challenges, promoting sustainability, and exploring pathways for improving livelihoods and food systems in fragile economies.

Prof. Dr. Eva Gerharz is a Professor of Sociology with a focus on globalization at the Department of Social and Cultural Sciences, Fulda University of Applied Sciences, Germany. She serves as the Head of

the Fulda Graduate Centre of Social Sciences, overseeing doctoral research in areas such as globalization, European integration, and interculturality. Her academic journey includes positions at Ruhr University Bochum and the University of Bayreuth. Her research interests encompass transnational governance, human rights, and social justice. She co-directs projects like "Transnational Governance and Human Rights," funded by the German Academic Exchange Service (DAAD), and the doctoral research group "Human Rights and Social Justice" under the ProGEPP@HFD program. Prof. Gerharz is also an active member of the Centre for Intercultural and European Studies (CINTEUS).

113. Development of a co-design and co-creation framework for a resilient society: The Ordu City case

Prof. Murat Senturk, Assoc. Prof. Adem Baspinar,
Dr. Omer Ozdinc, Prof. Mehmet Hanefi Topal, Dr. Kenan Menguç,
Prof. Raif Cergibozan, Mehmet Cicekci, Ertugrul Tombul

ABSTRACT:
This paper presents the EU-funded C2IMPRESS project's key findings, which validate its innovative Co-Design & Co-Creation Framework (CCF) for disaster risk reduction (DRR). Moving beyond hazard-centric models, C2IMPRESS employs a human- and place-centric methodology through Quadruple Helix engagement (citizens, academia, government, and industry) and public-private-civic partnerships. The CCF integrates six phases: four consecutive phases (Know, Raise Awareness, Co-Design/Co-Creation, and Outreach) and two intersecting phases (Keep Engaged and Evaluation). After being validated in Ordu, Türkiye, the framework elevated communities on Arnstein's Ladder of Citizenship Participation. The "Know" phase mapped multi-hazard vulnerabilities and identified at-risk groups. The Raise Awareness phase engaged over 1,500 citizens and revealed critical awareness gaps. The Co-Design/Co-Creation phase used Living Labs and a Citizen Engagement Platform (CEP) to co-develop solutions, such as user-centered features for the HazardMonitor app. Subsequent phases ensured sustainable outreach and rigorous evaluation. Despite challenges such as low baseline awareness and difficulty mobilizing vulnerable groups, the results underscore the transformative potential of citizen-centric approaches, generating locally owned DRR visions and tools (e.g., Disaster Assemblies). C2IMPRESS delivers a validated, scalable model that emphasizes cross-hazard adaptability and long-term community empowerment through structured co-creation. This paper shares the CCF's implementation results of the Ordu City.

Keywords: Disaster-Resilient Society, Co-Design & Co-Creation (CCF), Citizen Engagement, Multi-Hazard Risks, Quadruple Helix Model, Living Labs, C2IMPRESS

Prof. Murat Senturk is Professor at Department of Sociology and Director of Center for Sociological Research, Istanbul University, Türkiye. Head of the Social Science Research Group focuses on citizen engagement, citizen science, co-design, co-creation, volunteering, civil society, urban and community resilience, and the development of scales.

114. Prevention of child abuse and maltreatment for sociocultural sustainability in Japan and Finland

Prof. Dr Mutsuko Takahashi

ABSTRACT:
This research explores possibilities of enhancing sociocultural sustainability in precarious world with focus on issues on early prevention of child abuse and maltreatment in some developed countries. Although child abuse and maltreatment tend to be perceived as harm suffered by children at the individual and family levels, plenty of research show that the position of children in society and the ways children are raised reflect fundamental values in the society. Relevant data for this study are collected by literary analysis, and this paper examines the risks of child abuse and maltreatment in child rearing by applying risk society theory, and seeks policy alternatives for early prevention of those risks. As concrete examples, the situations of infant abuse deaths, mainly filicide, in Japan and Finland will be studied. Both countries have reached the best level in terms of infant mortality rate. Finland has remarkably reduced filicide in the late 20th century, whereas Japan has not yet been able to overcome this problem. In conclusion, proper and pertinent policy intervention for changing social norms and attitudes to childhood and child-rearing are meaningful for improving individual well-being of children and families as well as for enhancing sociocultural sustainability.

Keywords: child abuse, maltreatment, filicide, risk, prevention

Dr Mutsuko Takahashi, Keisen University, received her Ph.D. from the University of Tampere, Finland, and her second home language is Finnish. She has worked as professor of sociology and social policy in Japanese universities over two decades, extensively published on social policy for supporting families with small children in Japan and Finland. Besides academic activities, she has served for committee services of central and local governments concerning issues of gender equality, social welfare and child-rearing supports, and received the Award in promotion of maternal health from Japanese Ministry of Health, Labour and Welfare.

115. Susthira Thrithala: A Model for Integrated and Participatory Sustainable Development in Rural India

Nizamudeen. A, M. B. Rajesh

ABSTRACT:
Susthira Thrithala represents an exemplary initiative in sustainable rural transformation, implemented in the Thrithala constituency of Kerala, India. Conceived to address the severe decline in groundwater despite the proximity to the Bharathapuzha River, the project offers an integrated, community-driven model for ecological resilience. Anchored in watershed-based planning and institutional convergence, the initiative brought together local self-governments, scientific bodies, NGOs, and the public to develop and execute a detailed action plan. Key interventions included artificial groundwater recharge, extensive water body restoration, rooftop rainwater harvesting, and the implementation of India's first Water Budget at both panchayat and constituency levels. Agricultural revival through paddy and coconut cultivation, introduction of mushroom farming, and integrated farming have further enhanced food security and local livelihoods. The project also integrated green energy initiatives, sustainable fisheries, and decentralized waste management, all supported by robust community engagement, particularly through Kudumbashree units and schools. The success of Susthira Thrithala underscores the power of local participation, inter-departmental coordination, and environmental stewardship in addressing climate and water crises. This model offers replicable insights for other regions seeking sustainable and inclusive development pathways.

Keywords: Sustainable Development, Groundwater Recharge, Community Participation, Watershed Management

Mr. Nizamudeen. A is an officer of the Indian Administrative Service, affiliated with the Government of Kerala. He holds a Master's degree in Agricultural Science and Management and a Bachelor's degree in Law. Beginning his career in 1998 as a Soil Survey Officer, he has held several key positions, including Land Use Commissioner and Director of the Kerala State Remote Sensing and Environment Centre. He currently serves as the Director General of the Kerala Institute of Local Administration and the Mission Director of MGNREGS Known is known for his deep commitment to sustainable development, local governance, and innovation in public administration, Mr. Nizamudeen has received the National Water Award, the Jal Prahari Award, and other national honors. His leadership in the Jala Samrudhi project earned international recognition. Passionate about sustainable development, geospatial planning, and local governance, he continues to guide impactful initiatives across Kerala Mr. M. B. Rajesh serves as the Minister for Local Self-Governments and Excise and Parliamentary Affairs, Government of Kerala. He represents the Thrithala Assembly Constituency and previously served as the Speaker of the Kerala Legislative Assembly from 2021 to 2022. Earlier, he was a Member of Parliament representing the Palakkad Lok Sabha Constituency from 2009 to 2019.

Mr. Rajesh holds a Master's degree in Economics and a Law degree, and worked as a lawyer and journalist before entering politics. Known for his articulate voice in Parliament, he actively raised critical issues related to economic policy, environment, and public welfare. His interests include decentralised governance, democratic participation, sustainable development and public policy. A published author in Malayalam, he has written extensively on globalisation, education, and economic crises, reflecting his deep engagement with socio-political issues.

116. Sustainable Quality: Uniting the UNSDGs, The Circular Economy and Management Systems

Oshea Roopnarian, Prof Shalini Singh

ABSTRACT:
The UNSDGs (8, 9, 12 and 13) proposes the achievement of employment and economic growth by using responsible consumption, production and innovative practice in a changing climate. This can be achieved through organisations adopting a circular economy strategy however, implementing these systems on its own are challenging across different sectors. Implementation of circular economy principles with ISO 9001 Quality systems has shown positive results. A systematic literature review was used to explore challenges that organisations face and gaps of knowledge had emerged around the lack of sector specific guidance, implementation tools and global alignment. The literature indicated that organisations require guidance in developing policy, tracking material flows and measuring circularity for compliance. This research bridges the knowledge gap by revelling policies, tools and trends of adopting a circular economy strategy for organisational development. Additionally, the research derives the drivers, enablers and challenges of the circular economy with quality management and determines competencies for adoption. The study concludes with a roapmap of policy recommendations and a way forward.

Keywords: Quality Management, Policy Development, Circular Economy, Sustainable Development

Mr Oshea Roopnarian is a phD student at the Durban University of Technology. His research expertise meets at the convergence of sustainable development , risk management and circularity. His previous Masters research won him the award for best research paper amongst BRICS nations in the previous year. With a focus on developing integrated sustainable policy frameworks across different countries using performance indicators, evaluation mechanisms and management systems.

Prof Shalini Singh is an Associate Professor in the Department of Operations and Quality Management at the Durban University of Technology. Her qualifications are in Chemistry, Quality and Nanotechnology. She has also lectured at Universities in Switzerland, Germany and India. She is a member of the Higher Education Quality Forum for Quality. Prof Singh has published several chapters of books and manuscripts in accredited academic journals, and presented in Air pollution, Quality, Nanotechnology and Research Methodology related conferences nationally and internationally.

117. Assessing Awareness of Energy Consumption Among University Students: A Comparative Study Using Visual Interfaces

Prem Rajendran, Dr. Parag Gopal Kulkarni, Bivin Pradeep, Rahemeen Yusuf, Nuha Mustafa, Sofyan Alyan, Dr. Laya Saraswathy, Dr. Abderrahmane Lakas

ABSTRACT:
This study evaluated the effectiveness of an interactive energy dashboard in enhancing energy awareness and promoting sustainable behaviours among university students. The dashboard visualized campus energy consumption, estimated CO2 emissions, and offset metrics through intuitive displays, enabling users to engage with real-world sustainability data. Two groups were studied—Sustainability Students and General Students—using pre- and post-surveys to assess knowledge and behavioural change. Both groups showed statistically significant improvements in knowledge scores, with the Sustainability Students Group ($p = 0.0027$, $d = 0.275$) and the General Students Group ($p = 0.0291$, $d = 0.256$) benefiting similarly from the intervention. Most participants—98% of Sustainability Students and 86% of General Students—reported increased awareness, and over 80% expressed willingness to engage in future energy-saving initiatives. While the dashboard effectively raised awareness of campus energy use, gaps in personal energy knowledge remained, highlighting the need for future enhancements. These findings underscore the dashboard's potential as a scalable educational tool for fostering energy literacy and sustainable behaviour in higher education.

Keywords: Sustainability; Energy Awareness; Data Visualization; Ecological Engagement

Prem Rajendran is currently serving as a Research Assistant at the Emirates Center for Happiness Research in the United Arab Emirates University. He previously served as a Research Assistant with the College of Information Technology in the United Arab Emirates University. He completed a Bachelor of Science in Computer Science, with minors in Data Science and Applied Mathematics from the American University of Sharjah. His current research interests lie in Artificial Intelligence, Cloud Computing, Internet of Things and Data Science; more specifically how they can be used to solve real world problems.

118. Analysis of Work-Life Balance in European Union Countries: The Impact of Technological Progress and Digitalization

Assoc. Prof. Dr. Rasa Balvočiūtė, Assoc. Prof. Dr. Ligita Šalkauskienė

ABSTRACT:
The 2030 Agenda for Sustainable Development, approved by the United Nations, includes two important goals related to work-life balance: ensuring healthy lives for everyone and promoting sustainable economic growth. A key part of sustainable economic growth is providing full, productive jobs with good working conditions. Recent research shows that work-life balance has several critical issues. Long working hours and heavy workloads are major concerns that harm both physical and mental health. Poor work-life balance can lead to stress, burnout and lower productivity. It's important to maintain a good work-life balance not just for employees' health, but also for the success of organizations. Companies that support work-life balance have more engaged employees, greater loyalty and lower turnover rates. The rapid growth of technology in the workplace, at home and in public life affects how employees balance work-life time. Cultural differences, economic conditions and social policies impact work-life. This study aims to improve the understanding of work-life balance in EU countries as technology advances. It will identify key factors influencing this balance and explore future trends. The research uses EUROSTAT data to look at work-life balance across 27 EU countries from 2005 to 2023, utilizing regression analysis models for panel data.

Keywords: Work-Life Balance, Technological Progress, Digitalization, Healthy Life

Assoc. Prof. PhD Rasa Balvociute Department of Management and Communication, Faculty of Business and Technology, Šiaulių valstybinė kolegija/Siauliai University of Applied Science, Lithuania. The author's research interests include: welfare state, production logistics, manufacturing business organization. Certified Internal Auditor. https://orcid.org/0000-0001-9822-9070

Assoc. Prof. PhD Ligita Salkauskiene Department of Management and Communication, Faculty of Business and Technology, Šiaulių valstybinė kolegija/Siauliai University of Applied Science, Lithuania. The author's research interests include: human resource management, teamwork, organisational management, market research. Certified GR8PI Full Spectrum assessment methodology specialist.

119. Customer Service Quality in the Utilities Sector: Sustainability Perspective

Assoc. Prof. Dr. Ligita Šalkauskienė, Assoc. Prof. Dr. Rasa Balvočiūtė

ABSTRACT:
The article presents an empirical study of customer service quality in the Lithuanian utilities sector. In order to survive in the long term, changes related to economic, social, environmental requirements are necessary: the implementation of sustainability is essential. Growing expectations of stakeholders are the need for companies to move towards sustainability and make sustainable. The analysis of human resource competencies required for sustainable service provision is a field of modern scientific research. The study is based on the concept of customer service improvement, in which customer service is defined as a philosophy integrating sustainability dimensions. The analysis of the research data is carried out by distinguishing main principles of sustainable customer service: a culture of cooperation, involvement, loyalty, quality service provision, competence. The empirical study was conducted using a qualitative research strategy – case analysis. The longitudinal "Mystery Customer" research method was used for data collection, which reveals objective factual information about the extent to which the quality of customer service meets the required quality level and aspects of sustainable service. Qualitative content analysis was chosen for the analysis of qualitative data. The identified research results allowed to identify customer service problems: lack of competence, loyalty and cooperation with the customer.

Keywords: Service of customers, sustainability, service quality, quality management, human resources management.

Ligita Šalkauskienė is Assoc. Prof. Department of Management and Communication, Faculty of Business and Technology, Siauliai University of Applied Science, Lithuania. The author's research interests include: human resource management, teamwork, organisational management, market research. Certified GR8PI Full Spectrum assessment methodology specialist.

Rasa Balvočiūtė is Assoc. Prof. Department of Management and Communication, Faculty of Business and Technology, Siauliai University of Applied Science, Lithuania. The author's research interests include: welfare state, production logistic, manufacturing business organization. Certified Internal auditor.

120. Overtopping at port breakwaters and navigation risk using long-term multi-model numerical simulations

Dr. Rui Capitão, Dr. Liliana Pinheiro, Dr. Conceição J.E.M. Fortes, Dr. Ana Catarina Zózimo, Michelle Kleinjan

ABSTRACT:
This study assesses wave overtopping and ship maneuvering risks at Aveiro and Figueira da Foz ports, driven by climate change, namely sea level rise. The analysis is based on offshore wave hindcast data from the ECMWF database, covering a period from 1979 to present. Wave regimes are identified through statistical analysis of significant wave height, period, and direction for the years 2030, 2050, 2070 and 2100. These conditions, together with sea level rise projections, are downscaled using numerical wave propagation model SWAN, forcing NN_OVERTOPPING2 neural network to estimate mean overtopping discharge based on the local wave conditions, sea level and structural parameters. Ship manoeuvring safety will be analysed using the radiation/diffraction panel numerical model WAMIT, for linear analysis of surface waves interaction with floating structures. Maximum ship motions amplitudes along the navigation channel of each port will be computed, for the predicted local wave conditions and sea levels, allowing to establish new operating conditions. Following existing thresholds for admissible risk (overtopping and ship motions), risk levels changes from present to 2100 will be assessed. These results will enable the development of adaptive design and warning strategies. The proposed methodology supports effective risk assessment and can be applied to other coastal infrastructures and navigating channels.

Keywords: Climate change / Wave overtopping / Ship maneuvering/ Extreme wave conditions / Coastal Hazards

Rui Capitão is a researcher at the National Laboratory for Civil Engineering (LNEC) in Lisbon, Portugal, specializing in maritime hydraulics and coastal engineering. His work focuses on long-term statistical analysis, for the establishment of wave regimes of sea wave climates, and short-term analyses of wave records, for numerical and physical simulations in laboratory environments. He has developed and refined methodologies for wave regime transfer and applied numerical wave propagation models to real-world case studies, contributing to improved techniques and databases for coastal engineering applications.

Liliana Pinheiro is a researcher at the National Laboratory for Civil Engineering (LNEC) in Lisbon, Portugal, specializing in maritime hydraulics and coastal engineering. Her work focuses on: Coastal and harbour Engineering, Wave generation and propagation, Numerical methods, modelling and integrated systems, CFD, Moored ships behaviour, Physical modelling of floating structures and moored ships, for numerical modelling, Early Warning systems for met-oceanic parameters, overtopping, and navigation in harbours, Risk management in port and maritime infrastructures and navigation.

Conceição Fortes is a principal researcher at the National Laboratory for Civil Engineering (LNEC) in Lisbon, Portugal, specializing in maritime hydraulics and coastal engineering. She is also head of the Division of Ports and Maritime Structures of the Department of Hydraulics and Environmental pf LNEC. Her work focuses on: Coastal and harbour Engineering, Sea wave generation and propagation, Methodologies for coastal and harbour studies, Physical modelling of maritime structures, Navigation and moored ships, Integrated systems for numerical modelling, forecasting and Warning systems for sea waves, overtopping, flooding and navigation in coastal and harbour areas, Risk management in maritime infrastructures and navigation.

Ana Catarina Zózimo is a researcher at the National Laboratory for Civil Engineering (LNEC) in Lisbon, Portugal, specializing in maritime hydraulics and coastal engineering. Her work focuses on sea wave generation and propagation, methodologies for coastal and harbour studies, physical modelling of maritime structures, forecasting and warning systems for sea waves, overtopping, flooding in coastal and harbor areas, and risk management in maritime infrastructures.

Michelle Kleinjan was a research fellow performing internships studies at the National Laboratory for Civil Engineering (LNEC) in Lisbon. She worked on the subject of sea waves propagation, overtopping and flooding risk assessment in the port of Figueira da Foz.

121. Reflection on environmental sustainability practices in university general education courses and exploration of STEAM-6E development education

Shiow-Fang Shieh

ABSTRACT:
The sustainable vision based on low-carbon communities has illuminated the dream of rural estates in Taiwan's cities, and this beautiful blueprint has been implemented in May-uan Village, Douliu City. The themes of "environmental sustainability" and "community practice" are integrated into the university's general education curriculum. Qualitative research methods are used to collect data through literature analysis, observation, interviews, and teaching case data analysis. Through the cooperation and leadership of local volunteers and the emotional connection with students during service, we guide students to reflect on themselves, solve problems together as a team, and explore why environmental education requires holistic thinking and action. Secondly, the relevance of STEAM-6E development education and college students' participation in sustainable action is discussed. Finally, environmental education design suggestions from the perspective of college students are proposed to respond to the needs of many general education teachers to advocate environmental sustainability education and social and cultural environmental education in the future.

