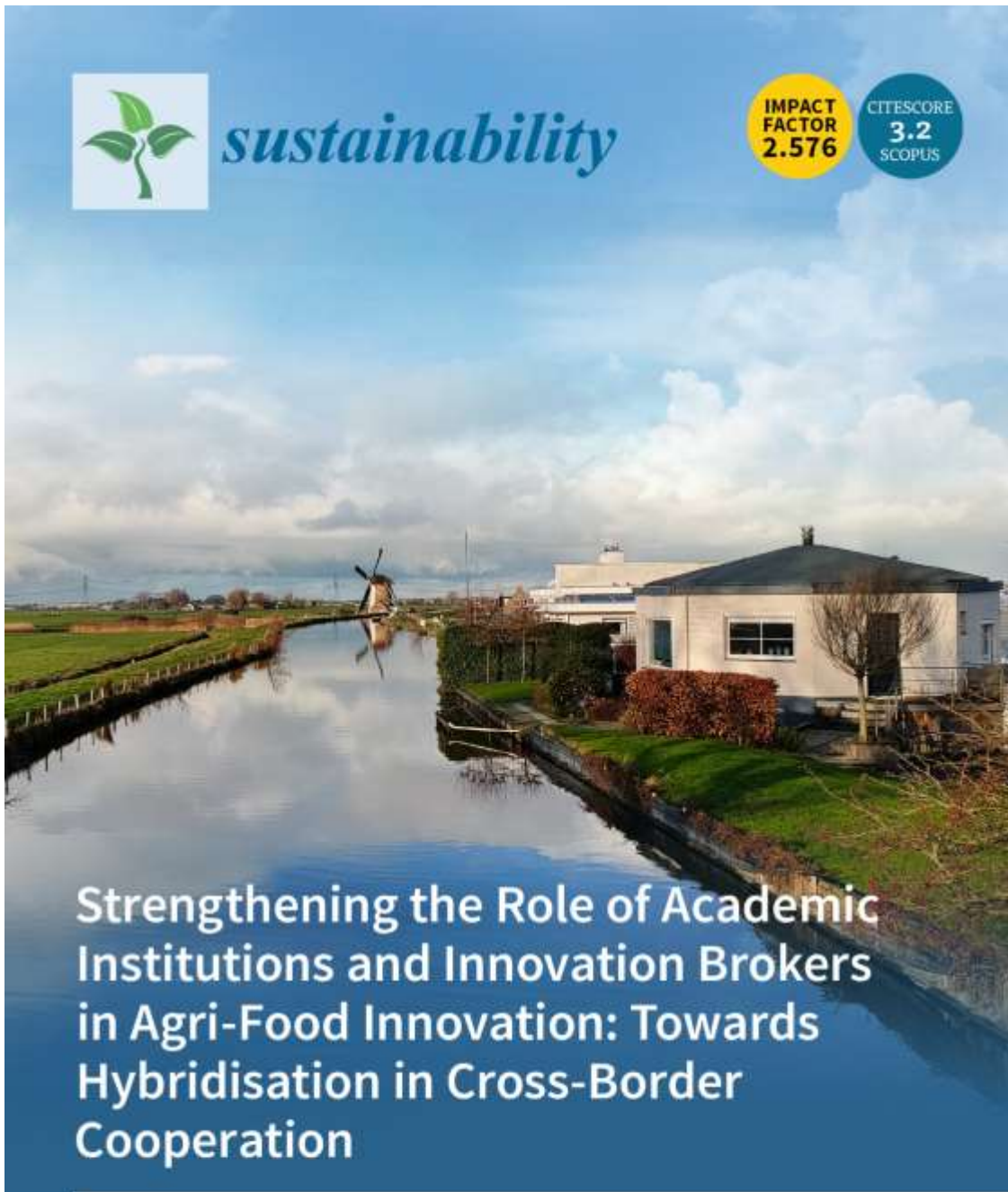




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Strengthening the Role of Academic Institutions and Innovation Brokers in Agri-Food Innovation: Towards Hybridisation in Cross-Border Cooperation

Volume 13 • Issue 9 | May (I) 2021



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Interests: the adaptation of human activities to climatic change, especially agriculture; sustainable community development; rural development; land use planning; strategic management/planning of development including agriculture; community participation; the dynamics and planning of urban agriculture; including pioneer work on adaptation behavior under stressful conditions; sustainable transport policies

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Prof. Dr. Constantinos Cartalis [Website](#)

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Interests: urban development policy; urban sustainability; land use

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Special Issue in *Land*: Urban Regeneration and Sustainable Construction Management

Prof. Dr. Felix Creutzig [Website](#)

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Special Issue in *Land*: [Geodesign in Urban Planning](#)



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Interests: construction and evaluation of sustainability of programs projects and buildings; public and private feasibility of urban transformation; economic evaluation of environmental and cultural assets; complex decision-making processes and integrated assessments; governance of local development processes; economic and financial feasibility of public and private investment; economic evaluations and real estate appraisals; enhancement and management of cultural and environmental assets; sustainability complex programs of urban transformation; project management; economic evaluation of the feasibility and sustainability of public and private programs and projects; economic evaluation of environmental and cultural heritage; complex decision-



Beliefs about Climate Change and Their Relationship with Environmental Beliefs and Sustainable Behavior: A View from Rural Communities

by

[Willian Sierra-Barón](#)

,

[Oscar Navarro](#)

,

[Diana Katherine Amézquita Naranjo](#)

,

Eylyn Daniela Teres Sierra

and

Carol Marcela Narváez González

Sustainability **2021**, 13(9), 5326; <https://doi.org/10.3390/su13095326> - 10 May 2021

Cited by 1 | Viewed by 1260

Abstract

The study of beliefs and environmental behavior is of special interest, given the implications of climate change as a social phenomenon and the disagreements about what is socially believed about this phenomenon. This research was aimed at determining the associations between environmental beliefs [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Environmental Beliefs](#))

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Open Access **Article**

Smart Water Grid Research Group Project: An Introduction to the Smart Water Grid Living-Lab Demonstrative Operation in YeongJong Island, Korea

by

Kang-Min Koo

,

Kuk-Heon Han

,

Kyung-Soo Jun

,

Gyumin Lee

and

Kyung-Taek Yum

Sustainability **2021**, 13(9), 5325; <https://doi.org/10.3390/su13095325> - 10 May 2021

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Abstract

In South Korea, in line with the increasing need for a reliable water supply following the continuous increase in water demand, the Smart Water Grid Research Group (SWGGRG) was officially launched in 2012. With the vision of providing water welfare at a national [\[...\] Read more.](#)

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Explanatory Analysis of Factors Influencing the Support for Sustainable Food Production and Distribution Systems: Results from a Rural Canadian Community

by

[Sahand Ashtab](#)

and

[Robert Campbell](#)

Sustainability **2021**, *13*(9), 5324; <https://doi.org/10.3390/su13095324> - 10 May 2021

[Cited by 2](#) | Viewed by 856

Abstract

Investigating the viability of alternative food networks (AFNs) is more important than before because of the disruptions in global supply chains and evolving resident composition in different regions. In this regard, this paper reports on findings of a project aimed at identifying factors [\[...\] Read more.](#)

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Open AccessEditor's ChoiceArticle

Automatic Detection of Photovoltaic Farms Using Satellite Imagery and Convolutional Neural Networks

by

[Konstantinos Ioannou](#)

and

[Dimitrios Myronidis](#)

Sustainability **2021**, *13*(9), 5323; <https://doi.org/10.3390/su13095323> - 10 May 2021

[Cited by 2](#) | Viewed by 917

Abstract

The number of solar photovoltaic (PV) arrays in Greece has increased rapidly during the recent years. As a result, there is an increasing need for high quality updated information regarding the status of PV farms. This information includes the number of PV farms, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Energy Transition and Climate Change in Decision-making Processes](#))

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Open Access Editor's Choice Article

Life Cycle Assessment (LCA) of an Innovative Compact Hybrid Electrical-Thermal Storage System for Residential Buildings in Mediterranean Climate

by

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[Noelia Llantoy](#)

,

[Valeria Palomba](#)

,

[Andrea Frazzica](#)

,

[Mattia Dallapiccola](#)

,

[Federico Trentin](#)

and

[Luisa F. Cabeza](#)

Sustainability **2021**, *13*(9), 5322; <https://doi.org/10.3390/su13095322> - 10 May 2021

[Cited by 1](#) | Viewed by 1112

Abstract

The buildings sector is one of the least sustainable activities in the world, accounting for around 40% of the total global energy demand. With the aim to reduce the environmental impact of this sector, the use of renewable energy sources coupled with energy [\[...\] Read more.](#)

(This article belongs to the Special Issue [Life-Cycle Assessment of Energy Storage in Building Applications](#))

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Building Teacher Identity in Environmental and Sustainability Education: The Perspectives of Preservice Secondary School Geography Teachers

by

Elizabeth A. C. Rushton

Sustainability **2021**, *13*(9), 5321; <https://doi.org/10.3390/su13095321> - 10 May 2021

[Cited by 4](#) | Viewed by 2081

Abstract

Geography teachers have an important role within environmental education and, in England, are developing their professional identities at a time when environmental education is contested. This study considers the experiences of five trainee secondary school geography teachers who are all part of a [\[...\] Read more.](#)

(This article belongs to the Special Issue [Developing \(Transformative\) Environmental and Sustainability Education in Classroom Practice](#))

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The Impact of COVID-19 on Highway Traffic and Management: The Case Study of an Operator Perspective

by

Carlos Oliveira Cruz

and

Joaquim Miranda Sarmento

Sustainability **2021**, *13*(9), 5320; <https://doi.org/10.3390/su13095320> - 10 May 2021

[Cited by 2](#) | Viewed by 1240

Abstract

The COVID-19 pandemic created an enormous disruption to the everyday life of the modern society. Among the various urban systems, transportation services were among those that suffered the most significant impacts, particularly severe in the case of highways. This paper addresses the challenges [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Urban Mobility Planning and Disruption Outbreaks](#))