Keywords: university general education courses, holistic thinking, community practice, STEAM-6E education, sustainable vision

Assistant Professor Xie is a teacher at the University's Institute of Leisure Sports. 2016, 2020 won the National Yunlin University of Science and Technology Excellent Teaching Teacher

122. Coping Cyclones with Pesticides: Evidence from the Atlantic Basin of the US

Dr. Shuddhasattwa Rafiq

ABSTRACT
Using US county-level data, we document a relatively unexplored coping mechanism adopted by farmers against cyclones: pesticide. In this paper, we leverage spatially disaggregated data on the paths traversed by the universe of tropical cyclones in the U.S., combined with information on agricultural output and input usage across 2354 counties from 1992 to 2017 to identify the overall impacts of tropical storms on the US agricultural sector, examine potential farmer responses and coping strategies like pesticide use and investigate the heterogeneity across pesticide types. Through this natural experiment based on generalized difference-in-differences, we found that, on average, farmers apply 12 tonnes more pesticides per harvested crop acre starting from a day prior through to the day of the event.. However, the application rate varies significantly across types of weather events and pesticides. For example, while farmers increase the use of most of the pesticide types like 2-4-D, Glyphosate, Asphate, and Dichlorophene, for harmful ones like Chlorpyrifos, which is widely criticised in the media and banned in states like California, farmers show restraint in its post-disaster application. Our results are robust for all six measures of storm-related events, including rainfall, wind speed, wind duration, and a storm severity index.

Keywords: Tropical cyclone, Atlantic basin, Pesticide use, Climate Adaptation.

Dr. Shuddhasattwa Rafiq specializes in sustainability issues relevant to energy, environment, and climate. He implements experiments and panel data econometric models to study the causes and consequences of human behaviors related to energy and the natural environment. His research is in three domains at the intersection of natural resources, environment, and health: household energy transitions, health impacts of energy, and behavioral and policy interventions in climate change adaptation. He was a Principal Investigator of a range of projects supported by competitive external funding from the World Bank (WB), Asian Disaster Preparedness Centre (ADPC), Department of Environment, Land, Water and Planning, Australian Bureau of Statistics, UNICEF and World Vision. As a reflection of his impactful research in energy and environment, I am listed by RePec among the world's Top 5% Authors in Economics and Finance. Dr. Rafiq has a strong media presence in national and international media outlets from Australia, Indonesia, India, and Bangladesh and has experience in facilitating policy workshops and events in the context of developed and developing countries like Australia, Indonesia, and Bangladesh. His recent WB/ADPC-funded projects aim to enhance climate-smart agriculture (CSA) in rural Bangladesh. His current academic research investigates climate effects in the US agricultural sector.

123. Learning Otherwise: Leadership and Whole-School Approaches to Transformative Sustainability Education

Simon Leon Lightman

ABSTRACT:
This paper shares emerging findings from a qualitative case study examining how sustainability education is being embedded at a whole-school level in an independent secondary school. The research is situated within the context of a newly developed diploma initiative grounded in the principles of Education for Sustainable Development (ESD). Using semi-structured interviews with school leaders, policy analysis, and insider-practitioner reflexivity, the study explores how leadership practices, institutional culture, and ethical tensions shape sustainability implementation in a complex educational setting. Preliminary analysis suggests that while schools may articulate transformative ambitions, structural pressures, reputational risk, and conceptual ambiguity often limit how deeply these ambitions are realised. Nevertheless, distributed leadership, youth agency, and the integration of epistemic justice into curricular design emerge as potential enablers of more holistic change. The presentation aims to contribute to wider discussions on leadership, pedagogy, and institutional transformation in sustainability education by foregrounding the relational and cultural dimensions of whole-school approaches. It offers insights that may be relevant to educators, researchers, and policymakers seeking to support sustainability transitions in schools worldwide.

Keywords: Education for Sustainable Development, Whole-School Change, Leadership, Institutional Culture, Epistemic Justice, Sustainability Pedagogy

Mr. Simon Lightman is Head of Philosophy and Politics at King Edward’s School, Witley and an MA candidate in Global Learning at the UCL Institute of Education. He is the founder of the City of London Youth Natural Environment Board, a youth-led platform advancing sustainability leadership across the City of London’s family of schools. Simon collaborates with the Commonwealth Blue Charter and the Surrey University Institute for Sustainability on initiatives focused on ocean conservation, education policy, and systemic transformation. Within his school, he co-designed the Bridewell Diploma, a whole-school framework for transformative sustainability education. He is currently developing a consultancy practice supporting schools and institutions to embed sustainability meaningfully across culture, leadership, and pedagogy, and is preparing to pursue doctoral study in this area. His work explores the intersections of educational leadership, youth agency, epistemic justice, and institutional change, and has been recognised with the Robert J. Jones Award for Environmental Education.

124. Commuting Patterns in the Lake Constance Region: A Cross-Border Analysis of Higher Educational Institutions

Sofie Bayer PhDc, Beate Pawle

ABSTRACT:

Due to its unique cross-border location, the Lake Constance region presents both significant opportunities and considerable challenges for the implementation of sustainable mobility solutions. The Sustainable Mobility Lab (SML) serves as an innovation hub, fostering the development of environmentally friendly and forward-thinking transport strategies. Within this framework, an extensive survey was conducted to analyze the commuting behavior of employees and students at Vorarlberg University of Applied Sciences, as well as other higher-education institutions in Germany and Switzerland.

This comparative study examines existing mobility patterns, identifies key obstacles to the adoption of sustainable transport modes, and evaluates the role of higher-education institutions in shaping mobility management strategies. As essential drivers of sustainable transformation, universities and colleges play a crucial role in promoting climate-friendly mobility through academic research, educational initiatives, and institutional policies. The findings from this study serve as a foundation for the implementation of targeted measures aimed at enhancing sustainable transport options. Moreover, the results underscore the critical importance of cross-border cooperation in addressing mobility challenges and fostering long-term environmental responsibility in the region.

Keywords: Commuting Patterns, Cross-Border Comparison, Sustainable Mobility, Regional Mobility Policies

Sofie Bayer is a research associate at the Sustainable Mobility Lab of the Business Informatics Research Centre at Vorarlberg University of Applied Sciences. Her research focusses on sustainable mobility strategies for the Lake Constance region, where she collaborates with university and practice partners on an interdisciplinary basis. As part of her PhD project, she is investigating the mobility behaviour of tourists to and in ski resorts. Other areas of interest include agile working approaches and the development and implementation of innovative solutions to promote sustainable mobility.

Beate Pawle heads the Sustainable University department at the Vorarlberg University of Applied Sciences. Her research focuses on the role of universities in promoting sustainable development, particularly in the context of the Third Mission. Other areas of interest are climate education and the Inner Development Goals, which she integrates into her work and on which she is actively involved in projects to promote sustainability.

125. Towards Assessing the Climate Resilience of SMEs: An Investigation of Options, Methodologies, Metrics and Evidence

Dr. Stavros Vourloumis, Assoc. Prof. Dr. Ioannis Thanos, Assoc. Prof. Dr. Ilias Kapoutsis, Christos Tsagklis, Apostolos Tsatsoulis, Dr. Antonia Lampaki

ABSTRACT:
Adapting to escalating climate change risks and achieving viability over the long run requires firms to develop resilience and abilities to navigate adversities, bounce back and stay competitive. This holds particularly true for Small and Medium-sized Enterprises (SMEs), due to limitations in size and resources, also given their prominence for national economies worldwide. To assess progress and help inform strategies, practices, and policies to increase the climate-resilience of SMEs, major conceptual and empirical gaps need to be filled. This paper explores possible methods, operationalizations and metrics, to aid in filling those gaps. To do so, the paper takes stock of existing approaches and evidence for assessing and tracking the resilience of firms (particularly SMEs) to climate change and its various impacts. It highlights complementary analytical dimensions, and information needed to assess the dimensions of resilience (physical, financial, strategic, operational). The paper also calls for building multi-dimensional and comprehensive measurements that encompass various aspects of firm climate resilience, for gathering detailed evidence across industries and geographical locations, and for developing clear, specific national and sub-national metrics as reference points to assess progress in achieving resilience, also contributing to the ongoing discussion about sustainable business practices, laying the groundwork for future inquiry.

Keywords: Climate Change; SMEs; Climate Resilience; Climate Change Adaptation; Sustainability; Measurement

Dr. Stavros Vourloumis holds a Ph.D. Degree in Strategic Management from the Athens University of Economics and Business (Greece) and currently serves at the same University as Adjunct Lecturer and Senior Researcher. His research interests focus on strategic decision-making and business strategies, the role of managers and executives in shaping the structure, strategy and performance of firms, and on how structural socio-economic changes, such as digitalization and climate change, impact industries and firms. His work has been published in high-quality international academic journals, such as the European Management Journal, and has been presented in highly acclaimed international academic conferences (e.g., Strategic Management Society Annual Conference, Academy of Management Annual Meeting), receiving multiple awards and prizes. Professionally, he has been working as a strategy and growth consultant for public and private organizations, focusing on areas like strategic planning, design, coordination and implementation of large-scale projects, financing, and corporate governance reform.

Dr. Ioannis Thanos is Associate Professor of Management at the Athens University of Economics and Business (Greece). He has previously served at the Lancaster University Management School (Lancaster, UK) and the Adam Smith Business School of the University of Glasgow (Glasgow, UK). His research interests are in the areas of Strategic Decision Making, Strategy, Mergers and Acquisitions, Small and Medium Enterprises (SMEs), and the role of skills in adaptation to shifting environments. He has published in leading international journals, edited volumes and books, and presented more than 30 papers at top international conferences. He has important experience as a

trainer for upper- and middle-level managers and employees, and as a speaker at conferences and workshops. He is the Principal Investigator of the CLIMARESME research project, funded by the Hellenic Ministry of Environment and Energy's Green Fund, and focusing on the building of resilience of SMEs vis-à-vis climate change impacts.

Dr. Ilias Kapoutsis is Associate Professor of Management at the Athens University of Economics and Business. His research focuses on workplace political behavior, leadership, and social influence, examining the motivations driving these behaviors and the conditions that ensure their effectiveness. He has co-authored numerous articles, book chapters/monographs, and conference papers, and his research has been published in top refereed journals. He has also delivered an important number of seminars, workshop, speeches and training sessions, to diverse audiences. He has led and contributed to numerous research and consulting projects, such as national strategies and international studies, with a particular emphasis on informing policy-making and organizational practices. Since 2019, he has been organizing the Athens Negotiation Tournament, a negotiation competition oriented towards students.

Mr. Christos Tsagklis is a graduate of the Department of Political Science and Public Administration of the School of Law, Economic and Political Studies of the National & Kapodistrian University of Athens and holds an M.Sc. in Services Management for Executives (MSM- Part-time) from the Athens University of Economics and Business. He is also a Management Consultant in Organizational and Learning & Development, specializing in soft skills development (Negotiations, Cognitive Flexibility) and Knowledge Management.

Mr. Apostolos Tsatsoulis is a Ph.D. candidate at the Department of Business Administration of the Athens University of Economics and Business. He also holds a B.Sc. in Business Administration by the same University, and an M.Sc. in Risk and Finance by the London School of Economics and Political Science.

Dr. Antonia Lampaki is an Assistant Professor of Management at the American College of Greece (ACG), where she teaches management and organizational change courses at both undergraduate and postgraduate levels. Additionally, she is a postdoctoral researcher at the Athens University of Economics and Business (AUEB). She holds a PhD in Strategy from AUEB, an MBA in Total Quality Management International, and a B.Sc. in Business Administration from the University of Piraeus. Her research interests lie at the intersection of Business Strategy and Organizational Behavior, particularly emphasizing the design and implementation of strategic change. Her work has been published in esteemed international journals, and presented at numerous international conferences. In addition to her academic achievements, Dr. Lampaki has significant experience from numerous research and consulting projects for private and public organizations.

126. From words to action: measuring corporate commitment to gender equality through sustainability reporting

Assoc. Prof. Tamara Menichini, Stefania Roberta Miccoli PhDc, Dr. Gennaro Salierno

ABSTRACT:
Gender equality is beneficial for both businesses and society as a whole. As one of the United Nations' Sustainable Development Goals (SDGs), SDG5 encourages organizations of all sizes and sectors to foster inclusive and respectful workplaces for all individuals, regardless of their gender, race, or background. Ensuring gender equality entails providing equitable access to resources, opportunities, decision-making roles, and governance, while preventing all forms of gender-based discrimination. In response to this global agenda, organizations have increasingly shared voluntary disclosures with stakeholders about their strategies and actions toward achieving SDG5. However, the voluntary nature of sustainability reporting grants wide discretion in how content is defined, often resulting in disclosures that are more symbolic than substantive. To address this gap, the study proposes a content-based indicator, called iGoal5, designed to assess the completeness of organizational reporting on gender equality in the workplace. This indicator evaluates the degree to which disclosures provide sufficient detail regarding strategic intent, implemented actions, and achieved performance. The framework suggests targeted corrective actions based on report completeness, supporting organizations, especially Small and Medium-sized Enterprises (SMEs), to improve gender equality disclosures and better align organizational practices with policy-level sustainability goals.

Keywords: Gender Equality, Gender gap, Sustainable Development Goals (SDGs), Sustainability Reporting, Content Analysis, Global Reporting Initiative (GRI), Small and Medium-sized Enterprises (SMEs)

Tamara Menichini, PhD is an Associate Professor of Business and Management Engineering at the University of Rome "Niccolò Cusano", Italy. Her current research interests regard Corporate Sustainability, Corporate Social Responsibility (CSR), Sustainability Reporting, Sustainable Development Goals (SDGs) Reporting, Eco-Innovation, Circular Economy, and Gender Equality.

Stefania Roberta Miccoli is a PhD student at the Course in "Territory, Innovation and Sustainability" – XXXVIII cycle, in the Business and Management Engineering context at the University of Rome "Niccolò Cusano", Italy. Her research interests are: Gender Studies and Equality; Female Leadership and Entrepreneurship; Gender Balance in Research and Innovation; Corporate Sustainability.

Gennaro Salierno, PhD in Sustainable Innovation Engineering and Territory in the Business and Management Engineering context at the University of Rome "Niccolò Cusano", Italy. His research interests are Corporate Sustainability, Corporate Social Responsibility (CSR), Sustainability Reporting, and SDGs reporting.

127. Sustainability Challenges for Smallholders in Nepal's Tea Sector: Exploring Farmer-based Organization Models

Sudhir Shrestha

ABSTRACT:
This study examines the challenges faced by smallholder tea farmers in Nepal and their responses to mitigate those challenges. Smallholder tea farmers, numbering 15,001 and cultivating 10,211 hectares, contribute around 45 per cent to Nepal's tea leaf production. However, they generally face problems, including low farm-gate prices, lack of capital, poor access to credit, limited technology and market information, and insufficient technical knowledge. Employing qualitative methodology through focus group discussions and interviews, the study reveals that smallholders are inadequately compensated for their tea leaf production. Low prices have diminished farmers' motivation to enhance production quality, including organic cultivation, and threaten the sustainability of their operations amid rising production costs. The study explores two interrelated responses from smallholders to increase their bargaining power: organizing into cooperatives, and establishing small-scale factories. While factory initiatives often increased tea leaf prices, they introduced new challenges related to overcapacity, product quality, and market access. Cooperatives show potential but face constraints due to policy bias and limited market access. The findings imply that the smallholder model of tea production in Nepal, despite its stated cost-effectiveness, faces imminent challenges threatening long-term sustainability, prompting the need for a planned institutional support especially targeting market extension services.

Keywords: Smallholders, Tea, Cooperatives, Sustainability, Nepal

Mr. Sudhir Shrestha currently works as a Knowledge Management Officer at LDC Watch International Secretariat situated in Kathmandu, Nepal. He also teaches Economics at Kathmandu University School of Management (KUSOM) as a Visiting Faculty. At LDC Watch, he is involved in the study of sustainability of tea value chain across the South Asian countries, focusing particularly on smallholder farmers and workers, linking the issues with the global value chain. Other than that, his publications are mainly on the issues of informal sector, informal labor, and structural change. His ongoing research projects are in the areas of small tea growers, street vendors, and measuring informality in agriculture and transportation sectors in Nepal. Shrestha holds a Master's degree in Economics from South Asian University, New Delhi, India.

128. Transforming Sugarcane Labor and small farmers in India: From Exploitation to Empowerment

Preeti Upadhyaya, Sanjay Kumar Rai

ABSTRACT:
Transforming Sugarcane Labor: From Exploitation to Empowerment is a grassroots-driven initiative addressing the economic and social vulnerabilities faced by sugarcane workers in Maharashtra and Uttar Pradesh—India's largest sugarcane-producing states. Despite their vital contribution to the industry, these workers often endure exploitative labor conditions, income instability, and restricted access to essential services.

This project mobilizes a coalition of over 100 civil society organizations (CSOs) and partners with 90+ Self-Help Groups (SHGs) to strengthen economic resilience among sugarcane workers and their families. It offers livelihood diversification, skills training, and entrepreneurship support to reduce reliance on seasonal harvesting cycles and foster long-term financial stability.

Beyond economic interventions, the project engages with policymakers, local governance structures, and industry stakeholders to advocate for robust labor rights, improved social protection, and access to healthcare and education.

By integrating community empowerment with systemic advocacy, the initiative aims to build a sustainable ecosystem where sugarcane workers are no longer exploited but are economically empowered, socially protected, and able to access opportunities with dignity and equity.

Keywords: Sugarcane Labor, Economic independence for the marginalized, Empowerment of Self-Help Groups (SHGs) , Strategizing Alternative Livelihoods, Women Collective's Rights Sustainable Development

Preeti Upadhyaya is a visionary Program Director at AIM Trust, with over two decades of leadership in the social development sector. She has spearheaded transformative programs across education, gender equality, health, and livelihoods, positively impacting thousands of underprivileged lives. With an MBA, a Postgraduate Diploma in NGO Management, and certifications in Cognitive Psychology and Counselling, Preeti brings a unique blend of strategic thinking and compassionate leadership to her work. Her deep commitment to marginalized communities has strengthened civil society efforts across India. Recognized as Women Changemaker of the Year 2024 and honoured with Bharat ke Sitare, Preeti continues to drive sustainable change by mobilizing communities, influencing policy, and fostering inclusive partnerships for a more just and empowered society.

Mr. Sanjay is currently holding the position of Director. He holds the Post Graduate degree in Social Work. He is providing leadership to AIM trust as Director with an extensive background in public service. Throughout his career, he has addressed critical issues such as food security, climate-resilient agriculture, air and water pollution, in various national and international gatherings including the FAO Summit, ILO Summit, and events at prestigious institutions like the University of Oslo and Berlin. Furthermore, he has contributed to governance as a Governing Board member of the Institute of Worker's Education, Mumbai, under the Ministry of Labour, Government of India.

129. Circular economy practices and barriers within European SMEs of the construction sector

Eng. Sultana Rebeka Akhter, Assoc. Prof. Dr. Stefanie Ceustermans

ABSTRACT:
The European Green Deal and Circular Economy Action Plan target climate neutrality by 2050; however, the construction sector—a resource-intensive industry—exhibits limited circular economy (CE) adoption. Existing research, primarily literature reviews and qualitative studies, lacks sector-wide generalizability. Notably, no studies have examined CE implementation across a large sample of construction SMEs, leaving a significant gap in understanding adoption challenges. This study addresses this gap by analyzing data from the 2022 Flash Eurobarometer 498 survey, encompassing 2,459 EU27 construction SMEs. Descriptive analysis reveals that regulatory challenges (36.4%) are the most frequently cited barrier, followed by issues with material supply and sourcing eco-friendly materials (30.5%), high costs (29.5%), adapting to environmental legislation (23.8%), lack of expertise (23.4%), and insufficient demand for sustainable products (21.1%). Findings indicate that construction SMEs prioritize resource efficiency, focusing on waste minimization (63.1%), material savings (62.4%), and energy conservation (58.6%). However, engagement in transformative CE practices remains limited, with green supply chains (33.5%), design for reusability (29.2%), and renewable energy adoption (21.1%) being less prevalent. While sustainability efforts exist, many SMEs may favor incremental measures over systemic change. This study further examines the relationship between CE engagement and associated barriers using a multivariate probit model.

Keywords: Circular Economy, Construction Sector, SMEs, Sustainability Barriers, Resource Efficiency, Regulatory Challenges, CE Adoption

Engineer Sultana Rebeka Akhter is a doctoral researcher and teaching assistant at the Department of Business (BUSI) at Vrije Universiteit Brussel (VUB), Belgium. Her research uses large-scale quantitative data to analyze circular economy (CE) adoption in EU27 construction SMEs, offering empirical insights beyond theory. She identifies challenges, evaluates policies, and suggests strategies to enhance sustainability. Her expertise spans environmental governance, sustainable project management, green financing, economic resilience, and CE integration. Previously, she served as Mission Environmental Officer & Climate Integration Lead at USAID Bangladesh, ensuring environmental compliance for 50+ projects. She also held senior engineering roles in Bangladesh's Local Government Engineering Department, managing climate-resilient infrastructure and procurement. She has advised the Government of Bangladesh on environmental policy and conducted sustainability training. Committed to bridging research with industry, she fosters innovation, competitiveness, and long-term environmental and economic sustainability in the construction sector and beyond.

Stefanie Ceustermans is Associate Professor at the Vrije Universiteit Brussel (VUB) in the Department of Business (BUSI). She focuses on two main research areas: (1) the role of financial reporting in private firms, emphasizing how reporting quality influences financing in a private firm context, and (2) non-financial reporting, examining companies' readiness for mandatory CSRD disclosure and how mandatory transparency fosters circular business practices. She has published in Accounting in Europe, Sustainability, and Accountancy & Bedrijfskunde. She teaches several courses, such as Management Accounting, Financial Statement Analysis and Financial & Managerial Accounting in both graduate and undergraduate programmes.

130. A short review of the `DNSH` principle in Romania, from a sustainable development perspective – theory-based or process evaluation

Dr. Ioana-Maria Crișan, Dr. Suzana-Elena Cătuț

ABSTRACT:
The `Do No Significant Harm` principle was applied, as an innovation `created` by the European Commission and, further on, the European Council and Parliament ever since 2020-2021. In essence, the idea steamed from the European Ecological Pact and was further developed within the European Green Deal, as a mandatory assessment for national Resilience and Recovery Funds.
Looking back to the ecological and environmental assessments previously done for any European funded projects, this article aims to briefly present an analysis of the application of the `DNSH` principle in Romania.
The context of the article starts from the PNNR (Planul National de Redresare si Rezilienta) – Romania`s NRRP and then will shortly analyze the national 2021-2027 European Funded Programmes within the Cohesion Policy).
Furthermore, the article comprises of a short comparative analysis of how the DNSH principle was applied for the Cohesion Policy Programmes and NRRP in Romania, from a theory-based or process evaluation perspective.
As a short conclusion, the DNSH principle in Romania started from the National Recovery and Resilience Plan (NRRP) and, further on, continued for all Cohesion Policy Programmes in the 2021-2027 Cohesion Policy and will expand, in post-2027 European Policies to other funds, as an ex-ante or mandatory assessment.

Keywords: Do No Significant Harm principle, Romania, European institutions, Romanian national and regional programmes, NRRP, process evaluation, monitoring, assessment, theory-based evaluation

Dr. Ioana-Maria Crişan is an alumni of A.S.E. Bucharest (BSc in agricultural economics and econometrics) and has a PhD thesis on „Disfunctionalitati economice si ecologice generate de presiunea antropica asupra spatiului silvic : studiu de caz : judetul Mures, perimetrul Deda-Toplita„ ("Economic and ecologic dysfunctionalities generated by the anthropic pressure on the silvic space: case-study Mures County, Deda-Toplița perimeter)

Dr. Suzana-Elena Cătuţ is an alumni of A.S.E. Bucharest (BA in public administration), of Glasgow University (MSc in Public Policy and Management) A.S.E. Bucharest (PhD in economics) – thesis title: " Convergences between globalization and sustainable development.

131. Informing climate-sensitive social protection policymaking in Tanzania

Dr. Sylvia Blom, Nick Lindsay, Arshdeep Kaur

ABSTRACT:
A large number of LMICs have implemented social protection systems in which vulnerable households receive regular cash payments. Increasing extreme weather events require an adaptation of these programmes to better support resilience during such events. This work examines the policy needs for such a programme in Tanzania. We combine geocoded, nationally representative household panel data (TZNPS) with gridded weather datasets to match households with longitudinal data on temperature, precipitation, and natural disasters. We employ standard methods in environmental economics to flexibly model the relationship between extreme weather, food insecurity, and poverty. This work identifies (1) the types of extreme weather that threaten human development in Tanzania, and (2) the thresholds at which each type of weather event become dangerous for human wellbeing among vulnerable households to inform the design of an adaptive social protection system.

Keywords: Climate change, Adaptive social protection, Tanzania, Environmental economics

Dr Sylvia Blom is a principal consultant at Oxford Policy Management. Her research investigates the causes and consequences of poverty and malnutrition, with a particular focus on the climatic drivers of wellbeing.

Mr Nick Lindsay is an assistant consultant at Oxford Policy Management. His work centres around the use of small area estimation methods and large data to examine the drivers of poverty.

Ms Arshdeep Kaur is an assistant consultant at Oxford Policy Management. She is a mixed methods evaluator and researcher with experience in education, poverty, and social protection.

132. Bivalve Sclerochronology as a Proxy for Environmental Change in Mangrove Ecosystem

Tanya Singh PhDc

ABSTRACT:
Mangrove forests are among the most carbon-rich ecosystems globally, with carbon storage per unit area often exceeding that of terrestrial tropical forests due to their extensive belowground biomass and organic-rich soils. These systems play a crucial role in long-term carbon sequestration, particularly within the framework of global blue carbon dynamics. However, mangroves are increasingly threatened by anthropogenic pressures and climate-induced variability, highlighting the need for high-resolution environmental monitoring tools.
This study examines sub-seasonal environmental variability and human impacts in the Ariyankuppam mangrove forest on India's southeast coast through sclerochronological analysis of estuarine bivalves. Shell samples are being analyzed for growth increments and geochemical profiles. Stable isotopes ($\delta^{13}C$, $\delta^{18}O$) will reveal changes in productivity, freshwater input, and temperature. Trace elements (Sr/Ca, Mg/Ca, Ba/Ca, Mn/Ca), measured by LA-ICP-MS, will track salinity, nutrients, and pollution. Special focus will be on signals linked to the COVID-19 lockdown, a period of industrial dormancy marked by reduced human activity and pollution, providing a natural experiment to assess environmental response.
By integrating growth and geochemical data with environmental records, this research aims to validate bivalve shells as bioarchives for monitoring mangrove environmental and carbon dynamics. Results will aid the development of proxy tools for long-term blue carbon monitoring and inform conservation strategies for sustainable mangrove management.

Keywords: bivalve sclerochronology, mangrove forest, blue carbon, environmental monitoring, anthropogenic pressure

Tanya (published as Tanya Singh) is a second-year PhD student at Jagiellonian University in Kraków, Poland. Her current research focuses on bivalve sclerochronology as a tool for reconstructing environmental change in mangrove ecosystems. Originally from India, she investigates how growth and geochemical signals in bivalve shells reflect seasonal variability and anthropogenic pressures in tropical coastal environments. Before this, she has worked with micropalaeontology, fossil corals, and carbonate platforms, gaining expertise in paleoenvironmental reconstruction of the Cretaceous marine systems of southeast India—another period of global warming. Her current work contributes to understanding blue carbon dynamics and aims to support long-term monitoring strategies for mangrove forests, which are among the most biologically diverse and carbon-rich coastal ecosystems in the world.

133. Environmental Security Risks from Climate Change: Adaptation and Resilience in Greenland's Sheepherding Communities

Dr. Thomas Rotnem

ABSTRACT:
The pace and intensity of climate shifts across the Arctic region have local and global implications. Residents of remote Arctic regions dependent on the natural resource base and local economic conditions must rapidly adapt to the climate changes that are impacting their livelihoods. This research adopts a convergent approach at the intersection of environmental and human systems to understand landscape-level changes at the study site in southern Greenland (Kujaata region). Based upon a twenty-three year remote sensing monitoring analysis of landscape change in Kujaata, Greenland, as well as focus group interviews with local sheepherder and affiliated community members, the research presents both the results of the MODIS (moderate resolution imaging spectroradiometer) and NDVI (normalized difference vegetation index) analyses of landscape change and the impact upon sheepherding communities in Greenland. It also discusses various adaptation techniques or strategies that some community members have found effective at lessening the impact of climate change.

Keywords: Climate Change; Greenland; Environmental Security

Dr. Thomas Rotnem is Professor of Political Science and Associate Director of the School of Government and International Affairs, at Kennesaw State University, in metropolitan Atlanta. PI on NSF grant studying the impact of climate change upon sheepherding communities in southern Greenland.

134. The Implementation of Circular Design Strategies at the Micro and Meso Levels: Evidence from Taiwan's Manufacturing Firms

Ting-Yu Li, Pi-Jui Lin, Prof. Tung-Jung Sung

ABSTRACT:
This study explores how circular design strategies are perceived and applied at the micro- and meso-system levels. A two-stage mixed-methods approach was adopted. Stage 1 combined expert surveys and interviews to construct level-specific strategy frameworks, resulting in five strategies and 19 key items for the micro level, and six strategies and 24 key items for the meso level. Stage 2 involved 60 Taiwan-based practitioners with circular design experience. While overall quantitative scores showed high agreement, the analysis revealed structural differences in implementation logic. Micro-level respondents focused on design feasibility and behavioral incentives, whereas meso-level respondents emphasized system integration and process standardization.
The study contributes a level-sensitive framework for circular design, offering both practical guidance and theoretical insight for advancing cross-level collaboration and sustainable design policymaking—addressing a gap in current literature concerning cross-level applications of circular design.

Keywords: circular design, circular design strategies, system-level design, circular economy, sustainability

Ms. Ting-Yu Li is a graduate student at the Department of Design, National Taiwan University of Science and Technology (NTUST), Taiwan. With a background in industrial design, she has developed solid skills in product development and user-centered design processes. Motivated by a growing interest in sustainability, her current research focuses on social sustainability and circular design, particularly through service design approaches that bridge policy, community, and system innovation. She is currently involved in a government-funded project on circular design strategies, which marks her first formal research experience in this field. In parallel, her thesis explores how community-based mechanisms in Taiwan—such as Taiwan's Community Planner Program—can enhance citizen participation, foster cross-sector collaboration, and support sustainable local development through design interventions.

Ms. Pi-Jui Lin is a graduate student at the Department of Design, National Taiwan University of Science and Technology (NTUST). With an academic background in industrial design and service design, she is particularly interested in topics related to user experience. She is passionate about integrating user-centered innovation with resource-efficient solutions to address sustainability challenges. Her current academic research focuses on service design and circular design, specifically exploring how design strategies can facilitate sustainable business transformation. She aims to connect design research with industry needs, with the broader goal of fostering public engagement and encouraging environmentally friendly behaviors through design-driven initiatives.

Prof. Tung-Jung Sung received a B.S. degree in Industrial Design from National Cheng Kung University (Taiwan), an M.A. in Industrial Design from the Ohio State University (U.S.A.), and a Ph.D. in Management from Macquarie University (Australia). He is now a distinguished professor at the Department of Design, National Taiwan University of Science and Technology (NTUST). Prof.

Sung is also the Editor-in-Chief of Journal of Design (Elsevier SCOPUS) and the Associate Editor of International Journal of Design (SCI-E, SSCI and A&HCI). Prof. Sung served as the dean of the college of design at NTUST (2019- 2022) and as the CEO of Taiwan Design Center (2017- 2019). Prior to being an academician, he worked for Philips Electronics (Taiwan) Ltd. as project and product manager and for Sanyo Electric (Taiwan) Ltd. as an industrial designer. His recent design and research interests are on service design, circular design, social innovation & design, and intelligent product design. And, he has published a number of studies in reputable scientific or academic journals.

135. Territorial Carbon Intensity of Electricity in Poland: A Voivodeship-Level Analysis for Improved Emission Accounting

Tomasz Rola, Dr. Aleksandra Ziemińska-Stolarska, Alicja Cegielska-Rola

ABSTRACT:
The growing global demand for energy, coupled with the finite nature of fossil fuel resources, highlights the urgent need for a transition to a more sustainable energy system. Renewable energy sources are gaining prominence in the energy market, primarily due to the need to reduce environmental pollution. However, the shift to renewable energy offers a range of additional benefits, including improvements in public health, economic growth, and technological innovation. In electricity generation, carbon emissions are associated with various energy sources, including non-renewable, renewable, and carbon-free alternatives. Life-cycle assessments (LCA) of carbon emissions consider the entire life cycle of power plants, from construction to decommissioning, whereas operational carbon emissions focus solely on emissions during electricity production. This study proposes a methodology for calculating region-specific carbon intensity of electricity generation in Poland, accounting for the regional variations in the energy mix. The analysis reveals significant differences in carbon intensity across Poland's voivodeships, with implications for activities such as electric vehicle journeys and everyday actions like brewing coffee. By calculating emission factors at the voivodeship level, this study demonstrates that national average values can mask important regional distinctions. The findings emphasize the need for region-specific strategies in decarbonization efforts and highlight the potential of this methodology for improving the accuracy of carbon footprint assessments, informing

Keywords: local climate policies, and guiding individual environmental decisions. emission factor; regional electricity mix; renewable energy

Mr. Tomasz Rola Founder of ro.lab consulting and the originator of an innovative application for analyzing costs and the carbon footprint of PCBA, which is also the subject of his PhD dissertation at the Lodz University of Technology. He has over 10 years of experience in the areas of Product Development and Cost Engineering, including 6 years at McKinsey & Company, where he specialized in cost analysis and product carbon footprint — with a particular focus on electronic components. He has carried out projects for Forbes 100 clients in industries such as automotive, medtech, telecommunications, and advanced electronics.

Dr. Aleksandra Ziemińska-Stolarska She is currently an assistant professor at the Faculty of Process and Environmental Engineering, Lodz University of Technology. Aleksandra Ziemińska-Stolarska works as an assistant professor in the Faculty of Process and Environmental Engineering at Lodz University of Technology. Research activity covers the area of Life Cycle Assessment analysis for new material design and technologies in the field of chemical and environmental engineering. Aleksandra Ziemińska-Stolarska is an author of the report on the Carbon Footprint of the Lodz University of Technology. Her scientific achievements are confirmed by 17 publications in scientific journals and over 20 speeches at Polish and foreign conferences

Mrs. Alicja Cegielska-Rola A lawyer with many years of experience providing legal services to the IT, e-commerce, AI and ESG regulatory. She supports entrepreneurs and startups in scaling their businesses safely by creating legal solutions that combine regulatory compliance with security, usability, and aesthetics (legal design).

136. Tracking Sustainable Development Goals (SDGs) Engagement in Japan: Insights from a Six-Year National Panel Survey

Dr. Tomomi Yamane

ABSTRACT:
Achieving the SDGs by 2030 requires sustained public engagement. However, there is limited understanding of how individual preferences and behaviors related to the SDGs change over time. This study uses a six-year panel dataset from Japan to examine long-term trends in SDG awareness, prioritization, and action. While public commitment to the SDGs is often considered stable, anecdotal evidence suggests increasing "SDG fatigue." To analyze how enthusiasm evolves and intersects with everyday sustainable behavior, this study utilizes a four-wave national panel survey of Japanese adults conducted between 2019 and 2025 (N ≈ 9,500). Attitude indices are constructed on local SDG engagement, future relocation and employment preferences, and sustainable-consumption orientation. Models relate these indices to gender, income, age, and regional context, while accounting for individual heterogeneity and non-linear life-course effects. The analysis aims to clarify (i) whether stated support for SDGs declines as 2030 approaches, (ii) which sociodemographic factors cushion or accelerate any decline, and (iii) how attitudinal change corresponds to self-reported willingness to purchase sustainable products. Findings will inform communication strategies for governments, educators, and businesses aiming to maintain momentum toward the 2030 agenda. This research contributes to policy discussions on citizen engagement and educational approaches for SDG promotion.

Keywords: SDG fatigue; longitudinal survey; sustainable behaviour; Japan; 2030 agenda

Dr. Tomomi Yamane is an Associate Professor at Ritsumeikan Asia Pacific University (APU) in Beppu, Japan. Prior to joining APU in October 2022, she held positions at the Japan International Cooperation Agency (JICA), Osaka Kyoiku University, and Hiroshima University. She holds a Ph.D. and specializes in development economics, and sustainable development. Her research explores the intersection of individual decision-making, policy design, and sustainability. Recent work includes studies on public perceptions of the SDGs, survey experiments on sustainable behavior, and the role of private education in Southeast Asia. At APU, Dr. Yamane teaches undergraduate and graduate courses on development economics, sustainability, and advanced data analysis. She is dedicated to fostering inclusive and sustainable societies through empirical research and student-centered education in multicultural environments.

137. Continuous flow treatment of water contaminated with Cr (VI) with E. crassipes and bacterial cellulose

Prof. Dr. Uriel Fernando Carreño Sayago

ABSTRACT:
The treatment of industrial wastewater is of paramount importance in order to mitigate the impacts caused by these waters in wetlands, rivers, and lagoons. Inadequate treatment has been demonstrated to result in significant, irreversible impacts; consequently, a "Continuous flow treatment of water contaminated with Cr (VI) with E. crassipes and bacterial cellulose" has been the subject of investigation and implementation. These adsorbent biomasses are frequently discarded and misused, as evidenced by the case of Eichhornia crassipes. This aquatic plant is abundant in wetlands contaminated with organic matter, and bacterial cellulose is industrially produced and has ideal adsorption capacities for heavy metals. The utilisation of mathematical mass balance models has facilitated the design of treatment systems for water contaminated with Cr (VI), incorporating these biomasses. A water treatment system was developed that achieved a removal rate of over 99% for Cr(VI), utilising a flow rate of 15 L/day and a concentration of 500 mg/L. In addition to its economic nature (with a cost of no more than 100 euros), the system is both straightforward to design and effective in its implementation in industries that pollute with this heavy metal or others.