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Photogrammetry as a New Scientific Tool in Archaeology: Worldwide Research Trends

by

Carmen Marín-Buzón

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Antonio Pérez-Romero

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José Luis López-Castro

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Imed Ben Jerbania

and

Francisco Manzano-Agugliaro

Sustainability **2021**, *13*(9), 5319; <https://doi.org/10.3390/su13095319> - 10 May 2021

[Cited by 11](#) | Viewed by 1117

Abstract

Archaeology has made significant advances in the last 20 years. This can be seen by the remarkable increase in specialised literature on all archaeology-related disciplines. These advances have made it a science with links to many other sciences, both in the field of [\[...\] Read more.](#)

(This article belongs to the Special Issue [New Scientific Tools for Cultural Heritage Sustainability](#))

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Spatial and Temporal Measurement of the Interaction between the County Economy and Rural Transformation in Xinjiang, China

by

Bo Tan

Hongwei Wang

Chen Ma

Xiaoqin Wang

and

Jing Zhou

Sustainability 2021, 13(9), 5318; <https://doi.org/10.3390/su13095318> - 10 May 2021

[Cited by 1](#) | Viewed by 826

Abstract

Given the background of urbanization and rural revitalization in the new era, it is important to explore the synergy between regional macroeconomics and rural transformation, as a balanced and coordinated urban–rural relationship must be built to promote regional sustainable development and rural revitalization. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Cities and Regions – Statistical Approaches](#))

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The Influence of Extruded Sugar Beet Pulp on Cookies' Nutritional, Physical and Sensory Characteristics

by

Sonja Simić

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Dušan Rakić

Biljana Pajin

Ivana Lončarević

Antun Jozinović

Aleksandar Fišteš

Sanja Nikolić

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and

Borislav Miličević

Sustainability **2021**, *13*(9), 5317; <https://doi.org/10.3390/su13095317> - 10 May 2021

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Abstract

Sugar beet pulp (SBP) is a by-product of the sugar industry in which the dietary fiber content ranges from 73% to 80%. Compared to cereal fibers mainly used in biscuit production, sugar beet fibers are gluten free and have a perfect ratio of [...] [Read more.](#)

(This article belongs to the Collection [Sustainable Food Production: Challenges, Opportunities and Advancements](#))

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Digital Newspapers' Perspectives about Adolescents' Smartphone Use

by

María-Carmen Ricoy

and

Sara Martínez-Carrera

Sustainability **2021**, *13*(9), 5316; <https://doi.org/10.3390/su13095316> - 10 May 2021

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Abstract

The growth of ICTs has led to a new socialization model and a continuous dynamic flow of communication and information, wherein smartphones have become very popular with teenagers. This paper investigates what teenagers use smartphones for and the related intervention measures published in [\[...\] Read more.](#)

(This article belongs to the Special Issue [ICT and Sustainable Education](#))

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Open Access **Article**

The Relationship between HRM Strategies and Sustainable Competitive Advantage: Testing the Mediating Role of Strategic Agility

by

Mohamed Battour

,

Maged Barahma

and

Mohammed Al-Awlaqi

Sustainability **2021**, *13*(9), 5315; <https://doi.org/10.3390/su13095315> - 10 May 2021

[Cited by 2](#) | Viewed by 1168

Abstract

This study aims to investigate the impact of strategic agility on the relationship between Human Resources Management (HRM) strategies and Sustainable Competitive Advantage (SCA). A total of 227 large and medium-sized manufacturing companies were surveyed and studied. Using Structural Equation Modelling (SEM), this [\[...\] Read more.](#)

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Seismic Behavior of Stone Pagoda Structure by Shaking Table Test

by

[Ho-Soo Kim](#)

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[Dong-Kwan Kim](#)

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[Geon-Woo Jeon](#)

,

[Sang-Sun Jo](#)

and

[Se-Hyun Kim](#)

Sustainability **2021**, *13*(9), 5314; <https://doi.org/10.3390/su13095314> - 10 May 2021

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Abstract

In general, the stone pagoda structures with discontinuous surfaces are vulnerable to lateral forces and are severely damaged by earthquakes. After the Gyeongju earthquake in 2016 and the Pohang earthquake in 2017, numerous stone pagoda structures were damaged due to slippage, rotation, and [\[...\] Read more.](#)

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The Use of Hydromulching as an Alternative to Plastic Films in an Artichoke (*Cynara cardunculus* cv. Symphony) Crop: A Study of the Economic Viability

by

[Josefa López-Marín](#)

,

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Francisco Moisés del Amor

Maria Carmen Piñero

and

José Manuel Brotons-Martínez

Sustainability **2021**, *13*(9), 5313; <https://doi.org/10.3390/su13095313> - 10 May 2021

Cited by 2 | Viewed by 870

Abstract

The use of mulching in agriculture suppresses the weeds around crop plants, enhances the nutrients status of soil, controls the soil structure and temperature, and reduces soil water evaporation. Excessive use of low-density polyethylene mulches is contributing to the accumulation of high amounts [\[...\] Read more.](#)

(This article belongs to the Special Issue [Economic Profitability and Agriculture Sustainable Development](#))

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Open Access **Article**

A Literature Review of the Impacts of Heat Stress on Human Health across Africa

by

Katlego P. Ncongwane

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Venkataraman Sivakumar

and

Christina M. Botai

Sustainability **2021**, *13*(9), 5312; <https://doi.org/10.3390/su13095312> - 10 May 2021

[Cited by 2](#) | Viewed by 1190

Abstract

Heat stress-related illness attributed to the changing climate, particularly the more frequent extreme high temperatures, is becoming a theme of public concern, especially in the most vulnerable regions, such as the African continent. Knowledge of the existing research directions and gaps on heat [\[...\] Read more.](#)

(This article belongs to the Special Issue [Public Health Related to Climate Change](#))

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Open Access **Article**

The Effectiveness of Online Education during Covid 19 Pandemic—A Comparative Analysis between the Perceptions of Academic Students and High School Students from Romania

by

Gina Ionela Butnaru

,

Valentin Niță

,

Alexandru Anichiti

and

Geanina Brînză

Sustainability **2021**, *13*(9), 5311; <https://doi.org/10.3390/su13095311> - 10 May 2021

[Cited by 13](#) | Viewed by 6879

Abstract

The COVID-19 pandemic has disrupted normal activities such as going to school, moving education online. Based on data gathered through a survey (N = 784), this paper analyses students' perceptions regarding the effectiveness of online education in a period when this type of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Training, Education and Research in COVID-19 Times: Innovative Methodological Approaches, Best Practices, and Case Studies](#))

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Open Access Article

Marinated Anchovies (*Engraulis encrasicolus*) Prepared with Flavored Olive Oils (Chétoui cv.): Anisakicidal Effect, Microbiological, and Sensory Evaluation

by

[Najla Trabelsi](#)

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[Luca Nalbone](#)

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[Ambra Rita Di Rosa](#)

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Sustainability **2021**, *13*(9), 5310; <https://doi.org/10.3390/su13095310> - 10 May 2021

[Cited by 5](#) | Viewed by 822

Abstract

To meet the food demand of future generations, more sustainable food production is needed. Flavored olive oils (FOOs) have been proposed as natural additives to ensure food safety and quality through a more sustainable approach. The chemical composition and antioxidant potential of two [\[...\] Read more.](#)

(This article belongs to the Special Issue [Safety and Quality of Sustainable Food](#))

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Mărginimea Sibiului Tells Its Story: Sustainability, Cultural Heritage and Rural Tourism— A Supply-Side Perspective

by

Monica Maria Coroş

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Donatella Privitera

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Loredana Maria Păunescu

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Adrian Nedelcu

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Cristina Lupu

and

Alexandru Ganuşceac

Sustainability 2021, 13(9), 5309; <https://doi.org/10.3390/su13095309> - 10 May 2021

[Cited by 1](#) | Viewed by 1102

Abstract

Territorial development and rural tourism are linked. Rural tourism involves tourists in rural areas who are attracted by the distinctive character of the landscape, recreation such as local and food resources, and the potential for spiritual, environmental, and cultural growth. The aim of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability of Rural Tourism and Promotion of Local Development](#))

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Towards More Balanced Territorial Relations—The Role (and Limitations) of Spatial Planning as a Governance Approach

by

Karlheinz Knickel

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Alexandra Almeida

,

Lisa Bauchinger

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Maria Pia Casini

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Bernd Gassler

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Kerstin Hausegger-Nestelberger

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and

Johannes S. C. Wiskerke

Sustainability **2021**, *13*(9), 5308; <https://doi.org/10.3390/su13095308> - 10 May 2021

Cited by 2 | Viewed by 962

Abstract

Decision-makers, planners and administrators involved in different policy domains at different governance levels face the important challenge of fostering more balanced, sustainable and territorially integrated development. Well-designed, multi-level, multi-sector and multi-actor governance arrangements can play a key role in this process through orchestrating [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Spatial Planning and Territorial Governance](#))

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Open Access **Article**

COVID-19: An Outcome of Biodiversity Loss or a Conspiracy? Investigating the Attitudes of Environmental Students

by

Georgios Tsantopoulos

Aristotelis C. Papageorgiou

and

Evangelia Karasmanaki

Sustainability **2021**, *13*(9), 5307; <https://doi.org/10.3390/su13095307> - 10 May 2021

Viewed by 1206

Abstract

The global environment is being constantly degraded, placing humans at increased risk for outbreaks of infectious diseases. In this regard, environmental quality must be enhanced in order to prevent pandemics in the future. However, it is unknown whether future environmental experts are aware [\[...\] Read more.](#)

(This article belongs to the Collection [Science Education Promoting Sustainability](#))

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Nature Ideas Exchange: Education of Sustainable Business Principles Based on Parallels with Forest Ecosystem

by

[Karolina Macháčková](#)

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[Jiří Zelený](#)

,

[Dana Kolářová](#)

and

[Zbyněk Vinš](#)

Sustainability **2021**, *13*(9), 5306; <https://doi.org/10.3390/su13095306> - 10 May 2021

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Abstract

Arne Næss considered nature the best source of knowledge and regarded the economists as morally responsible for the ecological crisis. Therefore, this research focused on students of economic fields at the university level. The experimental group ($n = 236$) led by a [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Education and Approaches](#))