Keywords: E crassipes; Cellulose bacterial; Continuous flow; Cr (VI); Models

Dr. Prof Uriel Fernando Carreño Sayago He is a biotechnology production engineer who holds a master's degree in Environment and Sustainable Development and a doctorate in Environmental Sciences and Sustainability. He is also a research professor for over 15 years, investigating the phytoremediation benefits of E. crassipes in Colombia, a country suffering from severe environmental consequences due to the presence of heavy metals in various bodies of water. Prototypes have been developed with these biomasses for alternative water treatment, along with the development of mathematical models for the optimal design of treatment systems based on pollutant load and flow rates. With the authored over 35 scientific articles, including patents, books, and national awards.

138. Localizing SDG 11 in Namibia's informal settlements: Reviewing the SDGs as non-isolated targets

Ute Vees, Prof. Dr. Astrid Ley, Tapiwa Maruza,
Gaby Hansen, Prof. Dr. Mohamed Salheen

ABSTRACT:
In Namibia informal settlements are characterised by a variety of challenges that need to be addressed in upgrading processes. Moreover, global policy frameworks such as the Sustainable Development Goals (SDGs) are often not meaningfully contextualised to reflect the realities of these settlements. SDG 11 (Sustainable Cities and Communities) provides basis for aligning global ambitions with local actions towards a more inclusive and resilient future, but the interconnectedness of SDG 11 with other goals needs exploration. The study reflects on SDGs related to topics relevant to Peter Nanyemba settlement in Windhoek, including flood resilience, energy provision, public spaces and incremental spatial transformations. Drawing from master's research conducted under the SDGs GoGlocal! Research Group, the presentation showcases selected findings and the relevance of SDG 1, SDG 7, SDG 10, and SDG 13 as interlinked with SDG 11. Integrating these goals into planning processes can support more holistic locally grounded upgrading strategies, addressing the challenges faced by residents while building on existing structures in Peter Nanyemba. As a contribution to SDGs 17 (Partnerships for the Goals), the research reflects on the transdisciplinary collaboration between the master research group and the Namibia Housing Action Group, the mutual learnings and joint efforts towards SDG localisation.

Keywords: Sustainable Development Goals (SDGs), informal settlements, transdisciplinarity, urban development, Namibia

Ute Vees is a lecturer and researcher at the department for International Urbanism at the University of Stuttgart, Germany. Her research and interest include co-productive and strategic urbanism as well as the relation between society and nature in the context of rural-urban transformations. At the department for International Urbanism Ute Vees teaches in the international master's program Integrated Urbanism and Sustainable Design (IUSD) and coordinates the DAAD funded project `SDGs GoGlocal! Translocal and transdisciplinary teaching and research to ground the SDGs through integrated urban development ` as a project between Windhoek, Cairo and Stuttgart.

Prof. Dr. Astrid Ley The presented study is part of the project `SDGs GoGlocal! Translocal and transdisciplinary teaching and research to ground the SDGs through integrated urban development ` as a project between Windhoek, Cairo and Stuttgart. Prof. Astrid Ley is the project's PI representing the University of Stuttgart and the master's program Integrated Urbanism and Sustainable Design (IUSD).

Mrs Tapiwa Maruza The presented study is part of the project `SDGs GoGlocal! Translocal and transdisciplinary teaching and research to ground the SDGs through integrated urban development ` as a project between Windhoek, Cairo and Stuttgart. Tapiwa Maruza is representing the Namibia Housing Action Group (NHAG) a local branch of Slum Dwellers Internationa (SDI) in Namibia working on informal settlement upgrading.

Mrs Gaby Hansen The presented study is part of the project `SDGs GoGlocal! Translocal and transdisciplinary teaching and research to ground the SDGs through integrated urban

development ` as a project between Windhoek, Cairo and Stuttgart. Gaby Hansen is lecturer and researcher at the Namibia University of Science and Technology and the project's PI in Namibia.

Prof. Dr. Mohamed Salheen The presented study is part of the project `SDGs GoGlocal! Translocal and transdisciplinary teaching and research to ground the SDGs through integrated urban development ` as a project between Windhoek, Cairo and Stuttgart. Prof. Mohamed Salheen is the project's PI in Egypt and representing the master's program Integrated Urbanism and Sustainable Design (IUSD).

139. Environmental and socioeconomic evaluation of lithium mining: Proposed methodology and its application to Chilean projects

Valentina Canales-Guerrero, Prof. Felipe Díaz-Alvarado,
Dr. Rintaro Yamaguchi

ABSTRACT:
Lithium is critical for a sustainable energy transition, particularly regarding the battery market. For decades, traditional extraction methods from brine have adversely affected inland wetlands, which are considered fragile ecosystems. For instance, brine extraction in Chile has severely decreased the populations of three flamingo species and obstructed the livelihoods of indigenous communities. However, these negative externalities have not been included in the evaluation of lithium brine mining projects. The novelty of this study lies in developing a methodology that consistently quantifies environmental and social impacts in monetary values. Moreover, the study will compare three metallic lithium production processes, including direct lithium extraction (DLE) technologies. It will determine how these processes disrupt ecosystem services and affect the environmental, energy, economic, social, and process efficiency dimensions. Some impacts will be measured using market and non-market valuations and a multicriteria analysis. Our results will directly provide valuable insights to the recently developed Chilean National Lithium Strategy, which seeks to establish a sustainable, technological, and socio-economic framework for lithium production.

Keywords: Energy transition, Valuation, Wetlands, Ecosystem services, Lithium mining, Direct lithium extraction.

M.Sc.(c) Valentina Canales-Guerrero is a master's candidate in chemical engineering sciences at the Department of Chemical Engineering, Biotechnology, and Materials, University of Chile. Her main research focus is on sustainability indicators, ecosystem services and economic valuation for developing project evaluation frameworks, program appraisal tools for environmental impact assessment, and design and instrumentation of chemical and biotechnological engineering processes.

Prof. Felipe Díaz-Alvarado is a Professor at the Department of Chemical Engineering, Biotechnology, and Materials, University of Chile, and Director of the Center for Sustainable Design and Process Systems Engineering. His main research focus is on developing Sustainability and Circular Economy Indicators for products and services, and planning long-term infrastructure modifications under uncertainty applying multi-objective optimization tools.

Dr. Rintaro Yamaguchi is a senior researcher at the National Institute for Environmental Studies, Japan. He currently serves as the secretary general of Asian Association of Environmental and Resource Economics (AAERE). His main research focus is on indicators of sustainability, natural capital and comprehensive wealth accounting, dynamic optimization in macroeconomics, and the social cost of greenhouse gases and intergenerational discounting in climate-economy integrated assessment models.

140. European Union countries facing environmental responsibility

Prof. Vanda Maráková, Prof. Anna Wolak-Tuzimek, Dr. Katarzyna Brożek, Dr. Barbara Kusto, Dr Katarzyna Sieradzka

ABSTRACT:
The European Union has been working hard to protect the environment for many years, aiming for climate neutrality and sustainable development. In the face of global climate change, ecosystem degradation, and pollution, the EU is setting ambitious targets within the framework of the European Green Deal.
The aim of this article is to examine the spatial differences between EU countries in their efforts to ensure environmental security and sustainability.
Individual Member States, pursuing environmental protection strategies tailored to local conditions and challenges, are investing at different levels in environmental protection, greenhouse gas reduction, or renewable energy use. Therefore, the research hypothesis is that there is significant spatial differentiation among the countries of the European Union in terms of the level of environmental activities undertaken.
The article analyses statistical data from the Eurostat database and uses the Hellwig method to construct a synthetic measure of development on the basis of four selected diagnostic variables in the field of environmental activities.
The study's results made it possible to systematize and group countries according to the intensity and effectiveness of the activities in the data analyzed.
The group of countries characterized by the highest level of the synthetic indicator, and thus the most sustainable environmental policies and effective measures to reduce greenhouse gas emissions and implement green technologies, included Austria, Slovenia, Croatia, Finland, and Latvia. On the other hand, the group of countries where the activities in the discussed area are far from sufficient included: Luxembourg, Ireland, Greece, Slovakia, Romania, Hungary, and Cyprus. The statistical analysis also revealed a correlation between the use of renewable energy and the level of a country's gross domestic product. This result is in line with expectations, as GDP growth is often associated with an increase in the share of renewable energy in gross final energy consumption, albeit with some variations that may be due to the turbulent global environment.

Keywords: environmental sustainability, sustainable environmental policies, renewable energy

Vanda Maráková is a full professor. Affiliated organisation Jan Kochanowski University of Kielce, Poland. She has twenty five years of experience in the research areas of management. Her main research topics include tourism management, marketing communication, corporate social responsibility, sustainability and competitiveness in destination management, and innovations. The published works are the result of her research activities within 40 scientific research projects of national and international importance. She was nominated by Slovak Business Agency to the High-Level Advisory Board EU ECO-TANDEM (HLAB) in the category of finance & sustainable tourism development. She is an active member of the Triangle knowledge alliance Europe's Next Generation Sustainable & Responsible Tourism Learning Delivery Network, focused on Europe’s

destinations with protected areas. She is a memeber of the elite network of scientific experts AIEST seated in Switzerland.

Anna Wolak-Tuzimek is a professor at Jan Kochanowski University in Kielce, Poland, and the director of the Institute of Management at the Faculty of Law and Social Sciences. Her main research interests include corporate management in the context of sustainable development, in particular the impact of corporate social responsibility on corporate competitiveness. She is the author of more than 160 research publications, including 8 monographs published in Poland and abroad. She also disseminates and presents the results of her research at national and international scientific conferences.

Katarzyna Brożek, doctor of social sciences in the discipline of economics and finance. Deputy Director for Academic Affairs and Teaching at the Institute of Management at the Jan Kochanowski University in Kielce. Katarzyna Brożek, Ph.D., remains a well-known national expert in the following fields of expertise: SME sector, organizational behavior, V4 innovation and HRM. She is a scholarship holder of the Ministry of Science and Higher Education, member of the Founding Committee of PTE branch in Radom and participant of the EFC Academy. Being a contractor of research projects, she is currently involved in COST CA21166 Action Social Sciences and Humanities for Transformation and Climate Resilience. She is also the author of 5 monographs and over 100 scientific articles/chapters of international and national papers, scope - indexed in WoS, Scopus, Copac, DOAJ database, SCIRESCO database.

Barbara Kusto, Ph.D., is a lecturer, and deputy director of the Institute of Management at the Faculty of Law and Social Sciences at Jan Kochanowski University in Kielce, Poland. Her main research interests include issues related to local and regional development in the context of sustainable development and the management of public institutions. She is the author of several dozen scientific publications published in Poland and abroad. She disseminates and presents the results of her research at national and international conferences

Katarzyna Sieradzka is a doctor of economic sciences, Phd. Affiliated organisation Jan Kochanowski University of Kielce, Poland. Her main research topics include: competitiveness and innovativeness of enterprises, corporate social responsibility, and corporate management. She is the author of more than 100 research publications, including 3 monographs and academic textbook, published in Poland and abroad. Participant of numerous, national and international, scientific conferences.

141. The Fair for ALL Program Experience in Brazil: Learnings from the Land Pastoral Commission and The Forum of Communities in Conflict in Pernambuco

Renata Costa Cézar de Albuquerque PhDc, Victória Perino Rosa, Ravenna Catarina Souza Alves, Maite Gauto

ABSTRACT:
It is often argued that international trade can drive Sustainable Development Goals (SDGs) in the Global South. However, the integration of countries like Brazil into global value chains has frequently reinforced structural inequalities rooted in colonial legacies, particularly in commodity-based sectors. The Fair for ALL program- led by Oxfam Novib, Huairou Commission, SOMO, and Third World Network-Africa - supports communities in 13 countries in demanding accountability from corporations, governments, and multilateral institutions while advancing economic, social, and environmental justice across global supply chains. In Brazil, the program supports the Land Pastoral Commission (CPT), to strengthen rural communities in Pernambuco's Zona da Mata, a region historically shaped by land concentration and exploitation linked to the sugarcane industry. In response to ongoing land conflicts and rights violations, CPT and allied organizations created the Forum of Communities in Conflict, a collective initiative that empowers rural communities to defend their rights and propose alternative, community-driven development models. This case highlights how achieving the SDGs requires centering the experiences of Global South communities and embracing collective solutions. In contrast to the logic of neoliberal individualism, the Forum demonstrates how grassroots solidarity and community organizing offer alternatives for sustainable development pathways.

Keywords: Fair for All; SDGs; CPT; Pernambuco; Brazil; Supply Chains

Ms. Renata is a PhD candidate in the Post-Graduate Program in Communication at the Federal University of Pernambuco (UFPE), journalist, and communicator for the Land Pastoral Commission – Northeast Region 2 (CPT NE2).

Ms. Victória Perino is a Rural Justice and Development Senior Project Analyst at Oxfam Brasil. Prior to this, she worked at Repórter Brasil and was a professor of International Relations and International Trade. She has solid experience in research and advocacy on human rights, as well as in engagement with civil society and stakeholders. She holds a Master's degree in International Relations from the San Tiago Dantas Interinstitutional Graduate Program (UNESP- UNICAMP-PUCSP) and a Bachelor's in International Relations from Pontifical Catholic University in São Paulo (PUC-SP). Her expertise focuses on socio-environmental rights, business and human rights, due diligence, and global governance.

Ravenna Alves is a lawyer and currently coordinates the Rural Justice and Development area at Oxfam Brazil, an organization with over a decade of dedication to the fight against inequality. She worked at the CPT, where she was able to expand her work on issues of human rights, popular education and grassroots work with women farmers and rural wage earners.

Maite has a Master's degree in Public Policy Management from FGV and bachelor's degree in Social Sciences from USP. She has experience in designing and implementing programs and projects, analyzing and monitoring indicators, strategic planning, social mobilization, networking, negotiation, and government relations on various topics. He has worked at institutions such as Instituto Sou da Paz,

Childhood Brasil, Campanha Nacional pelo Direito à Educação, and the São Paulo City Hall Human Rights Secretariat (2013-2014). At Fundação Abrinq, she coordinated the Public Policy area, leading political advocacy with the federal government and the National Congress, and relations with international organizations.

142. The Role of Cultural Dimensions in Sustainable Development Implementation: An Empirical Analysis of Georgian Medium and Large-Sized Enterprises

Dr. Miranda Tsintskiladze

ABSTRACT:
The study examines how cultural dimension of individualism/collectivism influence sustainable practices in Georgian medium and large-sized enterprises, addressing the research gap regarding culture's role in organizational sustainability implementation.
A quantitative research approach was employed using survey data collected from medium and large-sized enterprises across various economic sectors in Georgia. The study utilized Hofstede's cultural dimensions framework to assess organizational culture and measured sustainable practices across social, economic, environmental, governance, and ethics domains.
The findings reveal that collectivist culture in Georgian enterprises demonstrates a strong positive correlation with social sustainability practices compared to environmental or economic dimensions. Collectivist orientation significantly influences governance and ethics, integration and alignment, and continuous improvement and learning modules. Conversely, high power distance culture showed weak predictive power for sustainable development, with hierarchical decision-making processes hindering innovative sustainability practices.
The research contributes empirical evidence that cultural orientation significantly shapes organizational sustainability approaches in emerging markets. For socio-cultural sustainability, the study demonstrates that collective cultural values enhance social responsibility, employee development, and ethical governance practices. These findings have practical implications for managers developing culturally-aligned sustainability strategies and inform policy-makers about leveraging cultural characteristics to promote sustainable development. The results suggest that organizations can maximize their positive social impact by aligning sustainability initiatives with existing collectivist cultural frameworks while addressing power distance barriers through inclusive decision-making processes.

Collectivist Culture; Social Sustainability; Sustainable Performance; Georgian Enterprises; Power Distance

Dr. Miranda Tsintskiladze is an Assistant Professor at Caucasus University Business School, Georgia. She specializes in Management and teaches courses in Management Fundamentals and Organizational Behavior. Her research interests focus on sustainable development and cultural dimensions, with particular emphasis on analyzing the role of cultural dimensions in influencing sustainable practices within organizations. As an active member of the European Students' Association for Cultural Heritage (ESACH), Dr. Tsintskiladze contributes to interdisciplinary collaboration and the promotion of cultural heritage across Europe. Within this framework, she has developed and presented her work on The Role of Digital Transformation in the Sustainable Management of Cultural Heritage.

143. Artificial Intelligence in Education Policy: A Human-Centered Path to Socio-Cultural Sustainability and Albania's EU Integration

Klotilda Muça

ABSTRACT:

Education is the cornerstone of sustainable development, shaping not only the skills but also the values, rights, and responsibilities of future generations. As Artificial Intelligence (AI) increasingly transforms education systems worldwide, it holds the potential to improve teaching quality, enhance inclusiveness, and support data-driven policy-making. For Albania, a candidate country on its path to European Union membership, AI offers an unprecedented opportunity to bridge educational gaps, harmonize with EU standards, and foster socio-cultural sustainability. This research adopts a human-centered approach to examine how AI can be ethically integrated into education policy while safeguarding fundamental rights such as privacy, equality, and access for all learners. Through a comparative analysis of EU best practices and Albania's current legal and institutional frameworks, the study identifies gaps and proposes actionable strategies for inclusive and ethical AI adoption in education. Combining literature review, legal analysis, and expert interviews, the paper provides evidence-based recommendations for policymakers, educators, and civil society. By placing people—students, teachers, and communities—at the heart of technological innovation, the study demonstrates how AI in education can be a catalyst for both EU integration and the broader vision of sustainable development: an informed, inclusive, and equitable society.

Keywords: Sustainable Development, Artificial Intelligence, Education Policy, Human Rights, Socio-Cultural Sustainability, EU Integration, Albania

Klotilda Muça is an Albanian educator, legal scholar, and researcher with over 12 years of experience in teaching and academic work. She holds an Executive Master's in European Membership and Accession Negotiations, a Scientific Master's in Civil Law, a Bachelor's in Law, a Scientific Master's in Teaching English for Secondary Education, and a Bachelor's in British and American Studies. She has also undertaken international qualifications in human rights, democracy, citizenship, educational policy, and governance. Her research interests focus on the intersection of education, human rights, European integration, and sustainable development. Klotilda has coordinated educational projects, contributed to policy discussions, and presented in academic forums, aiming to bridge theory with practice in both national and international contexts.

144. SDGs in EU Project Calls and Project Funding: Are They Aligned?

Yanick Inghels

ABSTRACT:
Transparent and timely intelligence on how European research funding addresses the United Nations Sustainable Development Goals (SDGs) is essential for mission-oriented policy making, yet such intelligence is still missing because EU project calls and funded projects carry no SDG labels. Drawing on the full corpus of calls issued under FP7, Horizon 2020, and Horizon Europe (2007-present), we map the prevalence of every SDG at the call stage and then test whether the same pattern is reflected in the portfolio of funded projects. We find that SDG coverage is considerably more diverse in the calls than in the projects that ultimately receive funding, and that most of this misalignment can be traced to preferences revealed in the proposals themselves—evidence of a persistent gap between bottom-up and top-down SDG priorities in EU research. To close this information asymmetry and help researchers target funding more effectively, we release an open-access SDG dashboard that lets users identify the most relevant calls—closed, open, or upcoming—for any SDG or specific target. We argue that better alignment would improve the strategic steering capacity of Horizon Europe and its successors.