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Open AccessReview

The Severity of COVID-19 and Its Determinants: A Systematic Review and Meta-Analysis in China

by

[Ning Zhang](#)

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[Tao Xie](#)

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[Wei Ning](#)

,

[Rongxin He](#)

,

[Bin Zhu](#)

and

[Ying Mao](#)

Sustainability **2021**, 13(9), 5305; <https://doi.org/10.3390/su13095305> - 10 May 2021

[Cited by 2](#) | Viewed by 1275

Abstract

To analyse the prevalence of severe and critical COVID-19 cases and its determinants, a systematic review and meta-analysis were conducted using Review Manager. Four English and two Chinese databases were used to identify and explore the relationships between the severity of COVID-19 and [\[...\] Read more.](#)

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Open Access **Article**

Development of Model to Predict Natural Disaster-Induced Financial Losses for Construction Projects Using Deep Learning Techniques

by

[Ji-Myong Kim](#)

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Junseo Bae

Seunghyun Son

Kiyoung Son

and

Sang-Guk Yum

Sustainability **2021**, *13*(9), 5304; <https://doi.org/10.3390/su13095304> - 10 May 2021

Cited by 3 | Viewed by 765

Abstract

This study goals to develop a model for predicting financial loss at construction sites using a deep learning algorithm to reduce and prevent the risk of financial loss at construction sites. Lately, as the construction of high-rise buildings and complex buildings increases and [\[...\] Read more.](#)

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Open Access Feature Paper Article

Managing Water and Salt for Sustainable Agriculture in the Indus Basin of Pakistan

by

Asad Sarwar Qureshi

and

Chris Perry

Sustainability **2021**, *13*(9), 5303; <https://doi.org/10.3390/su13095303> - 10 May 2021

Cited by 4 | Viewed by 988

Abstract

The Indus basin of Pakistan occupies about 16 million ha (Mha) of land. The Indus River and its tributaries are the primary sources of surface water. An estimated 122 km³ of surface water is diverted annually through an extensive canal system to [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Irrigation and the Environment: the Role of Governance](#))

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Open AccessArticle

Electronic Waste, an Environmental Problem Exported to Developing Countries: The GOOD, the BAD and the UGLY

by

[Samuel Abalansa](#)

,

[Badr El Mahrad](#)

,

[John Icely](#)

and

[Alice Newton](#)

Sustainability 2021, 13(9), 5302; <https://doi.org/10.3390/su13095302> - 10 May 2021

[Cited by 5](#) | Viewed by 2496

Abstract

Electronic waste (e-waste) is a rapidly developing environmental problem particularly for the most developed countries. There are technological solutions for processing it, but these are costly, and the cheaper option for most developed countries has been to export most of the waste to [\[...\] Read more.](#)

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Open AccessEditor's ChoiceArticle

Transport Airships for Scheduled Supply and Emergency Response in the Arctic

by

[Barry E. Prentice](#)

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[Yui-Yip Lau](#)

and

Adolf K. Y. Ng

Sustainability **2021**, 13(9), 5301; <https://doi.org/10.3390/su13095301> - 10 May 2021

Viewed by 781

Abstract

As climate change progresses, the Arctic Ocean creates opportunities for new resource development and navigation routes. Such economic opportunities are attractive, but carry with them an increased risk of accidents and oil spills. Existing methods of emergency response face enormous challenges in the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Towards Sustainable Development of the Arctic: Consequences of Pollutant in the Arctic](#))

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Open Access **Article**

Application of Data Validation and Reconciliation to Improve Measurement Results in the Determination Process of Emission Characteristics in Co-Combustion of Sewage Sludge with Coal

by

Michał Koziol

and

Joachim Koziol

Sustainability **2021**, 13(9), 5300; <https://doi.org/10.3390/su13095300> - 10 May 2021

Viewed by 428

Abstract

One of the actions popularized worldwide to reduce the consumption of fossil fuels is the combustion of renewable fuels and the co-combustion of both of these fuels. To properly implement combustion and co-combustion processes in power-generation installations, operational characteristics, including emission characteristics are [\[...\] Read more.](#)

(This article belongs to the Special Issue [Environmental Science and Sustainable Waste Management](#))

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Open Access **Article**

Recognizing the Key Drivers and Industry Implications of Sustainable Packaging Design: A Mixed-Method Approach

by

[Giovanni Mattia](#)

,

[Alessio Di Leo](#)

and

[Carlo Alberto Pratesi](#)

Sustainability **2021**, 13(9), 5299; <https://doi.org/10.3390/su13095299> - 10 May 2021

Viewed by 1031

Abstract

Sustainable packaging design plays a strategic role across several industries. Using the Italian market as the perimeter of the analysis, this paper aims to broaden the knowledge of corporate attitudes, perceptions, and behaviors toward sustainable packaging along the entire supply chain. A mixed-method [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Operations and Supply Chain Management: Evolution and Future Trends](#))

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Open Access **Article**

Women Entrepreneurship and Sustainable Business Development: Key Findings from a SWOT–AHP Analysis

by

[Daniel Stefan](#)

,

[Valentina Vasile](#)

,

[Anca Oltean](#)

,

[Calin-Adrian Comes](#)

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Anamari-Beatrice Stefan

Liviu Ciucan-Rusu

Elena Bunduchi

Maria-Alexandra Popa

and

Mihai Timus

Sustainability 2021, 13(9), 5298; <https://doi.org/10.3390/su13095298> - 10 May 2021

[Cited by 3](#) | Viewed by 1618

Abstract

This study highlights the perception of women entrepreneurs in Romania regarding specific drivers for a sustainable business model. This study uses a SWOT–AHP method to assess the importance of different factors that enforce or create barriers for the success in women entrepreneurial activities. [...] [Read more.](#)

(This article belongs to the Special Issue [Decision Support Systems and Multiple Criteria Decision Making for Sustainable Development](#))

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Open Access **Article**

Spatiotemporal Variations of Landscape Ecological Risks in a Resource-Based City under Transformation

by

Dong Wang

Xiang Ji

Cheng Li

and

Yaxi Gong

Sustainability **2021**, *13*(9), 5297; <https://doi.org/10.3390/su13095297> - 10 May 2021

Cited by 6 | Viewed by 719

Abstract

The development of traditional resource-based cities requires drastic changes owing to the exhaustion of resources. During this transformation, the ecological environment of resource-based cities is threatened because of resource exploitation, in addition to the ecological risks caused by urban expansion. However, there is [\[...\] Read more.](#)

(This article belongs to the Special Issue [Local- to Global-Scale Environmental Issues](#))

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Open Access **Article**

Analysis of Intersection Traffic Safety in the City of San Antonio, 2013–2017

by

Khondoker Billah

,

Qasim Adegbite

,

Hatim O. Sharif

,

Samer Dessouky

and

Lauren Simcic

Sustainability **2021**, *13*(9), 5296; <https://doi.org/10.3390/su13095296> - 10 May 2021

Cited by 3 | Viewed by 914

Abstract

An understanding of the contributing factors to severe intersection crashes is crucial for developing countermeasures to reduce crash numbers and severity at high-risk crash locations. This study examined the variables affecting crash incidence and crash severity at intersections in San Antonio over a [\[...\] Read more.](#)

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Open AccessArticle

Job Adjustment Strategy for Predictive Maintenance in Semi-Fully Flexible Systems Based on Machine Health Status

by

Thirupathi Samala

,

Vijaya Kumar Manupati

,

Bethalam Brahma Sai Nikhilesh

,

Maria Leonilde Rocha Varela

and

Goran Putnik

Sustainability 2021, 13(9), 5295; <https://doi.org/10.3390/su13095295> - 10 May 2021

[Cited by 1](#) | Viewed by 735

Abstract

Complex systems consist of multiple machines that are designed with a certain extent of redundancy to control any unanticipated events. The productivity of complex systems is highly affected by unexpected simultaneous machine failures due to overrunning of machines, improper maintenance, and natural characteristics. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Manufacturing and Management Paradigms, Methods and Tools for Sustainable Industry 4.0 oriented Manufacturing Systems](#))

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Open AccessReview

Food Security and COVID-19: A Systematic Review of the First-Year Experience

by

Boglárka Anna Éliás

and

Attila Jámbor

Sustainability **2021**, 13(9), 5294; <https://doi.org/10.3390/su13095294> - 10 May 2021

Cited by 5 | Viewed by 1589

Abstract

For decades, global food security has not been able to address the structural problem of economic access to food, resulting in a recent increase in the number of undernourished people from 2014. In addition, the FAO estimates that the number of undernourished people [...] [Read more.](#)

(This article belongs to the Special Issue [Post-COVID-19 Agriculture and Food Security](#))

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Open Access **Article**

Investors' Aspirations toward Social Impact: A Portfolio-Based Analysis

by

Leonardo Boni

,

Laura Toschi

and

Riccardo Fini

Sustainability **2021**, 13(9), 5293; <https://doi.org/10.3390/su13095293> - 10 May 2021

Cited by 2 | Viewed by 712

Abstract

In the last ten years, we have witnessed a proliferation of investors claiming blended value strategies, i.e., pursuing both economic and social returns in their investments. Aside from this rush for self-selecting in a blended value finance context, we still do not know [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Venture Capital and Social Impact Investment Management](#))

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Open AccessArticle

Security Assessment of Taiwan Solid Wood Product Supply

by

[Chyi-Rong Chiou](#)

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[Wei-Hsun Chan](#)

,

[Meng-Shan Wu](#)

and

[Jiunn-Cheng Lin](#)

Sustainability **2021**, *13*(9), 5292; <https://doi.org/10.3390/su13095292> - 10 May 2021

Viewed by 727

Abstract

Taiwan is highly dependent on imports of solid wood materials. In the past ten years (2009–2018), it imported raw materials for solid wood products from 117 countries. Therefore, the diversity of raw material sources is a serious concern. The purpose of this research [\[...\] Read more.](#)

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Open AccessArticle

Exploring Methods of the Sustainable Development for Safety Engineering International Course

by

[Wei Jiang](#)