Keywords: Sustainable development goals, Research funding, European framework programmes , Natural language processing, top-down, principal-agent

Mr. Yanick Inghels is a doctoral researcher in the Banking & Finance Research Group at Ghent University, Belgium. His PhD sits at the intersection of artificial intelligence and economics, using large-scale text-mining of EU research-funding data to assess how well projects align with the UN Sustainable Development Goals (SDGs). Yanick's current work analyses the dynamics of the EU Framework Programmes—covering policy evaluation and the agenda-setting dynamics of top-down funding instruments.. He has published on the prevalence of SDG-related themes in EU-funded projects since 1984 and co-founded a university spin-off that provides an AI-driven pension assistant. Beyond his research, he teaches Python lectures.

145. Regenerating Reindustrialized Waterfronts: Nature-Based Solutions for Climate Adaptation and Ecological Restoration

Sofya Krasnaya

ABSTRACT:

As global port cities face increasing climate risk and renewed industrialization, the challenge of retrofitting 20th-century waterfront infrastructure for 21st-century environmental realities grows urgent. This research asks: How can Nature-Based Solutions (NBS) be implemented in active industrial waterfronts to support climate adaptation, ecological restoration, and pollution mitigation, while preserving economic productivity and adapting legacy systems? Focusing on Brooklyn Navy Yard and Brooklyn Marine Terminal, the study explores the spatial, governance, and infrastructural conditions shaping NBS feasibility in reindustrialized contexts.

Methodologically, the research employs a mixed-methods approach grounded in pragmatist epistemology and the Social-Ecological-Technological Systems (SETS) model. It integrates GIS-based hotspot analysis of social and ecological vulnerabilities, stakeholder interviews with planners, tenants, and community actors, and a typological life-cycle assessment of over 30 NBS types adapted from Castellar et al. (2022). Anchored in NYC's Comprehensive Waterfront Plan and USEPA coastal guidance, the study aligns with international frameworks including the EU Biodiversity Strategy, the IUCN Global Standard, and the UN Nature for Climate Initiative.

Intermediate findings highlight institutional silos and infrastructural rigidity as key barriers, calling for flexible design typologies, circular economy principles, and policy reform. The resulting framework offers globally relevant strategies for regenerating working waterfronts, particularly in high-density Global North cities.

Keywords: Nature-Based Solutions; Waterfront Redevelopment; Climate Adaptation; Industrial Resilience; Social-Ecological-Technical Systems; Urban Policy

Sofya Krasnaya is a Ph.D. candidate in Urban and Public Policy at The New School, affiliated with the Urban Systems Lab and Parsons School of Design. Her research investigates how Nature-Based Solutions (NBS) can be integrated into reindustrialized waterfronts to advance climate adaptation, ecological restoration, and pollution mitigation, while preserving industrial function. Grounded in the Social-Ecological-Technological Systems (SETS) framework, her work bridges policy, spatial analysis, and regenerative design. As a practitioner, she has collaborated with Supernature Labs, Second Nature Ecology + Design, and The Bioplanning Institute, contributing to large-scale ecological strategies for emerging urban environments across the U.S., Latin America, and the Middle East. As a senior designer, she contributed to ecological design strategies for Google offices globally while at Second Nature, integrating native planting, urban biodiversity, and regenerative infrastructure. At Parsons School of Design, she has served as a guest lecturer and jury committee member for graduate courses in sustainable architecture and climate-responsive urbanism. Her interdisciplinary work focuses on adapting legacy infrastructure, advancing environmental justice, and developing globally relevant policy and design frameworks for post-industrial cities under climate pressure.

146. Impact of artificial intelligence towards sustainable accounting education

Dr. Fateha Shaheen

ABSTRACT:
Purpose
The core purpose of this research is to investigate how intelligent learning systems powered by artificial intelligence can change accounting education by bridging the skills gap between academic instruction and real-world industry requirements. The study aims to identify the areas within accounting curricula most in need of innovation, assess the capabilities of AI to address these gaps, and offer a framework for the effective deployment of intelligent learning systems within academic institutions.
Method
This research adopts a mixed-methods research design, integrating both quantitative and qualitative approaches. The quantitative approach includes pre- and post-intervention testing, surveys, and performance analytics from AI-enhanced learning platforms. The qualitative component includes in-depth interviews and case studies.
Implications of this study:
1. It contributes to the broader academic conversation on educational reform in the context of Industry 4.0, where automation and digital transformation are reshaping job profiles across all sectors, including accounting.
2. It provides insights for curriculum designers, policymakers, and university administrators on aligning educational outputs with industry inputs, thereby improving employability and workforce readiness.
3. The study addresses the ethical and implementation challenges associated with AI adoption in educational settings, providing a balanced view of both opportunities and constraints.

Keywords: Artificial Intelligence, Sustainability, Accounting Education, Curriculum Transformation, Adaptive Learning, Higher Education

Dr. Fateha Shaheen is a Lecturer at the University of Salford, UK, where she teaches business and management modules, including Accounting and Finance, across undergraduate and postgraduate levels. Dr. Shaheen holds a PhD in Accounting and Finance from Manchester Metropolitan University and is a Fellow of the Higher Education Academy. Her research focuses on management accounting, audit, green finance, sustainability reporting, and performance measurement systems. She has published in peer-reviewed journals and presented at international conferences. Recent works include studies on green finance, corporate sustainability audits, and the contingency impact on performance measurement systems.

147. Operationalizing Resilience Thresholds for Sustainable Food Security Policy: An Empirical Framework for Development Planning in Climate-Vulnerable Contexts

Dr. Marco D'Errico, Prof. Mark Constas

ABSTRACT:
Building on Constas et al. (2022), this research develops an empirically-grounded methodology to identify minimum resilience capacity thresholds required to ensure household food security in climate-vulnerable contexts. Using South Sudan's Food Security and Nutrition Monitoring System (FSNMS) data covering 39,738 observations across four waves (2020-2022), we employ an innovative Generalized Structural Equation Modeling (GSEM) approach that integrates three core resilience capacities—absorptive, adaptive, and transformative—with internationally recognized food security thresholds.
The methodology reverses traditional analytical approaches by modeling food security as a binary outcome directly within the measurement model, enabling direct identification of Resilience Capacity Index (RCI) thresholds corresponding to specific food security achievement probabilities. Results reveal that static thresholds underestimate required resilience by 15-25% in volatile contexts, with South Sudan showing intensifying shock patterns over 2020-2022.
Crucially, the framework enables comprehensive gap assessment: by comparing current household resilience levels against identified thresholds, policymakers can quantify exact financial investment requirements and identify whether interventions should prioritize immediate coping (absorptive), system adjustments (adaptive), or structural transformation (transformative). This operationalizes the fundamental question "How much resilience is enough?" into actionable investment strategies for sustainable development planning.

Keywords: Resilience, Food Security, Thresholds, South Sudan, Climate Vulnerability, Sustainable Development, Gap Assessment, Household Welfare, Fragile States

Mr Marco d'Errico is an economist with the Green Climate Fund, in the Learning Oriented Real-Time impact Assessment (LORTA) team, within the Independent Evaluation Unit (IEU). After spending 15 years with FAO, his main research topics are now focused on climate change, climate resilience, and sustainability. Mr d'Errico holds a Phd in Economics with the Alma Mater Studiorum University of Bologna, Italy.

Mark Constas is a professor of applied economics and policy in the Charles H. Dyson School of Applied Economics and Management at Cornell University.

148. Implementation of Green Practices: The Role of Knowledge and Financial Resources

Vriti Sharma PhDc

ABSTRACT:
Companies have made profits by causing environmental pollution, but now there is a global push for green development. As a part of this shift, green practices are becoming increasingly important for businesses to help protect the environment. Many studies have explored the benefits of green practices, yet discussions often focus on their advantages but overlook key factors needed for successful implementation. This research aims to address this gap by examining the "how" and "what" required to implement green practices, specifically focusing on knowledge and financial resources. These factors are the basic requirements for implementing new initiatives. Knowledge is important because without proper knowledge, businesses may struggle to implement effective strategies, and without financial resources, they may lack the means to invest in green practices.
To understand the importance of these factors, this research utilizes Qualitative Comparative Analysis using survey data from 60 participants in the UK and Germany from 2,788 energy-intensive companies. The findings show that internal knowledge is important for successfully implementing green practices. The findings also highlight the importance of a company's financial stability for successfully implementing green practices. Even with access to external funding resources, post-implementation outcomes may be less effective if internal financial stability is weak.

Keywords: Green Practices, Financial Resources, Knowledge, Green Practices Implementation

Vriti Sharma is a Ph.D. researcher at the University of Economics and Business in Prague (Vysoká škola ekonomická v Praze, VŠE). Her research focuses on green practices, including green human resource management (HRM) and the implementation of sustainable business strategies. She explores how companies can integrate sustainability into their operations and its impact on long-term growth. Alongside her academic work, Vriti is a Project Manager at a leading expert network company, where she plays a key role in launching new products and software solutions. She ensures they are efficient, high-quality, and impactful. She is also dedicated to improving workplace policies and employee welfare, creating a supportive and innovative work environment. Vriti is an active participant in international conferences, where she shares her research and collaborates with experts worldwide. She is committed to advancing discussions on corporate sustainability, green finance, and responsible business practices, helping shape the future of sustainable organizations.

149. Experimental and mechanistic study on the enhanced CO2 capture using adjustable choline chloride-based DES

Dr. Jiaqiang Wang, Prof. Dexin Liu

Excessive emissions of carbon dioxide (CO2) in the environment have become a major factor contributing to global warming. The development of efficient, green, and sustainable adsorbents for CO2 capture is urgently needed. In this study, a series of deep eutectic solvents (DES) were prepared by using choline chloride (ChCl) as the hydrogen bond acceptor (HBA) and ethylene glycol (Eg), glycolic acid (Gla), and monoethanolamine (MEA) as hydrogen bond donors (HBDs), each containing different HBDs. The results showed that the CO2 capture performance of the DESs containing different HBDs exhibited significant variations. Among them, the amino-type HBD (MEA) demonstrated the best absorption capacity at room temperature (1.65 mol CO2/kg DES), while non-amino-type HBDs (Eg, Gla) consistently followed the trend: Gla > Eg. In addition, this work combined FTIR, NMR, DFT calculations, and molecular dynamics simulations to reveal, from a microscopic perspective, the intrinsic mechanisms behind the differential CO2 capture abilities of the adjustable HBDs. Overall, this work reveals the significant contribution of the tunable HBDs to CO2 capture in DESs from a microscopic mechanistic perspective, providing a direction for the future development of green DESs with high adsorption capacity.

Keywords: CO2 capture, DES, HBD, DFT calculations, Molecular dynamics

Jiaqiang Wang School of Petroleum Engineering, China University of Petroleum (East China), China;
Dexin Liu School of Petroleum Engineering, China University of Petroleum (East China), China.

150. From Sierra Leone to Milan: A Closed-Loop Case Study of Sustainable Fashion Driving Community Economic Development and Cultural Preservation

Ronghan Wang PhDc, Wenjing Li

ABSTRACT:
This study investigates how a design-driven, order-oriented approach connects Sierra Leone's traditional craftsmanship with Milan's global fashion market to create a sustainable and replicable production model. By integrating local natural dyeing and weaving techniques with modern tailoring, the project ensures the entire production chain remains in Sierra Leone, fostering sustainable employment, providing skill training for local workers, and preserving cultural heritage. The products are sold in Milan buyer stores and exhibited at events like Milan Design Week, providing international exposure and channeling revenue back to Sierra Leone to fund community initiatives such as education, healthcare, and infrastructure development. Through skill training programs, local workers not only improve their craftsmanship but also gain capabilities to meet global market standards, enhancing their long-term employability. This closed-loop model highlights the role of local skills in addressing global market demands while simultaneously enhancing community development. The study reveals significant economic and social benefits, including skills development, cultural preservation, and sustainable growth, while identifying challenges such as scalability and market dependence. It underscores the potential of sustainable fashion to drive socioeconomic growth and offers a blueprint for scaling similar models to other regions through strengthened cross-border partnerships.

Keywords: Sustainable Fashion, Sierra Leone, Milan, Order-Driven Model, Community Development, Traditional Skills, Skill Training, Closed-Loop System, Milan Design Week

Wang Ronghan is currently pursuing a PhD in Design at the University of Lisbon, specializing in research on sustainable design and the application of new materials in design. He has extensive academic experience in the field of design and sustainable development and has published her research in several high-ranking academic journals and international conferences.

Mrs. Wenjing Li Graduated from Politecnico di Milano, Affiliated Organization : Jiangsu Sunfeng Special Material Technology Co., Ltd

151. Study on Photocatalytic Degradation of Rhodamine B by Modified Red Mud Catalyst with Biochar

Dr. Xilin Wang, Prof. Dexin Liu

ABSTRACT:
In this work, a red mud-coffee grounds pyrolysis composite material (RC-PC) was prepared and applied to the research of photocatalytic Fenton degradation of organic pollutants. The results of SEM, TEM, and XRD analyses show that during the pyrolysis process, the coffee residue is transformed into biochar with a porous structure, and the hematite in the red mud is stepwise reduced to Fe_3O_4 and Fe^0. In the experiment of degrading Rhodamine B under simulated visible light conditions, after 30 minutes of reaction, the degradation rate of Rhodamine B in the photocatalytic Fenton system is 94.8%, which is much higher than the degradation rate of 48.8% in the dark Fenton system. Through radical quenching experiments and electron paramagnetic resonance (EPR), it was found that in the photocatalytic Fenton reaction system, •OH generated by the activation of H_2O_2 by Fe^{2+} species in the catalyst is the main reactive species leading to the degradation of Rhodamine B. The results of photogenerated electron-hole quenching experiments indicate that photogenerated holes directly participate in the degradation of Rhodamine B by oxidizing OH^- to generate •OH, and photogenerated electrons participate in the reaction process by promoting the Fe^{2+}/Fe^{3+} cycle. Due to the leaching of iron elements from the catalyst, there is also a homogeneous degradation reaction dominated by Fe^{2+} in the actual reaction process.

Keywords: red mud; biochar; heterogeneous catalyst; photo-Fenton; hydroxyl radical

Xilin Wang, School of Petroleum Engineering, China University of Petroleum (East China), Qingdao 266580, P. R China
Dexin Liu, Key Laboratory of Unconventional Oil & Gas Development (China University of Petroleum (East China)), Ministry of Education, Qingdao 266580, P. R. China.

152. Sustainable Integration of Electric Vehicle Charging Demand in Power Grids with Increasingly Unpredictable Load Profiles

Assoc. Prof. Dr. Aranit Shkurti, Dr. Diamantina Allushaj

ABSTRACT:
Electric mobility plays a fundamental role in advancing sustainable transport systems and reducing greenhouse gas emissions; yet, the accelerating growth of electric vehicle (EV) charging demand creates operational and economic challenges for power grids. These challenges become more complex in environments characterized by unpredictable load profiles, increasing penetration of intermittent renewable energy sources, and rising volatility in wholesale electricity prices. This study investigates strategies and regulatory mechanisms for integrating EV charging into modern power grids, with a particular emphasis on price-based demand response, dynamic tariff design, and market incentives aimed at encouraging flexible charging behavior.
The analysis demonstrates that policies such as time-of-use pricing, real-time price signals, and controlled charging schemes can effectively shift energy consumption away from peak periods, reducing grid congestion, alleviating stress on transmission infrastructure, and lowering total system costs for both operators and end users. Furthermore, the integration of vehicle-to-grid (V2G) services and distributed energy resources can transform EVs into active participants in electricity markets, enhancing frequency regulation, supporting reserve capacity, and enabling improved alignment between renewable generation and energy consumption.
Ultimately, coordinated regulatory frameworks, digital grid management platforms, and cross-sector collaboration are essential to achieving economically efficient EV adoption while ensuring affordability, reliability, and long-term sustainability of power systems. The findings provide strategic guidance for grid operators, energy suppliers, policymakers, and urban planners seeking to harmonize EV market expansion with climate objectives, energy security, and equitable access to clean mobility solutions..

Keywords: Dynamic electricity pricing, Vehicle-to-grid (V2G) integration, Demand response programs, Renewable energy variability, Sustainable energy policy, Power grid flexibility

Dr. Aranit Shkurti is Associate Professor of Industrial Economics at the Faculty of Economics, Metropolitan Tirana University, Tirana, Albania. He holds a PhD in Energy Policy and Modelling from Sapienza University of Rome, Italy.

Dr. Diamantina Allushaj is senior researcher at the European Center of Sustainable Development, Rome, Italy.

153. Scenarios for reducing greenhouse gas emissions in the oil and gas industry of Kazakhstan and priorities for Economic Growth

Dr. Zhasym Osmanov, Dr. Farida G. Alzhanova, Nurgul Saparbek PhDc

ABSTRACT:
Kazakhstan is a country with large reserves of natural resources and is among the twenty world leaders in hydrocarbon reserves. From the early 2000s to 2007, Kazakhstan experienced impressive economic growth, which was facilitated by the first generation of structural reforms, an abundance of hydrocarbon resources and foreign direct investment. In general, middle-income countries are characterized by higher levels of environmental pollution per unit of GDP compared to poor countries and developed countries. Thus, this problem is relevant for Kazakhstan. Objective - to study the possibilities and prospects for reducing greenhouse gas emissions of Kazakhstan as an economy that is a global supplier of hydrocarbon resources to the world market. Methods: indicator method (comparison and analysis of priority indicators) and mathematical modeling methods. As priority indicators for making a forecast, we use indicators characterizing emissions, energy consumption and carbon intensity. Results: The dynamics of greenhouse gas emissions in the oil and gas sector up to 2040 were calculated. Three scenarios were defined to develop a low-carbon strategy: Baseline, pessimistic and optimistic scenarios aimed at reducing greenhouse gas emissions in connection with low-carbon development strategies and Kazakhstan's transition to a "green" economy. Conclusion: It was concluded that despite the possible adoption of measures to introduce "green" technologies in the oil and gas sector, the dynamics of greenhouse gas emissions will increase, which threatens the fulfillment of adopted national commitments

Keywords: Greenhouse, oil and gas, decarbonization, Kazakhstan

Zhasym Osmanov – PhD, Head of Department of Regional Economy of the Institute of Economics CS MSHE RK where investigates oil and gas industry, ecology, regional sustainability. ORCID 0000-0002-5225-0365.

Dr Farida G. Alzhanova - Dr of Sciences in Economy, Sheff Researcher, Institute of Economics of the Ministry of Science and Higher Education of the Republic of Kazakhstan, Al-Farabi Kazakh National University where investigates the problems of innovation development, social and economic modernization, regional sustainability, e-mail: alzhanova.farida@ieconom.kz, ORCID ID: 0000-0002-7451-7470

Nurgul Saparbek – Master of Social Science, PhD Student Al-Farabi Kazakh National University, Researcher of Department of Regional Economy of the Institute of Economics CS MSHE RK where investigates the problems of regional sustainability, ORCID 0000-0002-0405-962X

154. Blockchain-Enabled Carbon Dioxide Removal: A Decentralized Framework for Transparent and Scalable Climate Mitigation

Dr. Zihan CHEN, Prof. Jia LI

ABSTRACT:
Carbon Dioxide Removal (CDR) technologies are pivotal for achieving global climate targets, yet their scalability and operational efficiency remain constrained by fragmented data management, energy-intensive processes, and insufficient transparency in carbon accounting. This study explores the integration of blockchain technology into CDR systems to address these barriers, emphasizing its potential to enhance environmental sustainability. A hybrid blockchain framework is proposed, combining decentralized governance with IoT-enabled monitoring to improve data integrity, automate carbon footprint verification, and optimize energy consumption across CDR operations. Key innovations include a dynamic consensus mechanism for real-time stakeholder collaboration and cryptographic protocols for secure, auditable record-keeping. Initial simulations demonstrate a 22-30% reduction in administrative overheads and a 15% improvement in data accuracy compared to conventional systems, highlighting the model's capacity to strengthen accountability in emissions reporting. By enabling interoperable, tamper-proof data sharing, the system fosters trust among policymakers, investors, and technology providers—critical for accelerating NET deployment under the Paris Agreement. This work advances the discourse on digital solutions for climate action, offering a scalable architecture to align CDR implementation with sustainable development goals. Further validation through industrial pilots will refine its economic and technical feasibility.

Keywords: Carbon Dioxide Removal (CDR), Blockchain, Carbon Emissions Reduction, Environmental Sustainability, Consensus Mechanism

Dr. Zihan CHEN is currently a PhD candidate at the Hong Kong University of Science and Technology, Guangzhou Campus, China, with master's degrees from Nanyang Technological University and National University of Singapore, and a bachelor's degree from South China University of Technology. During this period, he was awarded numbers of scholarships, including a full PhD scholarship. He is deeply engaged in the research of carbon neutrality technologies, and his research focuses on 1. Direct Air Capture (DAC) Device Modelling and Design, 2. DAC System Simulation and Process Optimization, 3. Deployment Strategy and Operation Management for Direct Air Capture (DAC) technology, and his invention of the DAC Devices, the DAC-Robot, and the related deployment strategies has been granted several patents and published in relevant prestigious journals.

Professor Jia LI is an Associate Professor in the School of Interdisciplinary Studies of Lingnan University in Hong Kong, with a PhD from Imperial College London, a Fellow of the Institution of Mechanical Engineers (IMechE), the Energy Association (EI) and the British Higher Education Association (HEA), and a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). She has been engaged in carbon capture and storage research for more than 20 years. She has carried out carbon capture transformation of China Resources Power Haifeng coal-fired power Plant, led or participated in six national CCUS road maps in China and Indonesia, and compiled the "China's Carbon Peak Carbon Neutral Strategy and Path" led by the Chinese Academy of Engineering and

China's Fifth climate Change Assessment. With her outstanding academic achievements, she has published more than 60 research papers in various international journals, and her start-ups have been awarded in Alibaba-HSBC and Tencent Carbon Search programs, with a total of more than 150 million RMB in various research and project funding.

155. Artificial Intelligence and the Sustainability Paradox in an Age of Isolationism

Assoc. Prof. Dr. Dumitru Alexandru BODISLAV, Prof. Dr. Florina BRAN, Assoc. Prof. Dr. Irina Elena PETRESCU, Vicențiu Mihai MATEESCU PHdc

ABSTRACT:
The landscape of government and politics is being transformed by Artificial Intelligence (AI), which is affecting both globalization and isolationism. This paper investigates the paradoxical role of AI in promoting deeper interconnectivity while concurrently strengthening isolationist tendencies among states. On the one hand, AI-driven automation, data analytics, and predictive modeling allow governments to improve domestic security, economic self-sufficiency, and nationalist rhetoric, thereby reducing their dependence on international cooperation. By perpetuating echo chambers and shaping public opinion, AI-powered disinformation campaigns and algorithmic biases further entrench isolationist ideologies. On the other hand, AI also expedites global governance mechanisms, enables international surveillance, and optimizes cross-border economic dependencies, thereby challenging the sustainability of isolationist policies. This study investigates the dual impact of AI by means of case studies, policy analysis, and computational modeling, emphasizing that AI can serve as both an instrument for political insularity and an agent of unavoidable globalization. The results indicate that, although AI enables governments to implement isolationist strategies more effectively, it also generates vulnerabilities that render absolute isolationism unsustainable in the long term. The paper concludes with policy recommendations for balancing AI's influence to maintain political stability while preserving international cooperation.

Keywords: Artificial Intelligence; political isolationism; governance and policy; nationalism; globalization

Dr. Alexandru Bodislav is a distinguished expert in business intelligence, artificial intelligence (AI), economic growth, and corporate governance. He holds two master's degrees, a PhD, and has completed a postdoctoral fellowship in these fields. Currently, he serves as an associate professor at the Bucharest University of Economic Studies. Throughout his academic career, Dr. Bodislav has published nine books, one of which has sold over 55,000 copies, and more than 200 scientific papers. He has also been a speaker at over 200 academic and business conferences. In addition to his academic roles, Dr. Bodislav is the CEO of Infinitum Group and the owner of Bodislav & Associates (BA). His research interests include corporate governance, financial management, corporate finance, data management, economy, and economic development. Dr. Bodislav's work has garnered significant recognition, with his publications being cited over 1,700 times.

156. Empowering SMEs through generative AI: Opportunities, challenges, and strategic implications for sustainable innovation

Prof. Dr. Florina BRAN, Assoc. Prof. Dr. Dumitru Alexandru BODISLAV, Dr. Ana Maria CĂLIN, Andreea Maria MĂNESCU PhDc

ABSTRACT:

Generative Artificial Intelligence (AI) is revolutionizing the competitive environment for small and medium-sized enterprises (SMEs) by improving market adaptability, innovation, and productivity. The transformative impact of generative AI on SMEs is the primary focus of this paper, with a particular emphasis on its function in content creation, customer engagement, automation, and decision-making. The adoption of AI has been historically dominated by large corporations. However, the accessibility of generative AI tools has allowed small and medium-sized enterprises (SMEs) to compete in global markets, optimize resource allocation, and surmount technological gaps. Nevertheless, the widespread adoption of this technology is significantly impeded by obstacles such as data privacy concerns, ethical considerations, and integration costs. This study investigates the ways in which generative AI is utilized by SMEs to drive business growth, identifies sector-specific advantages, and discusses the policy implications through empirical analysis and case studies. The results emphasize that, although generative AI democratizes access to advanced technology, its long-term benefits for SMEs are contingent upon strategic implementation, regulatory frameworks, and digital literacy. This paper concludes with suggestions for policymakers, business leaders, and technology developers to guarantee that generative AI promotes sustainable innovation in the small and medium-sized enterprise sector.

Keywords: Generative Artificial Intelligence; Small and Medium-Sized Enteriprises; business innovation; automation; digital transformation

Florina BRAN is Professor at Bucharest University of Economic Studies
Dumitru Alexandru BODISLAV is Associate Professor at Bucharest University of Economic Studies
Ana Maria CĂLIN is PhD at Bucharest University of Economic Studies
Andreea Maria MĂNESCU is PhD student at Bucharest University of Economic Studies

157. Towards Greener Cities: The Role of Machine Learning in Sustainable Urban Transformation

Assoc. Prof. Dr. Radu-Ioan Mogoș, Prof. Dr. Cătălin-Răzvan Dobrea, Assoc. Prof. Dr. Raluca Florentina Crețu, Gheorghe Păcurar

ABSTRACT:
One of the main elements that influence daily life is the environment. Especially in big cities, it leaves an important mark on the quality of life of its inhabitants, a quality that concerns many aspects such as their health, the quality of the air they breathe, the temperatures generated by the city's architecture, the size of green spaces, the noise level, etc. Big cities must achieve a balance between all these factors that influence the lives of their inhabitants. With this in mind, a lot of data and information about everything that can influence the quality of life is collected and analyzed. One of the elements that can help transform big cities by improving the quality of life, optimizing resources and reducing environmental impact for a smarter and greener future is Machine Learning (ML). ML is about developing algorithms that allow computers to learn from data and make predictions or decisions without explicit programming. The purpose of this paper is to highlight the role that ML can play in improving the quality of life in big cities and the contribution it can make to their sustainable development. The sections of the paper aim to identify and describe the aspects that concern the environment in big cities, the specific aspects of ML as well as the optimization that ML can bring through its use. Finally, the use of ML for a city-related data set is exemplified.

Keywords: environment, machine learning, big cities, data mining

Mogos Radu-Ioan is an associate professor, PhD. in economics. He is teaching Economic Information Systems, Artificial Intelligence, and Programming at Bucharest University of Economic Studies, Romania. He holds a Ph.D. in Economic Cybernetics and Statistics domain. He graduated a postdoctoral program within the economic domain. He is member of Romanian Project Management Association and INFOREC Association. He also was team member in 12 national and international projects. His research focuses on technology-enhance education and training, service and products innovation, artificial intelligence, developing and programming of economic applications and systems, knowledge management. He published over 12 books and book chapters, along with 40 papers in journals and conferences.

158. Renewable Energy Sources and Their Impact on Electricity Production in the EU

Dr. Petrică Sorin ANGHELUȚĂ, Prof. Dr. Elvira NICA, Dr. Oana Cătălina DUMITRESCU, Emil GRĂTIANU PhDc

ABSTRACT:
More and more often, certain changes in the energy sector appear as a necessity. The purpose of these changes is given by both the desire to improve energy security and to mitigate climate change. One of the solutions for reducing greenhouse gas emissions is the use of renewable energy sources. Both energy production and consumption are important. Thus, the article presents an analysis of gross electricity production, as well as gross final energy consumption. For this reason, the energy productivity is analyzed by showing its evolution. For a transition to clean energy, renewable energy sources can replace fossil fuels. Thus, the use of renewable energy sources can be an alternative to the use of fossil fuels. Energy systems that have low carbon emissions allow for the reduction of pollution and increase energy security. Taking into account the main renewable sources, a comparative situation of the electricity production capacities for the period 2013-2023 is presented.

Keywords: renewable sources, energy production, European Union

Petrică Sorin ANGHELUȚĂ is University lecturer, PhD at the Bucharest University of Economic Studies, Romania
Elvira NICA is PhD., Professor at the Bucharest University of Economic Studies, Romania
Oana Cătălina DUMITRESCU is University lecturer, PhD at the Bucharest University of Economic Studies, Romania
Cristina DIMA is PhD student at the VALAHIA University of Târgoviște.

159. Trends in Educational Attainment and Field of Study Among Adults in the European Union: 2013–2023

Prof. Dr. Elvira NICA, Dr. Cristina DIMA, Dr. Oana Cătălina DUMITRESCU, Dr. Petrică Sorin ANGHELUȚĂ

ABSTRACT:
Given the evolution of the labor market, the participation of adults in vocational education and training programs is becoming increasingly important. For the 2013-2023 period, the article presents the comparative situation of this indicator. The values for both employed persons and unemployed persons are analyzed. Thus, the level and type of competences held by individuals are influenced. Technological changes lead to the need for many people to update their skills. Jobs that require low levels of education are becoming less and less available. For communities where the level of education of people has increased, an increase in productivity has also been observed. Completing a higher level of education offers a superior possibility of finding a more secure and better-paid job. A higher share of people with a tertiary education level creates premises for the development of a community. The article presents the analysis of the evolution of the share of the adult population with tertiary education attainment. The degree of employment on the labor market can also be influenced by the level of education. Thus, the fields of education of bachelor's, master's and doctoral graduates are analyzed.

Keywords: graduates, bachelor, master, doctoral, participation rate in education and training, European Union

Elvira NICA is PhD., Professor at the Bucharest University of Economic Studies, Romania
Cristina DIMA is University lecturer, PhD at the Bucharest University of Economic Studies, Romania
Oana Cătălina DUMITRESCU is University lecturer, PhD at the Bucharest University of Economic Studies, Romania
Petrică Sorin ANGHELUȚĂ is University lecturer, PhD at the Bucharest University of Economic Studies, Romania

160. Foreign Direct Investments in Europe: Trends, Challenges, and Implications for Sustainable Economic Development

Prof. Dr. Carmen Valentina RĂDULESCU, Dr. Ioan I. GÂF-DEAC, Laurențiu ION PhDc, Assoc. Prof. Dr. Sorin BURLACU

ABSTRACT:
Foreign direct investment (FDI) is a category of investment that reflects the objective of establishing a lasting interest by an enterprise resident in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor. A lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment enterprise and a significant degree of influence over the management of the enterprise. A lasting interest is considered to exist if the investor acquires at least 10% of the voting power of the direct investment enterprise.

Keywords: economy, Europe, development, investments

Carmen Valentina RĂDULESCU is Professor Phd, Bucharest University of Economic Studies, Romania
Ioan I. GÂF-DEAC is Researcher of INCE, Romania Academy, Bucharest, Romania.
Laurențiu ION is a PhD Student at the Valahia Unoiversity of Targoviste.
Sorin BURLACU is Associate Professor, PhD, Bucharest University of Economic Studies, Romania

161. Measuring Performance for Sustainable Governance in Local Public Institutions

Dr. Ioan I. GÂF-DEAC, Liviu PURCĂREA PhDc, Prof. Dr. Carmen-Valentina RĂDULESCU, Dr. Victor Adrian TROACĂ

ABSTRACT:
The aim of this article is to highlight some aspects regarding the main features of organizational performance evaluation systems (PMS) within local public authorities in Romania (mayoralties) and the present exploratory vision on these systems. According to a sociological survey conducted in 6 local organizations (municipalities) in North-West Romania (North-West Development Region of Romania), the results of the article indicate a low use of PMS in these institutions, which reflects a limited interest from the main actors. The results of the study emphasize that performance evaluation systems are not yet perceived as an effective managerial tool in local public administrations in Romania, despite the fact that performance measurement is a significant opportunity for resource allocation, budget development or employee motivation. In this context, PMSs are used exclusively by people in management positions in the mayoralty, and the purpose of their use is limited to creating the decision-making process, statistical reporting or increasing the quality of the services provided.

Keywords: development, performance, public institution, system

Ioan I. GÂF-DEAC is Researcher of INCE, Romania Academy, Bucharest, Romania.
Liviu PURCĂREA is PhD Student, Bucharest University of Economic Studies, Romania.
Carmen Valentina RĂDULESCU is Professor Phd, Bucharest University of Economic Studies, Romania
Victor Adrian TROACĂ is PhD, Bucharest University of Economic Studies, Romania

162. Statistical Analysis of Youth Sports Implementation and Its Role in Sustainable Development

Assoc. Prof. Dr. Maria Loredana POPESCU, Assoc. Prof. Dr. Florin DOBRE, Assoc. Prof. Dr. Cătălin-Octavian MANESCU, Dr. Raluca Iuliana GEORGESCU

ABSTRACT:
In this context, analyzing the implementation of sports among young people becomes a pressing necessity. Various governmental and non-governmental initiatives and programs have been launched to encourage involvement in sports activities, but their effectiveness requires rigorous evaluation. The objectives of this paper are to identify the current level of participation in sports activities among young people, to analyze the factors that influence this involvement and to evaluate the effectiveness of existing programs. The study will use various statistical methods to analyze data collected from surveys and other relevant sources. The methodology will include both descriptive analyses and significance tests. The structure of the paper will include a review of the specialized literature, description of the methodology used, presentation and analysis of the data, and final conclusions. Through this research, I aim to contribute to a deeper understanding of how sport is implemented among young people and to provide recommendations based on statistical data for improving future policies and programs.

Keywords: development, future, sports, youth

Maria Loredana Popescu is Associate PhD, Bucharest University of Economic Studies
Florin Dobre is Associate PhD, Bucharest University of Economic Studies
Raluca Iuliana Georgescu is a Phd, which has obtained this title on Bucharest University of Economic Studies

163. Sales Expansion Strategies for S.C. Minimal A.P: A Sustainable Business Growth Approach

Dr. Ovidiu Andrei Cristian BUZOIANU, Loredana Nicoletta MEGA PhDc, Assoc. Prof. Dr. Irina Elena PETRESCU, Dr. Oana Camelia IACOB (PÂRGARU)

One of the most important aspects of this paper is identifying the key factors that determine the success of a sales expansion strategy. These factors may include analyzing the market and competition, developing a more effective marketing plan, and identifying customer needs. This paper will also analyze the different sales channels available to the company, including direct sales, online sales, and partner sales. The advantages and disadvantages of each channel will be analyzed, as well as how they can be integrated into the overall sales expansion strategy. Another important aspect of this paper is analyzing how technology can be used to support a company's sales expansion efforts. It will consider technological solutions that improve the efficiency and productivity of the sales process and how they can be used to create a better product purchasing experience for customers. Finally, this document will provide an overview of the different ways to increase a company's sales, with a detailed analysis of the advantages and disadvantages of each strategy and how to effectively apply them in the specific context of S.C. MINIMAL A.P.

Keywords: development, resources, sales, ,supply

Ovidiu Andrei Cristian Buzoianu is Assistant PhD, Bucharest University of Economic Studies, being affiliated with the Management department
Loredana Nicoletta Mega is PhD Student, Bucharest University of Economic Studies
Irina Elena Petrescu is Associate Phd, Bucharest University of Economic Studies
Oana Camelia Iacob PÂRGARU is Lecturer PhD, Polytechnic University of Bucharest

164. Enhancing Service Quality for Sustainable Business Practices: A Case Study of DEDEMAN

Dr. Oana Camelia IACOB (PARGARU), Liviu PURCAREA PhDc, Prof. Dr. Ion PARGARU, Dr. Ovidiu Andrei Cristian BUZOIANU

ABSTRACT:
Measuring and improving service quality can increase an organization's profits and reputation. Regardless of the industry, service quality can have a direct impact on a company's ability to meet customer needs while remaining competitive. We chose this topic because of its importance, so learning how to measure and improve service quality is a valuable skill that requires research and expertise. Service quality is a measure of how well an organization delivers its services compared to the expectations of its customers. Customers purchase services in response to specific needs. They either consciously or unconsciously have certain standards and expectations about how a company's service delivery meets those needs. A company with high service quality delivers services that meet or exceed the expectations of its customers. Service quality is also a measure of how well an organization understands the needs of its users and meets their expectations. Understanding how to improve service quality is a key step in the growth of any organization.

Keywords: DEDEMAN, development, services, quality

Oana Camelia Iacob is Lecturer PhD, Bucharest Polytechnic University
Liviu Purcărea is PhD Student, Bucharest University of Economic Studies
Ion Pârgaru is Professor PhD, Valahia University of Targoviste
Ovidiu Andrei Cristian Buzoianu is Assistant PhD, Bucharest University of Economic Studies

165. From bureaucracy to e-Government: Digital transformation of Public Administration in Romania for a sustainable future

Assoc. Prof. Dr. Sorin BURLACU, Assoc. Prof. Dr. Florin DOBRE, Vicențiu-Mihai MATEESCU PhDc, Ionuț-Valeriu ANDREI PhDc

ABSTRACT:
The digital transformation of public administration is an essential pillar for modernizing and streamlining public services, contributing to a sustainable future. Romania has adopted ambitious strategies for digitalization, aligning with European initiatives such as the Digital Compass 2030 and using tools such as the National Recovery and Resilience Plan. However, progress is uneven, and Romania consistently ranks last in the European digitalization rankings (DESI). This research aims to investigate how public administration in Romania is evolving towards e-government, analyzing the policies, strategies and determinants of this process, in order to identify the main challenges and opportunities associated with the digitalization of the public sector. The methodology used is based on comparative analysis of public policies and secondary analysis of existing data, examining strategic documents, international reports and relevant national initiatives. Strategic documents (SNDCIDR, PNRR), international reports (DESI, Eurostat) and national initiatives (Ghișeul.ro, e-government hubs) are examined to highlight progress, bottlenecks and lessons learned. A SWOT analysis is also carried out to identify the strengths and weaknesses of the digitalization of public administration in Romania, correlated with the opportunities and threats in the European context.
The results suggest that, although there is a strategic framework and significant funding, the lack of clear coordination, the insufficiently adapted legislative framework and the low degree of adoption of digital services by the population and SMEs remain major challenges. The study provides a critical perspective on the factors that facilitate or hinder the transition to e-government and proposes directions for strengthening the digital transformation in Romanian public administration.