,

Jiankai Zhou

Yangping Gao

and

Yintong Wang

Sustainability 2021, 13(9), 5291; <https://doi.org/10.3390/su13095291> - 10 May 2021

Viewed by 601

Abstract

To improve the effectiveness of the international course for safety engineering at China University of Mining & Technology (Beijing) (CUMTB), we explored sustainable development methods, co-occurrence analysis, statistical analysis, and questionnaire survey methods in a discussion of the international course's current state and [\[...\] Read more.](#)

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Open Access Article

The Role of Corporate Ethical Management on Trade Relationship Trust and Commitment: B2B

by

Shiruo Fei

Chanho Kwon

and

Changyun Jin

Sustainability 2021, 13(9), 5290; <https://doi.org/10.3390/su13095290> - 09 May 2021

Viewed by 735

Abstract

This study investigated whether three components of ethical management—awareness, operation, and practice—have a positive effect on corporate trust and relationship commitment in business-to-business (B2B) transactions. The study examined whether the trust formed in transactions, or relationship commitment, affects the establishment of long-term oriented [\[...\] Read more.](#)

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Open AccessArticle

The Influence of R&D in Mining on Sustainable Development in China

by

Jianguo Du

,

Francis Tang Dabuo

,

Beverlley Madzikanda

and

Kofi Baah Boamah

Sustainability 2021, 13(9), 5289; <https://doi.org/10.3390/su13095289> - 09 May 2021

[Cited by 2](#) | Viewed by 771

Abstract

Mining and the utilization of mineral resources, especially coal for energy consumption, are considered a major contributor to China's total index of environmental pollution, but there is less focus on its sustainable development. This study focused on the influence of research and development [\[...\] Read more.](#)

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Open AccessArticle

Circular Economy at the Firm Level: A New Tool for Assessing Maturity and Circularity

by

Pasqualina Sacco

,

Christian Vinante

,

Yuri Borgianni

and

Guido Orzes

Sustainability **2021**, 13(9), 5288; <https://doi.org/10.3390/su13095288> - 09 May 2021

[Cited by 4](#) | Viewed by 1281

Abstract

Although the circular economy (CE) concept is gaining traction and methods to assess companies' CE-related aspects exist, there is no established CE assessment tool. In many cases, it is not clear how metrics or indicators included in extant CE assessment methods have been [\[...\] Read more.](#)

(This article belongs to the Special Issue [Circular Economy for Sustainable Development](#))

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Open Access **Article**

Men's and Women's Style of Living and Motivation to Run in Charity Events

by

Joanna Poczta

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Nuno Almeida

,

Mateusz Rozmiarek

,

Maciej Młodzik

and

Ewa Malchrowicz-Moško

Sustainability **2021**, 13(9), 5287; <https://doi.org/10.3390/su13095287> - 09 May 2021

[Cited by 5](#) | Viewed by 899

Abstract

Running has been very popular for years, especially in organized mass runs. Various running events take place all over the world, at different distances and locations, including charity running events. However, there has not been any research on the social impact of these [\[...\] Read more.](#)

(This article belongs to the Special Issue [Physical Activity, Health and Sustainability](#))

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Open Access **Editorial**

Sustainable Geotechnics—Theory, Practice, and Applications

by

Slobodan B. Mickovski

Sustainability **2021**, 13(9), 5286; <https://doi.org/10.3390/su13095286> - 09 May 2021

[Cited by 1](#) | Viewed by 701

Abstract

Today, modern Geotechnical Engineers, who in the past would have considered the phenomena occurring in the (primarily soil) environment, are faced with developments in environmental sciences that are becoming more and more detailed and sophisticated, with the natural phenomena and processes surrounding the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Geotechnics—Theory, Practice, and Applications](#))

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Open Access **Article**

Improved Radar Composites and Enhanced Value of Meteorological Radar Data Using Different Quality Indices

by

Ladislav Méri

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Ladislav Gaál

,

Juraj Bartok

,

Martin Gažák

Martin Gera

Marián Jurašek

and

Miroslav Kelemen

Sustainability **2021**, *13*(9), 5285; <https://doi.org/10.3390/su13095285> - 09 May 2021

Cited by 2 | Viewed by 668

Abstract

Radar measurements are inherently affected by various meteorological and non-meteorological factors that may lead to a degradation of their quality, and the unwanted effects are also transferred into composites, i.e., overlapping images from different radars. The paper was aimed at answering the research [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Air Transport Management and Aeronautical and Space Technology Operations in the Context of Environmental and Public Health Impacts](#))

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Open Access **Article**

Changes in the Soundscape of the Public Space Close to a Highway by a Noise Control Intervention

by

Timothy Van Renterghem

Francesco Aletta

and

Dick Botteldooren

Sustainability **2021**, *13*(9), 5284; <https://doi.org/10.3390/su13095284> - 09 May 2021

Cited by 2 | Viewed by 893

Abstract

The deployment of measures to mitigate sound during propagation outdoors is most often a compromise between the acoustic design, practical limitations, and visual preferences regarding the landscape. The current study of a raised berm next to a highway shows a number of common [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Living Environments: Holistic Noise Pollution Management](#))

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Open AccessArticle

Measuring Sustainability with Unweighted TOPSIS: An Application to Sustainable Tourism in Spain

by

[José Vicens-Colom](#)

,

[Joe Holles](#)

and

[Vicente Liern](#)

Sustainability **2021**, *13*(9), 5283; <https://doi.org/10.3390/su13095283> - 09 May 2021

[Cited by 2](#) | Viewed by 722

Abstract

The measurement of sustainability is complex due to its multiple dimensions of different relative importance and different natures. From the perspective of sustainability, three types of tourism can be established: traditional tourism, sustainable tourism, and sustainable impact tourism. In the context of multiple-criteria [...] [Read more.](#)

(This article belongs to the Special Issue [Multiple Criteria Decision Making for Sustainable Development](#))

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Applicability of Structure-from-Motion Photogrammetry on Forest Measurement in the Northern Ethiopian Highlands

by

Toru Sakai

Emiru Birhane

Buruh Abebe

and

Destaaalem Gebremeskel

Sustainability **2021**, *13*(9), 5282; <https://doi.org/10.3390/su13095282> - 09 May 2021

Cited by 1 | Viewed by 670

Abstract

Ethiopia is one of the countries with the most degraded forest resources. Information on tree structure is needed at some points in the process to assess the appropriateness of forest management. The objectives are to examine whether the Structure from Motion (SfM)-based photogrammetry [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Management of Natural Resources](#))

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Open Access **Article**

The Effect of Water Rights Trading Policy on Water Resource Utilization Efficiency: Evidence from a Quasi-Natural Experiment in China

by

Shaojian Chen

Yuanyuan Cao

and

Jun Li

Sustainability **2021**, *13*(9), 5281; <https://doi.org/10.3390/su13095281> - 09 May 2021

Cited by 3 | Viewed by 747

Abstract

Water shortage has become a serious problem in the world, and low water efficiency is the key to industrial and agricultural production and sustainable economic development. Based on the data of 30 provinces (municipalities) in China from 2010 to 2017, this study builds [\[...\] Read more.](#)

(This article belongs to the Section [Resources and Sustainable Utilization](#))

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Open Access **Article**

Toward Sustainable Environmental Management of Healthcare Waste: A Holistic Perspective

by

Nouf Sahal Alharbi

,

Jawaher Haji Alhaji

and

Malak Yahia Qattan

Sustainability **2021**, 13(9), 5280; <https://doi.org/10.3390/su13095280> - 09 May 2021

[Cited by 3](#) | Viewed by 1140

Abstract

The management of healthcare waste requires a sustained and holistic approach involving a range of parties. This is challenging for governments, especially in developing countries, where waste management systems have limited capacities for addressing the issue. Using Saudi Arabia as a case study, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Environmental Sustainability of Current Waste Management Practices](#))

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Open Access **Review**

Amalgamation of Customer Relationship Management and Data Analytics in Different Business Sectors—A Systematic Literature Review

by

Lewlisa Saha

,

Hrudaya Kumar Tripathy

Soumya Ranjan Nayak

Akash Kumar Bhoi

and

Paolo Barsocchi

Sustainability **2021**, 13(9), 5279; <https://doi.org/10.3390/su13095279> - 09 May 2021

Cited by 1 | Viewed by 1263

Abstract

Customization of products or services is a strategy that the business sector has embraced to build a better relationship with the customers to cater to their individual needs and thus providing them a fulfilling experience. This whole process is known as customer relationship [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Customer Relationship Management](#))

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Open Access **Article**

Socio-Economic Drivers of Fish Species Consumption Preferences in Kenya's Urban Informal Food System

by

Oscar Ingasia Ayuya

Katrine Soma

and

Benson Obwanga

Sustainability **2021**, 13(9), 5278; <https://doi.org/10.3390/su13095278> - 08 May 2021

Cited by 1 | Viewed by 866

Abstract

In an effort to contribute to resilient food and nutritional security in urban slums, a food system approach was applied to understand the key socio-economic factors driving fish species consumption in Kibera, the largest informal settlement in Africa located in Nairobi, Kenya. Data [\[...\] Read more.](#)

(This article belongs to the Special Issue [Development of Resilient Urban Food Systems—Exploring Synergies and Making Priorities](#))

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Open AccessArticle

Impacts of Green Innovation, Institutional Constraints and Their Interactions on High-Quality Economic Development across China

by

[Chenggang Li](#)

,

[Jun Wan](#)

,

[Zhenci Xu](#)

and

[Tao Lin](#)

Sustainability **2021**, *13*(9), 5277; <https://doi.org/10.3390/su13095277> - 08 May 2021

[Cited by 2](#) | Viewed by 980

Abstract

In 2015, China put forward five development concepts, propounded the concept of green development and green innovation, and adhered to the road of sustainable development. China also promoted the vision of high-quality economic development in 2017. It is very important to study the [\[...\] Read more.](#)

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Open AccessArticle

Uptake Prediction of Eight Potentially Toxic Elements by *Pistia stratiotes* L. Grown in the Al-Sero Drain (South Nile Delta, Egypt): A Biomonitoring Approach

by

[Ebrahim M. Eid](#)