Keywords: digital administration, e-government, public policies, digitalization, Romania, sustainability

Sorin BURLACU is associate professor, PhD - member of the Department of Administration and Public Management within the Bucharest University of Economic Studies. In 2009 he defended his doctorate with a thesis in the field of management entitled "Advanced training systems through electronic communication techniques". 2 book published as sole author, 3 books published as co-author, over 120 articles published in specialized journals from Romania and abroad, indexed in international databases, participation in over 50 international conferences held in the country or abroad, member in over 20 research projects financed based on competition (including projects co-financed by European funds).

166. Artificial Intelligence Influencers: Navigating Digital Identity and Sustainability in the Era of AI

Assoc. Prof. Dr. Daniel MOISE, Andreea-Maria MĂNESCU PhDc, Mădălina-Ioana MONCEA, Florin CHIOTAN PhDc

ABSTRACT:
The appearance and the development of Artificial Intelligence have and will reshape the world, and will have an impact upon PESTELI: Political, Economic, Socio-cultural, Technological, Ecological and Legislative and Industry, sectors in ways never witnessed before. Organizations, no matter if they are for-profit companies or non-profit organizations, politicians, parties, VIPs, influencers or even ordinary people, will try to enhance their presences online. This is done either to gain more profit, increase brand awareness, notoriety and even acceptance by the general public. The development of AI provides a tremendous boost to those who use social media networks that want to get in contact with their stakeholders. In this study, we conducted research to determine the audience's level of acceptance toward influencers who either use artificial intelligence for certain features or rely entirely on AI-generated content. Many of the respondents mentioned that they prefer real and genuine influencers, while AI- driven avatar influencers should have a distinctive symbol. We have created a classification of influencers who use AI tools, based on the way and percentage of their use of such features. Digital Marketing Influencers can transform brand communication and engagement, not only for a product or service, but for an idea, acceptance and even for a politician or a party.

Keywords: artificial intelligence, influencers, social media networks, digital marketing, classification of influencers by AI usage

Dr. Daniel Moise is Associate Professor PhD., Marketing Faculty, Bucharest University of Economic Studies. In 2004 he graduated from the Faculty of Commerce, Marketing Specialization, and in 2006 he graduated fromthe Marketing Faculty from the “Public Relations in Marketing” masters program and in 2010 he defended the Doctoral Thesis entitled “Communication Strategies in Marketing Events “. During the Doctoral School he conducted a 3-D research, both among the event audience, organizations that communicate with the help of the event, and event organizing companies. His post-doctorate was at the Romanian Academy where he held the dissertation titled “Impact of Events on Local and Regional Sustainable Development”. Author of Books: “Marketing and Event Management” appeared in 2014 and “Event Marketing: Fairs and Exhibitions” appeared in 2015 at ASE Bucharest. The area of research and interest are especially corporate and non-corporate events, but also the events that appeal to the stakeholders of the internal and external environment of the organization.

167. The Impact of Machine Learning on EU Labor Markets: Skills, Inequality, and Digital Workforce Transformation

Assoc. Prof. Dr. Mihai DINU, Dr. Ghenadie CIOBANU, Assoc. Prof. Dr. Simona Roxana PĂTÂRLĂGEANU, Daniel ȘOLDAN PhDc

ABSTRACT:
The development of artificial intelligence (AI) has advanced in the implementation of various branches of activity. The impact of artificial intelligence is also actively taking place on labor markets. We set out to analyze how machine learning (ML) technologies influence the structure and dynamics of economic systems, especially the labor market in EU countries. We focused on the evolution of the implementation of AI and ML, on the evolution of the labor market, on the transformations of jobs. AI will lead to the disappearance of some jobs, but to the creation of new opportunities in emerging areas. Changes are occurring in the development of new skills, the adaptation of the educational system to the requirements of labor markets under the impact of AI. Problems of inequalities with social, economic, financial and educational impact will arise on the labor market. We discuss the development of strategies, proactive policies in supporting the transition of adaptation to technologies, retraining initiatives, supporting social groups and affected sectors. The challenges are significant, but the innovation brought by machine learning will contribute to economic growth, improving the quality of life, with proper management.

Keywords: machine learning, artificial intelligence, labor markets, transformations of jobs, educational system

Assoc. Prof. Dr. Mihai DINU Associate Professor, PhD, Bucharest Academy of Economic Studies, Faculty of Agri-Food and Environmental Economics

Dr. Ghenadie CIOBANU Researcher at the INCSMPS within National Institute for Scientific Research in the of labor and social protection - Bucharest, researcher, university lecturers, dr. of Artifex University of Bucharest, Department of Finance and Accounting University teaching experience since 1994 - until now, 30 years, in Romania and the Republic of Moldova, associate professor, 2016, Academy of Economic Studies. From 1998-2002, he was the director of the Center for Budget and Financial Analysis within the Parliament of the Republic of Moldova, as part of the Moldova USAID Fiscal reform project. Member of the National Securities and Exchange Commission of the Republic of Moldova (2002-2007); Researcher Participation in Research Projects in the field of labor market. Studies and published articles sustainability, green economy, green jobs, green finance, green banking, digital economy, digital labor market and finance

Assoc. Prof. Dr. Simona Roxana PĂTÂRLĂGEANU Associate Professor, PhD, Bucharest Academy of Economic Studies, Faculty of Agri-Food and Environmental Economics

Daniel ȘOLDAN PhDc PhD candidate, Bucharest Academy of Economic Studies, Faculty of Agri-Food and Environmental Economics Global Poverty and Hunger: Challenges and Strategies for Sustainable Human Development

168. Global Poverty and Hunger: Challenges and Strategies for Sustainable Human Development

Madalina Ioana MONCEA PhDc, Dr. Cristina DIMA, Razvan Marian PIRCALABESCU PhDc, Dr. Ana-Maria CALIN

ABSTRACT:
Foreign direct investment (FDI) is a category of investment that reflects the objective of establishing a lasting interest by an enterprise resident in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor. A lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment enterprise and a significant degree of influence over the management of the enterprise. A lasting interest is considered to exist if the investor acquires at least 10% of the voting power of the direct investment enterprise.

Keywords: economy, Europe, development, investments

Mădălina Moncea is a PhD Student, Bucharest University of Economic Studies.
Cristina Dima is Lecturer PhD, Bucharest University of Economic Studies.
Razvan Marian PIRCALABESCU PhDc PhD Student, Bucharest University of Economic Studies
Dr. Ana-Maria CALIN Ministry of the Environment, Waters, Forests

169. A Multi-Layered Framework for Integrating Blended Green Finance, Public-Private Partnerships, and Fintech-Enabled Sustainable Business Models

Assoc. Prof. Shahinaz (Sherry) H. R. S. Abdellatif, Dr. Marwan Kobtan, Mostafa Zeinelabdein, Ramina Pashaee

ABSTRACT:
The study examines the role of development finance theory, stakeholders' theory, creating shared value (CSV), and the triple bottom line (TBL) framework to advance the Sustainable Development goals (SDGs). Most studies focus on sustainable Business Models (SBMs) from the perspective of developed countries and often overlook the interdisciplinary nature and peculiarities of emerging economies, in terms of technology opportunities, financing constraints, and governance challenges, in the Global South. This study proposes a multi-layered framework to advance economic sustainability in emerging economies by integrating blended green finance, public-private partnerships (PPPs), and fintech-enabled SBMs. The multi-layered framework redefines traditional PPPs as a collaborative delivery and governance mechanism involving public, private, and development multilateral organizations to implement Economic, Social, Governance (ESG), and climate-aligned infrastructure. It also reshapes the role of blended finance strategies and emphasizes the often-overlooked role of non-banking financial institutions (NBFIs); particularly leasing companies, small and microfinance institutions, alongside banks in enabling inclusive green finance, and incorporates financial technology (FinTech) innovations, including decentralized finance (DeFi), blockchain, and digital crowdfunding, to improve access to capital, and financial inclusion. Tailored to the context of MENA economies, like Egypt's Vision 2030, the framework offers policy insights and a smooth transition toward sustainable development.

Keywords: Economic Sustainability, Green Finance, Blended Finance, Public-Private Partnerships (PPPs), Fintech-Enabled Sustainable Business Models, Economic, Social, Governance (ESG), Egypt Vision 2030

Dr. Sherry Abdellatif brings over 25 years of diverse experience across academia and industry in Canada and international markets. She has an extensive background in senior advisory, financial planning, and policymaking, with a proven track record at leading financial institutions, earning multiple awards as a top advisor across Canada. She is an Associate Professor (Continuing Faculty) in the Department of Quantitative Studies at University Canada West, where she teaches corporate finance, fintech, financial planning, and investments. In addition, she serves as Vice-Chair of the Research and Scholarly Activities Committee and actively contributes to curriculum development, innovation, and training committees. Dr. Abdellatif's teaching philosophy is grounded in a student-centered approach, where she excels as both a mentor and subject matter expert. She holds a Doctorate in Business Administration and a master's in business administration from Heriot-Watt University. Her interdisciplinary research focuses on sustainability, finance, policymaking, financial economics, fintech, and artificial intelligence.

Dr. Marwan Kobtan is a researcher specializing in artificial intelligence and sustainability within health policy and public–private partnership (PPP) healthcare projects in emerging markets. His work aligns with UN Sustainable Development Goals related to health, exploring how AI-driven solutions can enhance healthcare delivery, equity, and long-term system resilience in emerging markets in the MENA region.

Mr. Mostafa Zeinelabdein is a researcher specializing in the intersection of financial technology (FinTech), sustainability, and artificial intelligence. His work examines how emerging AI technologies can advance sustainable development and responsible innovation, with a strong focus on fintech data-driven solutions to address global environmental and social challenges in North America and globally.

Ms. Ramina Pashaee is a multilingual researcher specializing in international business. Her research work explores how fintech can foster sustainable and responsible innovation within the European Union and globally. Her research interests include the transition from traditional finance to decentralized finance in international markets.

170. AI-Enhanced Credit Scoring for MSMEs: A Policy Framework for Financial Sustainability in Emerging Economies

Assoc. Prof. Shahinaz (Sherry) H. R. S. Abdellatif, Assoc. Prof. Xiaohua (Charity) Yang, Assoc. Prof. Abeba N. Turi

ABSTRACT:
In emerging economies, the surge of social media, increased mobile penetration and growing AI application pose both opportunities and challenges for policymakers in the financial sector. Despite the proliferation of AI and alternative data in financial technology, few policy frameworks comprehensively integrate multidisciplinary theories to address credit access barriers in data-poor environments. Existing models often lack contextual sensitivity to informal economies and overlook the ethical, institutional, and sustainability dimensions necessary for equitable financial innovation. The study explores the potential of thick data and alternative information sources in AI-enhanced credit scoring for micro, small, and medium-sized enterprises (MSMEs), and proposes an integrated policy framework, drawing a context from the MENA region. This builds upon theoretical frameworks, such as the development finance theory, to explore how financial resource can be better mobilized and allocated. The aim of the study is to utilize AI-enhanced credit scoring to help promote financial sustainability by improving credit access for underserved population, overcome data scarcity, lessen lending risks, and advance financial inclusion in emerging markets through sustainable finance frameworks. The study provides valuable insights to financial institutions, regulators, and multilateral development finance organizations to promote the Sustainable Development Goals (SDGs) and support economic development and resilience.

Keywords: Economic Sustainability, Financial sustainability, MSMEs, AI-enhanced credit scoring, Emerging Economies

Dr. Sherry Abdellatif brings over 25 years of diverse experience in both academia and industry, with expertise spanning Canada and international markets. With a proven track record in senior advisory, financial planning, and policymaking roles, she has made significant contributions to renowned financial institutions, earning several awards as the best advisor across her district and nationwide in Canada. Dr. Abdellatif is a Continuing Faculty member in the Department of Quantitative Studies at University Canada West, where she teaches corporate finance, financial planning and investments. She is the Vice-Chair for Research and Scholarly Activities and an active member of the curriculum development at the Quantitative Studies Department. Her research portfolio includes numerous publications across interdisciplinary fields. Dr. Abdellatif also serves as the Vice-Chair of the DQS RSA Committee and is an active member of the curriculum development, faculty handbook, and faculty overload committees. Her teaching philosophy is rooted in a student-centered approach, where she excels as both a mentor and subject matter expert. She holds a Doctorate in Business Administration (2008) and a master's in business administration (2002) from Heriot-Watt University. Her primary interdisciplinary research interests include sustainability, finance, financial literacy financial economics, fintech, and AI.

Dr Xiaohua Yang is an associate professor with Department of Marketing, Strategy & Entrepreneurship at University Canada West. She has more than 20 years of teaching and research experience in statistics, economics and data analytics. She teaches undergraduate and graduate students, as well as Ph.D. candidates. She possesses extensive research experience and has completed multiple national and provincial projects. Her research interests are AI and sustainable economic growth, energy economics and environmental economics.

Dr. Abeba Turi is a scholar with expertise in digital economy, currently working at North Eastern University and University Canada West

171. Bridging Environmental Sustainability and Disaster Risk Reduction: A Risk Management Model for Sustainable and Resilient Reconstruction Using Green Infrastructure in Climate-Vulnerable Regions

Assoc. Prof. Yasser Abdelghany, Eng. Adel Zaki,
Assoc. Prof. Shahinaz (Sherry) Hanem Rashad S. Abdellatif

ABSTRACT:
The paper focuses on integrating environmental sustainability and disaster risk reduction towards sustainable and resilient design and reconstruction using green infrastructure in climate-vulnerable regions. This paper considers waste management processes and optimum design and material usage. The paper presents the major rehabilitation framework for the aged and deteriorated Princess Margaret Bridge that happened between 2010 and 2011 as a case study which has a sentimental value. The bridge was opened in 1959 as part of the Route 2 Trans-Canada Highway bypass project around Fredericton, NB, Canada. It is a 2-lane highway bridge crossing the St. John River & flood plain at Fredericton. The bridge was constructed as a steel truss structure, the bridge measures 1,097 m in overall length. The study fills the gap of lack of integrated models combining green infrastructure (GI) and disaster risk reduction (DRR). Most studies treat GI and DRR separately with limited application in climate-vulnerable regions. This study provides solutions on how to embed GI into disaster recovery planning in a way that ensures both resilience and long-term sustainability.

Keywords: Environmental Sustainability, Disaster Risk Reduction, Risk Management, Waste Management, Climate Change

Dr. Abdelghany is an associate professor at University of Canada West. A holder of a Ph.D. in Civil Engineering from University of Western Ontario at London Ontario in 2008 and a Masters, and Bachelor of Science in Civil Engineering from American University in Cairo, 2002 and 1998 respectively. A Holder of two US patents on (Seismic Restraint Helical Pile Systems. A holder of the Ontario Centre of Excellence Discovery 2007. Dr. Yasser Abdelghany is EXP Geotechnical Lead, Western Canada, a Senior Geotechnical Engineer with over 27 years of proven advanced geotechnical and structural engineering, and project management experience on major project risks involving, seismic design, new construction and rehabilitation of major bridges, highways. Dr. Abdelghany 14 years with Ministry of Transportation and Infrastructure of British Columbia, BC MOTT. Dr. Abdelghany has responded to on-call emergencies to geohazard events and roads washout that have impacted the operation of the BC Provincial highway system in November 2021 and has developed practical, cost-effective remediation decisions under compressed time frames. Dr. Abdelghany was awarded the Associate Deputy Minister Award by Kevin Richter and the BC Ministry of Transportation and Transit for his Geotechnical work on MoTT, Highway 1 Admirals Road/McKenzie Interchange Project, Victoria, BC.

- Professional Accreditation: Ordre des Ingénieurs du Québec, No. 026831
- Member of the Canadian Bridge Code CSA-S6 Committee since 2002,

- CSA-S6-Sub-Committee Chapter 13- Moveable Bridges and preparing the special Chapter for Climate Changes for the CSA-S6-2025 edition.
- Canadian Society for Civil Engineering (CSCE) SINCE 1975
- Professional Engineers Ontario (PEO), Membership no. 100181985
- Transportation Research Board (TRB)

Years of Experience: 44 years of experience in Road and Railway Bridge Design / Management and Engineering infrastructure

Relevant Expertise: Conceptual Bridge design, Evaluation, and Inspection. Design for Segmental Bridges and Long Span Cable Structures and Suspension Bridges, Short and Medium

Bridges and Moveable Bridge Rehabilitation, Accelerated construction techniques for bridges and culverts, operation/ design/ rating for major Railway on compliance with AREMA standard and Highway infrastructures CSA-S6.

Achievements/Awards: Published more than twenty technical papers on bridges and received merit awards: PCI Design Award– The Jacques Cartier Bridge, The Best Rehabilitated Bridge 2003; Professional Engineer's Award – The Jacques Cartier Bridge, The Best Rehabilitated Bridge 2004;

2004 Armatura Award – L'Acadie The New Elevated roundabout, The Best Rehabilitated Bridge 2004;

CPCA/ACI Committee Award of Merit "Progress in concrete" 1992. Appointed Chairman of the Canadian Society of Civil Engineering – Structural Division.

Dr. Sherry Abdellatif brings over 25 years of diverse experience in both academia and industry, with expertise spanning Canada and international markets. With a proven track record in senior advisory, financial planning, and policymaking roles, she has made significant contributions to renowned financial institutions, earning several awards as the best advisor across her district and nationwide in Canada. Dr. Abdellatif is a Continuing Faculty member in the Department of Quantitative Studies at University Canada West, where she teaches corporate finance, financial planning and investments. She is the Vice-Chair for Research and Scholarly Activities and an active member of the curriculum development at the Quantitative Studies Department. Her research portfolio includes numerous publications across interdisciplinary fields. Dr. Abdellatif also serves as the Vice-Chair of the DQS RSA Committee and is an active member of the curriculum development, faculty handbook, and faculty overload committees. Her teaching philosophy is rooted in a student-centered approach, where she excels as both a mentor and subject matter expert. She holds a Doctorate in Business Administration (2008) and a master's in business administration (2002) from Heriot-Watt University. Her primary interdisciplinary research interests include sustainability, finance, financial literacy financial economics, fintech, and AI.

172. Foreign Direct Investment in Wartime: Factors, Consequences and Recovery

Prof. Larysa Hrytsenko, Liliia Derkach, Assoc. Prof. Dr. Michael Hedegaard, Assoc. Prof. Dr. Kristina Vaarst Andersen

ABSTRACT:
Geopolitical instability significantly affects foreign direct investment (FDI), increasing risks for investors and challenging economic resilience in conflict-affected countries. This study evaluates the impact of political instability on FDI inflows, focusing on Ukraine and other nations with varying geopolitical stability. The analysis is based on official FDI statistics and World Bank indicators, including government effectiveness and political stability.

The study examines two country groups: conflict-affected nations (e.g., Ukraine, Libya) and stable EU economies (e.g., Germany, France). Using statistical and econometric methods, it analyzes FDI trends, investment patterns and key influencing factors in war context.

Findings confirm that war significantly reduces investment activity, with political and institutional stability playing a crucial role in attracting FDI to conflict zones. In contrast, these factors have a lesser impact on FDI in politically stable economies.