,

[Mohammed A. Dakhil](#)

,

[Loutfy M. Hassan](#)

,

[Shaimaa G. Salama](#)

and

[Tarek M. Galal](#)

Sustainability **2021**, *13*(9), 5276; <https://doi.org/10.3390/su13095276> - 08 May 2021

Viewed by 752

Abstract

The potential to utilise the free-floating macrophyte *Pistia stratiotes* L. to survey contamination of the Al-Sero Drain in the South Nile Delta, Egypt, by eight potentially toxic elements (PTEs) was investigated in this study. This study considered the absorption of eight PTEs (Cd, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Aquatic Plants as Bioindicators of Trace Metal Pollution](#))

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Open Access Article

Assessing Label Frames and Emotional Primes in the Context of Animal Rearing— Response of an Explorative fNIRS Study

by

[Clara Mehlhose](#)

and

[Antje Risius](#)

Sustainability **2021**, *13*(9), 5275; <https://doi.org/10.3390/su13095275> - 08 May 2021

Viewed by 805

Abstract

Against the background of rising societal interest for sustainable food and nutrition choices, food labels have gained importance in providing important information to consumers. However, little is known about how the differences between quality frames in labels are evaluated and how priming might [...] [Read more.](#)

(This article belongs to the Special Issue [Consumer Neuroscience and Sustainable Marketing](#))

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Open AccessArticle

Multi-Temporal Arable Land Monitoring in Arid Region of Northwest China Using a New Extraction Index

by

[Xinyang Yu](#)

,

[Younggu Her](#)

,

[Xicun Zhu](#)

,

[Changhe Lu](#)

and

[Xuefei Li](#)

Sustainability **2021**, *13*(9), 5274; <https://doi.org/10.3390/su13095274> - 08 May 2021

[Cited by 2](#) | Viewed by 4173

Abstract

Development of a high-accuracy method to extract arable land using effective data sources is crucial to detect and monitor arable land dynamics, servicing land protection and sustainable development. In this study, a new arable land extraction index (ALEI) based on spectral analysis was [...] [Read more.](#)

(This article belongs to the Special Issue [Agricultural Landscape Stability and Sustainable Land Management](#))

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Open AccessArticle

Fluorescence Probe Based on Graphene Quantum Dots for Selective, Sensitive and Visualized Detection of Formaldehyde in Food

by

[Yanpeng Zhang](#)

,

[Junjie Qi](#)

,

[Mengying Li](#)

,

[Dong Gao](#)

and

[Chengfen Xing](#)

Sustainability 2021, 13(9), 5273; <https://doi.org/10.3390/su13095273> - 08 May 2021

Viewed by 779

Abstract

Graphene quantum dots (GQDs) have been successfully used as a highly sensitive probe for the sensing of formaldehyde (HCHO) in an aqueous solution. Through static quenching, the probe utilizes the interaction between HCHO and GQDs to trigger the “turn off” fluorescence response, and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Emerging Photoactive Molecule/Polymer for Water Treatment or Degradation of Pollutants](#))

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Source Apportionment of Heavy Metal Pollution in Agricultural Soils around the Poyang Lake Region Using UNMIX Model

by

[Yanhong Li](#)

,
Huifen Kuang

,
Chunhua Hu

and

Gang Ge

Sustainability **2021**, 13(9), 5272; <https://doi.org/10.3390/su13095272> - 08 May 2021

[Cited by 3](#) | Viewed by 817

Abstract

Rapid urbanization and industrialization have caused the continuous discharge of heavy metals into the soils of China's Poyang Lake region, where they pose a major threat to human health. Yet, the spatial characteristics of these heavy metals in farmland soils and their pollution [\[...\] Read more.](#)

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Open Access **Article**

Research on the Sustainability of the Standard Gauge Railway Construction Project in Tanzania

by

Jianmin Wang

,
Victor Sifamen Sekei

,
Sherif Abdul Ganiyu

and

Jesse Jackson Makwetta

Sustainability **2021**, 13(9), 5271; <https://doi.org/10.3390/su13095271> - 08 May 2021

[Cited by 2](#) | Viewed by 830

Abstract

This exploratory study aimed to examine the validity of the sustainability evaluation model suggested and the sustainability of the standard gauge railway (SGR) construction project in Africa's developing countries with Tanzania as a case study. By using the proposed railway sustainability evaluation model, [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Management](#))

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Open AccessArticle

Effect of Depreciation Method for Long-Term Tangible Assets on Sustainable Management: From a Nuclear Power Generation Cost Perspective under the Nuclear Phase-Out Policy

by

[SungSig Bang](#)

and

[SangYun Park](#)

Sustainability 2021, 13(9), 5270; <https://doi.org/10.3390/su13095270> - 08 May 2021

[Cited by 1](#) | Viewed by 647

Abstract

The Korean Government has been implementing a nuclear phase-out policy since 2017. Nuclear power plants accounted for 30.0% of the total power generation in 2016; this figure fell to 25.9% at the end of 2019, and the average Capacity Factor (CF) of a [\[...\] Read more.](#)

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Open AccessArticle

Critical Dimensions of Blockchain Technology Implementation in the Healthcare Industry: An Integrated Systems Management Approach

by

[Satyabrata Aich](#)

,

[Sushanta Tripathy](#)

,

Moon-Il Joo

and

Hee-Cheol Kim

Sustainability **2021**, *13*(9), 5269; <https://doi.org/10.3390/su13095269> - 08 May 2021

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Abstract

In the digital era, almost every system is connected to a digital platform to enhance efficiency. Although life is thus improved, security issues remain important, especially in the healthcare sector. The privacy and security of healthcare records is paramount; data leakage is socially [\[...\] Read more.](#)

(This article belongs to the Special Issue [Blockchain Technology](#))

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Open Access **Article**

Energy Transition at Home: A Survey on the Data and Practices That Lead to a Change in Household Energy Behavior

by

Jacopo Gaspari

,

Ernesto Antonini

,

Lia Marchi

and

Vincenzo Vodola

Sustainability **2021**, *13*(9), 5268; <https://doi.org/10.3390/su13095268> - 08 May 2021

[Cited by 5](#) | Viewed by 704

Abstract

Since energy transition depends significantly on reducing the built environment's energy needs, many regulations and incentives have been implemented globally over the last three decades. Despite some positive results, many scholars suggest that households' behavioral change could greatly accelerate progress. People's levels of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Energy Systems Integration: From Policy-Makers to Consumers](#))

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Open Access **Article**

The Influence of the Configuration of Two Electrochemical Reactors on the Process of Removing Atrazine from Water

by

[Juan Nápoles-Armenta](#)

,

[Juan Antonio Vidales-Contreras](#)

,

[Luis Alonso Leyva-Soto](#)

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[Edna Rosalba Meza-Escalante](#)

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,

[Celia De La Mora-Orozco](#)

,

[Pablo Gortáres-Moroyoqui](#)

and

Lilian Alejandra Salcedo-Gastelum

Sustainability **2021**, 13(9), 5267; <https://doi.org/10.3390/su13095267> - 08 May 2021

Viewed by 610

Abstract

In Mexico, atrazine is widely used in agriculture to control broadleaf weeds. The objective of this research was to compare atrazine removal in water and energy consumption between an up-flow cylinder electro-oxidation reactor (UCER) and an up-flow rectangular electro-oxidation reactor (URER) using the [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Agriculture](#))

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Open AccessArticle

Use of Insulation Based on Nanomaterials to Improve Energy Efficiency of Residential Buildings in a Hot Desert Climate

by

Ahmed Abdelrady

,

Mohamed Hssan Hassan Abdelhafez

and

Ayman Ragab

Sustainability **2021**, 13(9), 5266; <https://doi.org/10.3390/su13095266> - 08 May 2021

Viewed by 664

Abstract

Building insulation based on nanomaterials is considered one of the most effective means of reducing energy consumption in the hot desert climate. The application of an energy-efficient insulation system can significantly decrease the energy consumed via a building's air-conditioning system during the summer. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Energy Efficiency in Buildings and Districts](#))

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Open AccessArticle

Protecting Food Cultural Biodiversity: From Theory to Practice. Challenging the Geographical Indications and the Slow Food Models

by

Mariagiulia Mariani

,

François Casabianca

,

Claire Cerdan

and

Iuri Peri

Sustainability **2021**, 13(9), 5265; <https://doi.org/10.3390/su13095265> - 08 May 2021

[Cited by 1](#) | Viewed by 1092

Abstract

A global expansion in public and private initiatives seeks to strengthen the link between traditional products and sustainable development by creating a niche in the market for these products. Relevant examples are the Geographical Indications and the Slow Food Presidia models. This paper [\[...\] Read more.](#)

(This article belongs to the Special Issue [Geographical Indications, Public Goods, and Sustainable Development](#))

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Open Access **Article**

Adult Education: A Sustainable Model for the Reduction of Psychosocial and Educational Risks Caused by COVID-19

by

Manuel-Jesús Perea-Rodríguez

,

Juan-Agustín Morón-Marchena

,

María-Carmen Muñoz-Díaz

and

David Cobos-Sanchiz

Sustainability **2021**, 13(9), 5264; <https://doi.org/10.3390/su13095264> - 08 May 2021

Viewed by 741

Abstract

Education for health and sustainability has to be understood from a new perspective beyond the traditional conceptual limits. Thus, following the lines of the 2030 sustainable development goals, we examine how permanent education and adult education can become a fundamental element for the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Health Education and COVID-19 Pandemic: Towards a Holistic Sustainability](#))

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Open Access **Article**

Social Controls and Bonds of Public Information Consumer on Sustainable Utilization and Provision for Computing

by

Kumju Hwang

and

Hyemi Um

Sustainability **2021**, 13(9), 5263; <https://doi.org/10.3390/su13095263> - 08 May 2021

Viewed by 515

Abstract

In public areas, employees are both consumers and producers in information. For sustainable usage of information, employees should be aware of information systems security (ISS). Information systems security (ISS) is critical in further developing public sector information systems, such as e-government. Most ISS [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Consumer Behavior: Emotion, Cognition, Psychology, and Attitudes](#))

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Open AccessArticle

The Global Development Formula

by

Eduardo Medeiros

Sustainability **2021**, 13(9), 5262; <https://doi.org/10.3390/su13095262> - 08 May 2021

Cited by 2 | Viewed by 877

Abstract

Development remains a central concept for policy design and implementation aimed at improving the quality of life of the world population, despite a manifest rise in neoliberalist economic growth policy strategic guidance rationales. In accepting the relevance of development processes, this paper proposes [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Spatial Planning and Territorial Governance](#))

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Open AccessReview

Conflicting Narratives of Deep Sea Mining

by

Axel Hallgren

and

Anders Hansson

Sustainability **2021**, 13(9), 5261; <https://doi.org/10.3390/su13095261> - 08 May 2021

Cited by 4 | Viewed by 1527

Abstract

As land-based mining industries face increasing complexities, e.g., diminishing return on investments, environmental degradation, and geopolitical tensions, governments are searching for alternatives. Following decades of anticipation, technological innovation, and exploration, deep seabed mining (DSM) in the oceans has, according to the mining industry [\[...\] Read more.](#)

(This article belongs to the Special Issue [Mitigating Marine Hazards and Sustainable Developing Strategic](#))

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Open AccessArticle

Bohemian Cultural Scenes and Creative Development of Chinese Cities: An Analysis of 65 Cities Using Cultural Amenity Data

by

[Jun Wu](#)

,

[Hao Zheng](#)

,

[Tong Wang](#)

and

[Terry Nichols Clark](#)

Sustainability **2021**, 13(9), 5260; <https://doi.org/10.3390/su13095260> - 08 May 2021

Viewed by 648

Abstract

There has been a cultural turn in urban development, as an increasing number of scholars are stressing the importance of culture in urban research and policy agendas. Specifically, the bohemian cultural scene could drive an integral cultural policy approach between the cultural scenes [\[...\] Read more.](#)

(This article belongs to the Special Issue [Integral and Sustainable Urban Policies](#))

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Open Access **Article**

Green Talk or Green Walk: Chinese Consumer Positive Word-of-Mouth to Corporate Environmental Actions in Polluting Industries

by

[Jiajia Zhang](#)

and

[Jin Sun](#)

Sustainability **2021**, 13(9), 5259; <https://doi.org/10.3390/su13095259> - 08 May 2021

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Abstract

Although environmental action is regarded as a public relations strategy aiming to manifest a corporate green stance, this not always the case. Many consumers tend to be skeptical of corporate real environmental efforts, especially firms in traditionally dirty industries. However, few studies have [\[...\] Read more.](#)

(This article belongs to the Special Issue [Environmental Management Approaches and Tools to Boost Circular Economy](#))

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Open Access Article

A Comprehensive Appraisal of the Wild Food Plants and Food System of Tribal Cultures in the Hindu Kush Mountain Range; a Way Forward for Balancing Human Nutrition and Food Security

by

[Abdullah Abdullah](#)

,

[Shujaul Mulk Khan](#)

,

[Andrea Pieroni](#)

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[Aminul Haq](#)

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[Zahoor Ul Haq](#)

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[Shazia Sakhi](#)

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Al-Bandari Fahad Al-Arjani

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Abdulaziz A. Alqarawi

and

Elsayed Fathi Abd_Allah

Sustainability **2021**, 13(9), 5258; <https://doi.org/10.3390/su13095258> - 08 May 2021

Cited by 4 | Viewed by 1103

Abstract

The tribal belt of the Hindu Kush mountains is famous for its unique culture, ethnography, wild food plants, food systems, and traditional knowledge. People in this region gather wild plants and plant parts using them directly or in traditional cuisine, or sell them [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Multifaceted Nature of Food and Nutrition Insecurity around the World and Foodservice Business](#))

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Open Access **Article**

Scaling the Potential of Compact City Development: The Case of Lahore, Pakistan

by

Muhammad Nadeem

,

Amer Aziz

,

Muhammad Ahmad Al-Rashid

,

Giovanni Tesoriere

,

Muhammad Asim

and

Tiziana Campisi

Sustainability **2021**, *13*(9), 5257; <https://doi.org/10.3390/su13095257> - 08 May 2021

Cited by 4 | Viewed by 1881

Abstract

With increasing urban populations, high vehicle miles have made the concept of a compact city imperative. A compact city is characterized by high-density development and mixed land use with no urban sprawl. City managers are trying hard to make their cities compact and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Public Transport Integration, Urban Density and Sustainability](#))

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Open Access Article

Wind–Water Experimental Analysis of Small SC-Darrieus Turbine: An Approach for Energy Production in Urban Systems

by

Ahmed Gharib-Yosry

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Eduardo Blanco-Marigorta

,

Aitor Fernández-Jiménez

,

Rodolfo Espina-Valdés

and

Eduardo Álvarez-Álvarez

Sustainability **2021**, *13*(9), 5256; <https://doi.org/10.3390/su13095256> - 08 May 2021

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Abstract

Smart cities have a significant impact on the future of renewable energies as terms such as sustainability and energy saving steadily become more common. In this regard, both wind and hydrokinetic compact-size turbines can play important roles in urban communities by providing energy [\[...\] Read more.](#)

(This article belongs to the Special Issue [Management Approaches to Improve Sustainability in Urban Systems](#))

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[Open Access](#) [Review](#)

Removal Mechanisms of Slag against Potentially Toxic Elements in Soil and Plants for Sustainable Agriculture Development: A Critical Review

by

[Sajid Mehmood](#)

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[Xiukang Wang](#)

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[Waqas Ahmed](#)

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[Muhammad Imtiaz](#)

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[Allah Ditta](#)

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[Muhammad Rizwan](#)

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[Sana Irshad](#)

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[Saqib Bashir](#)

,

[Qudsia Saeed](#)

[Adnan Mustafa](#)

and

[Weidong Li](#)

Sustainability **2021**, 13(9), 5255; <https://doi.org/10.3390/su13095255> - 08 May 2021

[Cited by 5](#) | Viewed by 1171

Abstract

Potentially toxic element (PTE) pollution is a major abiotic stress, which reduces plant growth and affects food quality by entering the food chain, and ultimately poses hazards to human health. Currently, the use of slag in PTE-contaminated soils has been reported to reduce [\[...\] Read more.](#)

(This article belongs to the Special Issue [Plant Biotic and Abiotic Stress Tolerance: Physiological and Molecular Approaches for Sustainable Agricultural Production](#))

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Open Access **Article**

Modeling the Influence of Online Social Media Information on Post-Disaster Mobility Decisions

by

[Takahiro Yabe](#)

[P. Suresh C. Rao](#)

and

[Satish V. Ukkusuri](#)

Sustainability **2021**, 13(9), 5254; <https://doi.org/10.3390/su13095254> - 08 May 2021

[Cited by 2](#) | Viewed by 748

Abstract

Disaster risk management, including response and recovery, are essential elements of sustainable development. With the recent increase in natural hazards, the importance of techniques to understand, model and predict the evacuation and returning behavior of affected individuals is rising. Studies have found that [\[...\] Read more.](#)

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Open AccessArticle

The Relationship between Patents, Technology Transfer and Desorptive Capacity in Korean Universities

by

Youngseong Koo

and

Keuntae Cho

Sustainability **2021**, *13*(9), 5253; <https://doi.org/10.3390/su13095253> - 07 May 2021

[Cited by 2](#) | Viewed by 768

Abstract

This study sought to examine the relationship between patent rights and technology transfer performances of Korean universities and to analyze the moderating effect of the desorptive capacity of industry-academic cooperation foundations. Through this, we study the impact of universities' patents on both the [\[...\] Read more.](#)

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Open AccessArticle

What Affects the E-Bicycle Speed Perception in the Era of Eco-Sustainable Mobility: A Driving Simulator Study

by

Sreten Simović

,

Tijana Ivanišević

,

Aleksandar Trifunović

,

Svetlana Čičević

and

Dragan Taranović

Sustainability **2021**, *13*(9), 5252; <https://doi.org/10.3390/su13095252> - 07 May 2021

[Cited by 1](#) | Viewed by 755

Abstract

The increase in the number of electric bicycles worldwide has resulted in a rise in the number of traffic accidents involving e-bicyclists. Previous studies have been based on analyzing the use, advantages and disadvantages of e-bicycles, whereas only a small number of studies [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Transportation](#))

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Open Access **Article**

Investigation of the Substitutability of Rubber Compounds with Environmentally Friendly Materials

by

Murat Ayar

,

Alper Dalkiran

,

Utku Kale

,

András Nagy

and

Tahir Hikmet Karakoc

Sustainability **2021**, *13*(9), 5251; <https://doi.org/10.3390/su13095251> - 07 May 2021

[Cited by 1](#) | Viewed by 733

Abstract

Rubber is one of the rare materials that can be used in many sectors and for multiple purposes. It can be used in a wide range of frameworks, from very simple coating materials to very complex spacecraft parts. Apart from natural rubber, compounds [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Materials](#))

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Open AccessArticle

Life Cycle Assessments on Battery Electric Vehicles and Electrolytic Hydrogen: The Need for Calculation Rules and Better Databases on Electricity

by

[Roberta Olindo](#)

,

[Nathalie Schmitt](#)

and

[Joost Vogtländer](#)

Sustainability **2021**, 13(9), 5250; <https://doi.org/10.3390/su13095250> - 07 May 2021

[Cited by 4](#) | Viewed by 949

Abstract

LCAs of electric cars and electrolytic hydrogen production are governed by the consumption of electricity. Therefore, LCA benchmarking is prone to choices on electricity data. There are four issues: (1) leading Life Cycle Impact (LCI) databases suffer from inconvenient uncertainties and inaccuracies, (2) [\[...\] Read more.](#)

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Open AccessArticle

Characterization and Thermal Behavior Study of Biomass from Invasive *Acacia mangium* Species in Brunei Preceding Thermochemical Conversion

by

[Ashfaq Ahmed](#)