The study recommends strengthening institutional frameworks and fostering international partnerships to stimulate capital inflows. These insights contribute to policy development in conflict-affected economies, emphasizing the need for stability to support FDI growth and long-term recovery.

Keywords: Foreign direct investment, war, political stability, government effectiveness, economic recovery

Prof. Larysa Hrytsenko is a Doctor of Economic Sciences and Professor with extensive experience in scientific and pedagogical activities. She has held key academic positions, including Postdoc at DTU Engineering Technology, Technical University of Denmark, and Head of the Department of Financial Technologies and Entrepreneurship at Sumy State University, Ukraine. Her research interests include innovation management, sustainable development, strategic investment and green finance, public-private partnerships, and investment project planning.

Prof. Larysa Hrytsenko is a member of specialized academic councils for dissertation defenses and serves on editorial and reviewer boards of scientific journals. Prof. Hrytsenko actively participates in Erasmus+ staff mobility programs and international academic initiatives, contributing to higher education quality assurance and internationalization efforts.

Ms. Liliia Derkach is a Senior Laboratory Assistant at Sumy State University, Ukraine. She holds a Master's degree in Finance, Banking, Insurance, and Stock Market from Sumy State University. An active researcher, she has published in Web of Science and Scopus-indexed journals, focusing on finance, sustainable development, economic growth, and the role of financial instruments in fostering long-term sustainability. Ms. Derkach has participated in various international academic programs, including the Virtual Mobility Projects on Research Methods in Pedagogical Sciences (Leipzig University), SEE FUTURE: Social, Economic and Environmental Pillars of Sustainability, and the

International Summer School on Sustainable Development Goals (University of Liverpool). She is actively involved in Erasmus+ and other international academic initiatives, fostering global research collaborations.

Michael Hedegaard is an Associate Professor and Head of Studies at the Technical University of Denmark (DTU). He has a long experience within business economics, international economics, investment and finance, and sustainable business. He authored books on business economics, investment, finance and globalization. His research is centered around sustainable business, Foreign Direct Investments, and how to turn technology into sustainable business – lately with a particular focus on Generative AI. In addition to his academic roles, he serves as a Lecturer in Virtual Mobility for "Take action for the Sustainable Development Goals" and "SEE FUTURE: Social, Economic and Environmental Pillars of Sustainability".

Kristina Vaarst Andersen earned her PhD in Economics and Management from Copenhagen Business School in 2011. She was Assistant Professor at the Department for Innovation and Organizational Economics at Copenhagen Business School from 2012 to 2017, then joined the cross-disciplinary Research Centre for Integrative Innovation Management at the University of Southern Denmark as Associate Professor from 2017 to 2023. In 2023 she joined DTU Department of Engineering Technology as Associate Professor and Head of the Research Section for Business Development. Her primary research interests are new market opportunities created by emerging technologies and the enablers and obstacles to new market creation. She has previously worked as a PI or project member on externally funded projects focused on integrating research from innovation management and economics with insights into new technologies such as civilian drones, 3Dprint technology, and robotics.

173. Backcasting energy futures: intergenerational equity and environmental justice

Prof. Matthew Cotton, Dr. Lee Towers, Dr. Clair Cooper

ABSTRACT:
A just transition requires political engagement with diverse voices in the processes of environmental and industrial change, ensuring the fair distribution of risks and benefits between empowered and vulnerable communities. One key challenge is ensuring intergenerational equity within such processes —defining our collective obligations to protect the environmental, economic, and social well-being of future generations and then translating this into present-day policy and commercial decision-making.
In this paper we articulate and assess participatory backcasting methods to address intergenerational equity challenges. Backcasting analysis engages stakeholders in envisioning and defining long-term intra- and inter-generational interests, and here we blend qualitative social science and normative analysis to explore backcasting as an "ethical tool". We draw upon data from a series of workshops in the UK, Spain and Germany, analysing case studies of nuclear waste disposal, nuclear new-build, and hydrogen innovation to demonstrate the theory and practice of participatory backcasting for sustainable development decision-making. Across this series of workshops, participants identify sustainable energy pathways – starting with the identification of normatively-desirable futures and then working backwards to the present to determine the necessary steps to achieve them and the barriers they experience in doing so. Our backcasting analysis offers valuable insights into the intergenerational justice dimensions of contemporary energy policymaking and demonstrates the methodological value of bridging the gap between current and future needs and wellbeing through this form of imaginative and participatory research.

Keywords: Intergenerational equity; backcasting; nuclear waste; hydrogen innovation; postindustrial communities; just transitions

Matthew Cotton is Professor of Environmental Justice and Public Policy and Programme Director for Sustainability Research in the Institute for Collective Place Leadership at Teesside University in the UK. His research concerns the theory and methods of environmental justice, including intergenerational equity, and just sociotechnical transitions to a greener society. His recent published work includes the books: Virtual Reality, Empathy and Ethics (Palgrave), Nuclear Waste Politics (Routledge) and Ethics and Technology Assessment (Springer). Research towards this paper was funded by the Research England Hydrogen Innovation Project (RED Fund), the Nuclear Waste Services Radioactive Waste Management Research Support Office, and the Horizon Europe Euratom Programme Grant Histories of Nuclear Energy and Society (HoNESt) project.

Lee Towers is a postdoctoral researcher at Teesside University in the UK. His work focuses on energy justice with his PhD looking at how community energy could contribute to energy justice during a low-carbon transition. After joining Teesside University in late 2022 he began a project exploring intergenerational justice and the UK's nuclear waste solutions. From this he produced a book with Routledge in 2024 titled Intergenerational

Democracy, Environmental Justice and the Case of Nuclear Waste. Lee has also published peer-reviewed articles on energy poverty and nuclear waste. At present Lee is working with a consortium of UK universities on a project funded by the National Institute for Health and Care Research (NIHR) community led adaptations for climate change and health project.

Clair Cooper is a Social Science Research Fellow currently engaged in the Research England Hydrogen Innovation project (REHIP), where she explores societal perceptions of industrial hydrogen use and its role in facilitating a just transition to a hydrogen economy. Her work builds on her postdoctoral research with the ERC NovelEco project at Trinity College Dublin, where she employed co-design, photo-walk, and backcasting methods to develop a citizen science tool. Clair excels in presenting complex information and facilitating discussions with diverse audiences, including marginalized groups. She also leads a global survey on how societal worldviews and social practices influence pro-environmental behavior. As an independent consultant, Clair evaluates the social impacts of nature-based solutions, focusing on employability, health, well-being, and connectedness to nature. Her PhD research combined geometric data analysis, spatial analysis, and text mining to study the impact of nature-based solutions on quality of life. Clair has secured grant funding for projects including evaluating the mental health impacts of informal gardening programs. Before her PhD, she managed water efficiency projects at Northumbrian Water and developed guidance for the Environment Agency.

174. Demonstrating resilience to extreme events through the C2IMPERSS innovative solutions: The Egaleo case study

Dr. Athanasios Sfetsos, Dr. Athanasios Papadopoulos, Ismini Galanopoulou, Evangelia Bakoganni

ABSTRACT:
The present study introduces an overview of the holistic approach conducted in the Municipality of Egaleo within the C2IMPRESS project, aiming to increase societal resilience to disasters.
Egaleo is located in the Western part of Athens and is highly exposed to heatwaves and earthquakes, although other natural hazards have been considered. It is also a socially vulnerable community with a fairly large number of citizens (approx. 10%) within the economic vulnerability threshold and supported by social care.
Within the scope of the project Egaleo implemented a series of different activities both citizen engagement and technical that are anticipated to increase it resilience to the above mentioned hazards
The present study will outline the implementation of the following tools within the municipality drawing conclusions on how these could be integrated in socio-environmental protection policies and measures.

- Multi-actor highly configurable C2IMPRESS decision support platform
- A novel integrated multi-hazard disaster risk and resilience assessment framework
- PPCP-based polycentric risk governance
- An interactive spatial multicriteria decision analysis (SMCDA) tool for vulnerability, hazard, exposure and risk quantification and prioritization
- A decision support tool with integrated human behaviour and agent-based model for hazard simulation and action planning

Keywords: Societal resilience, disaster, innovative tools, citizen engagement

Dr. Athanasios Sfetsos, received a B.Sc. in Physics from University of Patras in 1995 and a Ph.D. in Electrical Engineering from Imperial College, University of London (1999). Presently a Research Director at the Institute of Nuclear and Radiological Sciences, Technology Energy and Safety at NCSR Demokritos in the domain of "Climate Change and Critical Infrastructure Protection" (elected 2021). He was a part time Associate at the University of Western Macedonia between 2004 – 2010 in the field of environmental management. Supervisor of 3 PhD candidate, 3 MSc Thesis and 9 final year projects from various Greek Academic Institutions.
Dr. Athanasios Papadopoulos is Researcher at NCSRD
Ismini Galanopoulou is Associate Researcher at NCSRD
Evangelia Bakoganni is Architect, Employee at Egaleo

175. Demographic Trends and Infrastructure Planning for Sustainable Education in Western Kazakhstan

Assoc. Prof. Dr. Gulnara Nyussupova, Dr. Gaukhar Aidarkhanova, Gaukhar Aubakirova, Abzal Zhakypbek, Dr. Roza Kelinbayeva,
Laura Kenspayeva, Damira Tazhiyeva

This research presents a comprehensive forecast of population size, birth rates, and educational infrastructure requirements for the districts of Western Kazakhstan in 2025–2050. Projections indicate dynamic population growth in regional centres: in Aktobe the population is expected to rise from 593.7 thousand to 902.7 thousand; in Atyrau, from 433.8 thousand to 792.6 thousand; and in Uralsk, from 373.8 thousand to 504.7 thousand. The fastest growth is predicted in Aktau (from 303.8 thousand to 475.6 thousand). Most rural districts, however, are expected to see population declines and decreasing birth rates. Calculations suggest that large cities will face a short-term shortage of preschool places—for example, in Aktobe a deficit of 2 426 places is forecast for 2026, followed by a shift to surplus—while many smaller districts retain excess capacity. An analysis of staffing needs indicates a substantial increase in teachers will be required in urban preschools. These results provide a basis for strategic planning of educational infrastructure and staffing policies, helping to optimize the allocation of kindergartens and schools in line with demographic trends and to support sustainable regional development.

Demographic forecast; birth rate; educational planning; preschool demand; Western Kazakhstan

Gulnara Nyussupova is Professor of the Faculty of Geography and Environmental Sciences of the Al-Farabi Kazakh National University. She has been involved in research activities for over 30 years. The researcher specializes in the study of human potential and human development, socio-demographic processes, geo-urban studies, quality of life of the population, GIS in socio-geographical research, etc. She has carried out a number of fundamental and applied research as a scientific supervisor and responsible executor. Successfully implemented research projects within the framework of targeted funding programs, grants from the Ministry of Education and Science of the Republic of Kazakhstan and international projects.

Aidarkhanova Gaukhar is a lecturer at the Department of Geography, Land Management and Cadastre of Al-Farabi Kazakh National University. In 2024, she defended her dissertation on the topic: "Assessment of socio-demographic indicators of human capital in the Republic of Kazakhstan", submitted for the PhD degree. She began her research activities in 2016 at the Scientific and Technological Park of al-Farabi KazNU. Currently she is a lecturer and researcher at al-Farabi KazNU. She specializes in the field of research of human capital, human development, socio-demographic processes, labor resources, gender equality in the labor market, etc. She actively participates in research projects of the Ministry of Education and Science of the Republic of Kazakhstan. Author of more than 20 scientific publications, 6 of them in peer-reviewed publications with impact factor.

Aubakirova Gaukhar is a senior lecturer at the Department of Geography, Land Management and Cadastre. Education: In 2009, she entered the Al-Farabi Kazakh National University at the Faculty of Geography, majoring in "050609 Geography" and graduated with honors in 2013. In 2014, she was admitted to the Faculty of Geography and Environmental Management for a master's degree in the specialty "6M060900 – Geography" and in 2016, received a master's degree in natural sciences. 2020-2023 studied in PhD doctoral studies in the specialty "8D01503 - Geography" at Al-Farabi Kazakh National University. Actively participates in scientific international forums and scientific and methodological conferences. She has textbooks – 2, monographs – 2, articles in highly rated

journals in the Scopus database – 3 (H-index = 1), in the WoS database – 1. Maintains close communication with schools of the local education department and the republican center "Daryn", in which since 2015 she has been a member of the jury of the Olympiad and scientific projects of schoolchildren in geography.

Zhakypbek Abzal is a lecturer at the Department of Geography, Land Management and Cadastre at Al-Farabi Kazakh National University. Education: Received a Bachelor of Science degree in 2016. In 2018, he graduated from the master's program in the specialty "6M060900 – Geography". In 2022, he graduated from PhD studies at Al-Farabi Kazakh National University. Scientific direction: GIS technologies - development and use of geographic information systems for the analysis of geographic data and land management. Pedagogical geography - development of methods for teaching geography, including the integration of new technologies into the educational process to increase its effectiveness.

Roza Kelinbayeva is a certified GIS specialist. From 2009 to the present, she has been working as a senior lecturer at the Department of Geography, Land Management and Cadastre of al-Farabi KazNU. She participated in the development and creation of a series of atlases, including the National Atlas of the Republic of Kazakhstan, the Atlas of Atyrau and Mangystau regions, the Atlas of natural and man-made hazards and emergency risks, etc. She is the author of more than 60 scientific works, including co-author of 4 monographs, performer of more than 30 international and state research projects.

Kenespaeva Laura - senior lecturer at the Department of Geography, Land Management and Cadastre. Education: in 2002 she graduated with honors from the Kazakh National University. al-Farabi with a degree in Geography, in 2004 she graduated with honors from the Master's program of the Faculty of Geography of Kazakh National University. al-Farabi with a degree in "6M060900-Geography". In 2019, she graduated from doctoral studies in the specialty "6D060900 – Geography". Scientific direction: associated with the study of problems of territorial organization of the population, geo-urbanism and regional planning of the Republic of Kazakhstan. Takes an active part in international and republican scientific events, including the responsible executor of the scientific project "Comprehensive geographical assessment of the sustainable development of large cities of the Republic of Kazakhstan." Has more than 60 scientific papers, including in the Scopus database (h-index=2).

Damira Tazhiyeva - senior lecturer at the Department of Geography, Land Management and Cadastre. Education: in 2012 she graduated with honors from the Master's program of the Faculty of Geography of al-Farabi Kazakh National University with a degree in "6M060900-Geography". In 2018, she graduated from doctoral studies in the specialty "6D060900 – Geography". Scientific direction: associated with the study of socio-demographic processes, geo-urbanism and urban sustainable development of the Republic of Kazakhstan. She is a senior researcher for subprogram No. 7: "Assess the socio-economic development of the West Kazakhstan region in the context of sustainable development" of the program: BR 21882122 "Sustainable development of natural-economic and socio-economic systems of the West Kazakhstan region in the context of green growth: a comprehensive analysis, concept, forecast estimates and scenarios." Has more than 20 scientific papers, including in the Scopus database (h-index=2).

176. Green Financing and Sustainable Entrepreneurship: A Comparative Analysis of Developed and Developing Economies through Key Sustainability Indicators

Meryem Raissi

ABSTRACT:
As economies worldwide shift towards sustainability-driven models, the role of green financing in supporting entrepreneurial ventures has become increasingly critical. This research provides a comparative analysis of how green finance mechanisms—such as green bonds, ESG-aligned investments, and impact funds—influence sustainable entrepreneurship in both developed and developing economies. Using key sustainability indices (e.g., Green Growth Index, Global Innovation Index, ESG performance scores), this study assesses the effectiveness of financial policies in fostering a resilient entrepreneurial ecosystem. Developed economies (e.g., USA, Germany, Sweden) are contrasted with developing nations (e.g., Brazil, India, emerging African economies) to uncover best practices, financial gaps, and regulatory inefficiencies. Preliminary findings indicate that while developed economies benefit from strong institutional frameworks and ESG-integrated investment policies, developing nations face structural barriers, including limited access to sustainable capital, regulatory misalignment, and weak financial literacy. However, emerging markets demonstrate high potential for innovation and impact-driven entrepreneurship, particularly when supported by targeted fiscal incentives and green finance instruments. By bridging these gaps, this research aims to propose a strategic green financing model that aligns with global sustainability targets while fostering economic resilience and innovation-driven entrepreneurship across diverse economic contexts. This study contributes to the broader discourse on green finance and sustainable business models, offering policymakers, investors, and entrepreneurs actionable insights to enhance the integration of sustainability into economic and financial systems.

Keywords: Green Finance , Sustainable Entrepreneurship, ESG Investments, Financial Policies, Economic Resilience

Ms. Meryem Raissi is a PhD Associate Scholar & Doctoral Teaching Fellow at Sultan Moulay Slimane University (USMS), Morocco. She is a recipient of the PhD-Associate Scholarship – PASS, a prestigious excellence program awarded by the National Center for Scientific and Technical Research (CNRST). Her research focuses on innovation, sustainable entrepreneurship, and the transition towards a green and blue economy, with a particular emphasis on green finance, green taxation, and socially responsible investment. She explores how financial mechanisms and policy frameworks influence the growth of sustainable startups and innovative business models. Passionate about responsible entrepreneurship and economic sustainability, she aims to contribute to strategic solutions that foster economic resilience, environmental sustainability, and ethical business practices

177. Sustainability of human resources in Japanese firms with declining birthrates and increasing use of IT: Insights from UK institutional investors

Assoc. Prof. Dr. Yoshiko Sugiyama

ABSTRACT:
The purpose of this report is to clarify how the human resources systems of Japanese companies, known worldwide for their longevity, are being transformed by the declining birth rate and the development of information technology (IT/AI). One of the characteristics of Japanese-style management was long-term employment, which resulted in promotion to senior management positions within the company. However, they are currently facing difficulties such as the quality of governance. On the other hand, in terms of shareholding structures, cross-shareholdings are being eliminated among Japanese corporations from the perspective of capital efficiency. And among the new corporate shareholders, the thinking of UK investors, as long-term holders, is increasingly influencing the governance of Japanese companies. Through interviews with relevant UK investors, this study ascertained the current state of engagement with Japanese companies, their perception of the shortage of IT personnel and their evaluation of companies that are overcoming this shortage. Then, based on the qualitative research, a group of companies that were identified as having regenerated and developed their companies through the use of IT and diverse human resources were compared with a group of companies that still had issues from improved governance to identify differences in performance.

Keywords: Japanese corporate human resources, Information Technology (IT) Internal promotion, Diverse human resources, Governance reform Shareholding structures, UK long-term investors

Dr Yoshiko Sugiyama is Associate Professor of Business Administration at the Faculty of Informatics, Tohoku Gakuin University, Japan. She worked at Tokyo Stock Exchange, Inc. (TSE) for 24 years until 2024, the last position was senior manager.During her last eight years, she was a part-time lecturer at Sophia University and coordinator at Keio University, where she conducted research and lectured on sustainability and ESG investment from the perspective of the TSE. She has conducted empirical research on internally promoted female executives in Japanese listed companies through interviews with more than 60 executives. Recently, she has broadened her research into non-financial disclosures related to sustainability, the ending of cross-shareholdings in Japanese companies and institutional investor engagement. In 2011, the Tohoku region of Japan was hit by an earthquake and tsunami, and as a member of the CSR department of TSE, she engaged in the recovery from the disaster (supporting entrepreneurship)

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