,

Muhammad S. Abu Bakar

Abdul Razzaq

Syarif Hidayat

Farrukh Jamil

Muhammad Nadeem Amin

Rahayu S. Sukri

Noor S. Shah

and

Young-Kwon Park

Sustainability 2021, 13(9), 5249; <https://doi.org/10.3390/su13095249> - 07 May 2021

Cited by 4 | Viewed by 794

Abstract

Acacia mangium is a widely grown tree species across the forests in Brunei Darussalam, posing a threat to the existence of some native species in Brunei Darussalam. These species produce large quantities of lignocellulosic biomass from the tree parts comprising the phyllodes, trunk, [\[...\] Read more.](#)

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Open Access **Article**

Review on Machine Learning Techniques for Developing Pavement Performance Prediction Models

by

Rita Justo-Silva

,

Adelino Ferreira

and

Gerardo Flintsch

Sustainability 2021, 13(9), 5248; <https://doi.org/10.3390/su13095248> - 07 May 2021

[Cited by 6](#) | Viewed by 1780

Abstract

Road transportation has always been inherent in developing societies, impacting between 10–20% of Gross Domestic Product (GDP). It is responsible for personal mobility (access to services, goods, and leisure), and that is why world economies rely upon the efficient and safe functioning of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Transportation Safety and Pavement Management](#))

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Open Access **Article**

Association between Atrial Fibrillation Incidence and Temperatures, Wind Scale and Air Quality: An Exploratory Study for Shanghai and Kunming

by

Sha Lu

,

Yiyun Zhao

,

Zhouqi Chen

,

Mengke Dou

,

Qingchun Zhang

and

Weixin Yang

Sustainability **2021**, *13*(9), 5247; <https://doi.org/10.3390/su13095247> - 07 May 2021

[Cited by 2](#) | Viewed by 634

Abstract

As a common cardiovascular disease, atrial fibrillation has the characteristics of high morbidity, high disability, and high fatality rates, seriously endangering human health and sustainability. Some research has confirmed that environmental factors are related to the risk of illness and death from cardiovascular [\[...\] Read more.](#)

(This article belongs to the Special Issue [Air Pollution Control and Sustainable Development](#))

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Open Access Article

Risk-Benefit Assessment Scheme for Renewable Solar Solutions in Traditional and Historic Buildings

by

Cristina S. Polo López

,

Elena Lucchi

,

Eleonora Leonardi

,

Antonello Durante

,

Anne Schmidt

and

Roger Curtis

Sustainability **2021**, *13*(9), 5246; <https://doi.org/10.3390/su13095246> - 07 May 2021

[Cited by 10](#) | Viewed by 1033

Abstract

Within the framework of IEA-SHC Task 59, a multidisciplinary team of experts from around the world has come together to investigate current approaches for energy retrofit of the built heritage with energy efficiency conservation-compatible measures, in accordance with cultural and heritage values, and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Advances in Historic Buildings Conservation and Energy Efficiency](#))

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Research on Incentive Mechanism and Strategy Choice for Passing on Intangible Cultural Heritage from Masters to Apprentices

by

[Changqing Sun](#)

,

[Hong Chen](#)

and

[Ruihua Liao](#)

Sustainability **2021**, *13*(9), 5245; <https://doi.org/10.3390/su13095245> - 07 May 2021

[Cited by 2](#) | Viewed by 719

Abstract

With the increasing prosperity of the global economy, the protection and sustainable development of intangible cultural heritage (ICH) are being confronted with many problems, among which the difficulty of passing on ICH, particularly traditional handicraft, from masters to apprentices should be given attention. [\[...\] Read more.](#)

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Open AccessArticle

Longitudinal Effects of Dietary Advice on Wheelchair Basketball Athletes: Nutritional and Environmental Aspects

by

[Elisabetta Toti](#)

,

Anna Raguzzini

,

Anna Lucia Fedullo

,

Valentina Cavedon

,

Chiara Milanese

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Marco Bernardi

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Bianca Maria Mariani

,

Luca Massaro

,

Francesco Mellara

,

Tommaso Sciarra

and

Ilaria Peluso

Sustainability **2021**, *13*(9), 5244; <https://doi.org/10.3390/su13095244> - 07 May 2021

Cited by 1 | Viewed by 831

Abstract

Background: Diet impacts both human and environmental health and must be designed to optimize the training and performance of athletes. The aim of this study was to quantify the effect of dietary advice (DA) on the food intake of wheelchair basketball athletes (WBA) [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability and Health as Trends in Consumer Behaviour](#))

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Open AccessArticle

Design and Analysis of a High-Gain Step-Up/Down Modular DC–DC Converter with Continuous Input Current and Decreased Voltage Stress on Power Switches and Switched-Capacitors

by

Maysam Abbasi

,

Ehsan Abbasi

,

Li Li

and

Behrouz Tousi

Sustainability **2021**, *13*(9), 5243; <https://doi.org/10.3390/su13095243> - 07 May 2021

[Cited by 2](#) | Viewed by 762

Abstract

Due to concerns, such as global warming and depletion of fossil fuels, countries are forced to integrate energy storage devices (ESSs) and renewable energy sources (RESs), such as photovoltaic (PV) systems, wind turbines and fuel cells, into their power networks. Here, a new [\[...\] Read more.](#)

(This article belongs to the Special Issue [Frontier Technologies for the Utilization of Power Generation and Energy Sources](#))

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Open AccessArticle

Speed Optimization for Container Ship Fleet Deployment Considering Fuel Consumption

by

Chao-Feng Gao

and

Zhi-Hua Hu

Sustainability 2021, 13(9), 5242; <https://doi.org/10.3390/su13095242> - 07 May 2021

[Cited by 2](#) | Viewed by 656

Abstract

In recent years, low energy consumption has become the common choice of economic development in the world. In order to control energy consumption, shipping line speed optimization has become strategically important. to reduce fuel consumption, this study optimizes the container ship fleet deployment [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Transport Planning and Decision-making](#))

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Open Access **Article**

Unveiling Women’s Needs and Expectations as Users of Bike Sharing Services: The H2020 DIAMOND Project

by

Andrea Gorrini

,

Rawad Choubassi

,

Federico Messa

,

Wafaa Saleh

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Augustus Ababio-Donkor

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Maria Chiara Leva

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Lorraine D’Arcy

Francesco Fabbri

David Laniado

and

Pablo Aragón

Sustainability **2021**, 13(9), 5241; <https://doi.org/10.3390/su13095241> - 07 May 2021

[Cited by 3](#) | Viewed by 1324

Abstract

Within the objectives of the H2020 DIAMOND project, the paper investigates women's needs and expectations as users of the bike-sharing service managed by Syndicat Mixte Autolib et Velib Métropole in the territory of Paris Region-Petite Couronne (France). The paper presents a thematic literature [\[...\] Read more.](#)

(This article belongs to the Special Issue [Mobility for Sustainable Societies: Challenges and Opportunities](#))

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Open Access Article

Sustainable Development Goals Analysis with Ordered Weighted Average Operators

by

Betzabe Ruiz-Morales

Irma Cristina Espitia-Moreno

Victor G. Alfaro-Garcia

and

Ernesto Leon-Castro

Sustainability **2021**, 13(9), 5240; <https://doi.org/10.3390/su13095240> - 07 May 2021

[Cited by 3](#) | Viewed by 563

Abstract

The present research proposes a new method to analyze the sustainable development goals (SDGs) index using ordered weighted average (OWA) operators. To develop this method, five experts evaluated and designated the relative importance of each of the 17 SDGs defined by the United [\[...\] Read more.](#)

(This article belongs to the Special Issue [Computational Intelligence for Sustainable Development](#))

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Open Access Article

Assessing Climate Change and Land-Use Impacts on Drinking Water Resources in Karstic Catchments (Southern Croatia)

by

Matko Patekar

,

Ivona Baniček

,

Josip Rubinić

,

Jasmina Lukač Reberski

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Ivana Boljat

,

Ana Selak

,

Marina Filipović

and

Josip Terzić

Sustainability **2021**, *13*(9), 5239; <https://doi.org/10.3390/su13095239> - 07 May 2021

[Cited by 2](#) | Viewed by 745

Abstract

The Mediterranean freshwater resources, mostly represented by groundwater, are under increasing pressure due to natural and anthropogenic factors. In this study, we investigated possible negative effects of climate change and land-use practices on water quality and availability from five springs in the karstic [\[...\] Read more.](#)

(This article belongs to the Special Issue [Challenges in Environmental Geology and Hydrology](#))

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Open AccessArticle

The Impact of Tourism on Solid Waste Generation and Management Cost in Madeira Island for the Period 1996–2018

by

[António Miguel Martins](#)

and

[Susana Cró](#)

Sustainability **2021**, *13*(9), 5238; <https://doi.org/10.3390/su13095238> - 07 May 2021

[Cited by 2](#) | Viewed by 621

Abstract

The tourism sector in Madeira represents 26.6% of the regional GDP and 16.7% of employment in the region. However, the sector is a source of adverse environmental impacts. One of the environmental repercussions of tourism, regarded as an externality, is the generation of [\[...\] Read more.](#)

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Open AccessArticle

Strategic Pathways to Scale up Forest and Landscape Restoration: Insights from Nepal's Tarai

by

[Sushma Bhattarai](#)

,

[Basant Pant](#)

,

Hari Krishna Laudari

Rajesh Kumar Rai

and

Sharif A. Mukul

Sustainability 2021, 13(9), 5237; <https://doi.org/10.3390/su13095237> - 07 May 2021

[Cited by 2](#) | Viewed by 1618

Abstract

Deforestation and forest degradation mostly caused by human interventions affect the capacity of the forest ecosystem to provide ecosystem services and livelihood benefits. Forest and landscape restoration (FLR) is an emerging concept that focuses on the improvement of the ecosystem as well as [\[...\] Read more.](#)

(This article belongs to the Special Issue [Landscape Ecology and Sustainability—the Interface between Natural Landscape Values and Society](#))

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Open Access **Article**

Ecological Compensation Standard of a Water-Receiving Area in an Inter-Basin Water Diversion Based on Ecosystem Service Value and Public Willingness: A Case Study of Beijing

by

Zhuoyue Peng

Hao Wu

Maohua Ding

Min Li

[Xi Huang](#)

[Rui Zheng](#)

and

[Lin Xu](#)

Sustainability **2021**, 13(9), 5236; <https://doi.org/10.3390/su13095236> - 07 May 2021

[Cited by 2](#) | Viewed by 686

Abstract

Ecological compensation has recently gained significant attention as an economic incentive promoting natural resource management. However, there remain several challenges to its application. A key issue is the lack of a method clearly define the standard of ecological compensation. This study established an [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Water, Economic Management and Governance Issues](#))

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Open Access **Article**

The Impact of Employees' Perceptions of CSR on Career Satisfaction: Evidence from Saudi Arabia

by

[Basheer M. Al-Ghazali](#)

and

[M. Sadiq Sohail](#)

Sustainability **2021**, 13(9), 5235; <https://doi.org/10.3390/su13095235> - 07 May 2021

[Cited by 3](#) | Viewed by 984

Abstract

The purpose of this study is to examine the association between employees' CSR perceptions and their career satisfaction. Moreover, the mediating roles of organizational pride, organizational embeddedness, and psychological capital in the relationship between CSR perceptions and career satisfaction are also examined. Finally, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Impact of Eco-Innovation and Sustainable Product Development on Shaping Circular Economy](#))

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Open AccessArticle

A Framework for Assessing Commitment Indicators in Sustainable Development Decisions

by

Mustafa S. Al-Tekreeti

,

Salwa M. Beheiry

and

Vian Ahmed

Sustainability 2021, 13(9), 5234; <https://doi.org/10.3390/su13095234> - 07 May 2021

[Cited by 1](#) | Viewed by 752

Abstract

Numerous decision support systems have been developed to address the decision-making process in organizations. However, there are no developed mechanisms to track commitment down the line to the decisions made by corporate leaders. This paper is a portion of a study that establishes [\[...\] Read more.](#)

(This article belongs to the Special Issue [Advances on Building Performance and Sustainability](#))

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Open AccessArticle

Coeducation and Citizenship: A Study on Initial Teacher Training in Sexual Equality and Diversity

by

Davinia Heras-Sevilla

,

Delfín Ortega-Sánchez

and

Mariano Rubia-Avi

Sustainability **2021**, 13(9), 5233; <https://doi.org/10.3390/su13095233> - 07 May 2021

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Abstract

The present study makes an exhaustive review of the conditions and challenges faced by society to transform the school into a truly inclusive, coeducational, and democratic space. It proposes a theoretical model, of a bottom-up nature, to achieve gender equality in the school [\[...\] Read more.](#)

(This article belongs to the Special Issue [Social Sciences Education for Sustainable Development](#))

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Open Access **Review**

Striding towards Sustainability: A Framework to Overcome Challenges and Explore Opportunities through Industry 4.0

by

[José Salvador da Motta Reis](#)

,

[Maximilian Espuny](#)

,

[Thaís Vieira Nunes](#)

,

[Nilo Antonio de Souza Sampaio](#)

,

[Raine Isaksson](#)

,

[Fernando Celso de Campos](#)

and

[Otávio José de Oliveira](#)

[Cited by 5](#) | Viewed by 1253

Abstract

Sustainability 4.0 (S4.0) enables sustainable development through intelligent technologies to meet economic, environmental and social demands. The main objective of this article is to propose a framework for developing S4.0 in sectors of Triple Helix (TH) (Government, Organizations and Academy). The framework consists [\[...\] Read more.](#)

(This article belongs to the Special Issue [Fourth Revolution and Sustainability](#))

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Open Access Article

Effect of Dietary Inclusion of Alpha-Monolaurin on the Growth Performance, Lipid Peroxidation, and Immunity Response in Broilers

by

[Ahmed Ali Saleh](#)

,

[Bahaa El-Gharabawy](#)

,

[Aziza Hassan](#)

,

[Nemat Badawi](#)

,

[Yahya Eid](#)

,

[Shaimaa Selim](#)

,

[Mustafa Shukry](#)

and

Mahmoud Dawood

Sustainability **2021**, 13(9), 5231; <https://doi.org/10.3390/su13095231> - 07 May 2021

[Cited by 3](#) | Viewed by 1080

Abstract

As the world population increases, there will be an increase in demand for poultry meat. To satisfy this requirement, sustainably will be a significant challenge as different countries in the world face different health problems. Additionally, for decades, poultry nutritionists have worked on [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainable Livestock Production](#))

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Open AccessArticle

An Exploratory Study of Factors That Affect Psychological Well-Being of 4-Year College Freshmen in South Korea

by

Jiyoung Yoon

and

Eunjung Hur

Sustainability **2021**, 13(9), 5230; <https://doi.org/10.3390/su13095230> - 07 May 2021

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Abstract

The purpose of this study is to classify college freshmen based on the level of psychological states related to psychological well-being they experience, and to explore the factors influencing these psychological states. Group 1 had low levels of negative psychological states and high [\[...\] Read more.](#)

(This article belongs to the Special Issue [Selected Papers from Eurasian Conference on Educational Innovation 2021](#))

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Open AccessArticle

Analysis of River Water and Air Pollution—Pljevlja as a “Hot Spot” of Montenegro

by

[Miroslav Doderović](#)

,

[Dragan Burić](#)

,

[Ivan Mijanović](#)

and

[Marijan Premović](#)

Sustainability **2021**, *13*(9), 5229; <https://doi.org/10.3390/su13095229> - 07 May 2021

Viewed by 632

Abstract

The aim of the study was to gather information necessary for the examination of the river Čehotina water quality as well as the air pollution in the urban area of Pljevlja (far north of Montenegro), from 2011 until 2018. The water quality of [...] [Read more.](#)

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Open Access **Article**

Reactive UAV Fleet's Mission Planning in Highly Dynamic and Unpredictable Environments

by

[Grzegorz Radzki](#)

,

[Izabela Nielsen](#)

,

[Paulina Golińska-Dawson](#)

,

[Grzegorz Bocewicz](#)

and

Zbigniew Banaszak

Sustainability **2021**, 13(9), 5228; <https://doi.org/10.3390/su13095228> - 07 May 2021

[Cited by 1](#) | Viewed by 733

Abstract

Unmanned aerial vehicles (UAVs) create an interesting alternative for establishing more sustainable urban freight deliveries. The substitution of traditional trucks in the last-mile distribution by a UAV fleet can contribute to urban sustainability by reducing air pollution and increasing urban freight efficiency. This [\[...\] Read more.](#)

(This article belongs to the Special Issue [Maximizing the Potentials of Unmanned Aerial Vehicles \(UAVs\) in Sustainability](#))

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subject

Open AccessArticle

Priming on Sustainable Design Idea Creation and Evaluation

by

Ting Liao

and

Erin F. MacDonald

Sustainability **2021**, 13(9), 5227; <https://doi.org/10.3390/su13095227> - 07 May 2021

Viewed by 591

Abstract

Although three pillars of sustainable design—social desirability, economic competitiveness, and environmental friendliness—are all important, they are not necessarily equally accessible or salient during the design process. This paper applies a collage priming method to activate designers' mindsets regarding sustainability pillars prior to conceptual [\[...\] Read more.](#)

(This article belongs to the Special Issue [Design to Drive Behavior Change for Sustainability and Circular Economy](#))

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Open AccessArticle

Changing the Perception of Business Values in the Perspective of Environmental Sustainability

by

Mária Demjanovičová

and

Michal Varmus

Sustainability **2021**, 13(9), 5226; <https://doi.org/10.3390/su13095226> - 07 May 2021

[Cited by 2](#) | Viewed by 653

Abstract

This study provides an overview of practical approaches to sustainability and its communication to the public in the business sector. The research presented in this article is focused on perceived sustainability in micro and small enterprises in Slovakia through research of business models [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Marketing Management](#))

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Open Access **Article**

The Impact of Fintech on Poverty Reduction: Evidence from China

by

Isaac Appiah-Otoo

and

Na Song

Sustainability **2021**, 13(9), 5225; <https://doi.org/10.3390/su13095225> - 07 May 2021

[Cited by 7](#) | Viewed by 1677

Abstract

Ending poverty in all its forms by 2030 remains the first agenda of Sustainable Development Goals set by the United Nations in 2015. Motivated by this agenda, this study examined the direct and indirect effect of financial technology (fintech) and its sub-measures of [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open Access **Article**

Visual Characteristics of Drivers at Different Sections of an Urban Underpass Tunnel Entrance: An Experimental Study

by

Fangtong Jiao

,

Zhigang Du

,

Haoran Zheng

,

Shoushuo Wang

,

Lei Han

and

Can Chen

Sustainability 2021, 13(9), 5224; <https://doi.org/10.3390/su13095224> - 07 May 2021

[Cited by 1](#) | Viewed by 585

Abstract

The increase in the number of traffic accidents due to the increasing number of urban underpass tunnels necessitate a better investigation of drivers' visual characteristics when entering the tunnels. A total of 20 drivers were gathered to perform a real vehicle experiment in [\[...\] Read more.](#)

(This article belongs to the Special Issue [Accident Prevention and Risk Management for Safe and Sustainable Transportation](#))

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Open Access **Article**

Design of a Database of Case Studies and Technologies to Increase the Diffusion of Low-Temperature Waste Heat Recovery in the Industrial Sector

by

Miriam Benedetti

Daniele Dadi

Lorena Giordano

Vito Introna

Pasquale Eduardo Lapenna

and

Annalisa Santolamazza

Sustainability 2021, 13(9), 5223; <https://doi.org/10.3390/su13095223> - 07 May 2021

Viewed by 661

Abstract

The recovery of waste heat is a fundamental means of achieving the ambitious medium- and long-term targets set by European and international directives. Despite the large availability of waste heat, especially at low temperatures (<250 °C), the implementation rate of heat recovery interventions [\[...\] Read more.](#)

(This article belongs to the Special Issue [Industrial Energy Management and Sustainability](#))

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Open Access **Article**

Values Building in Social Work Education in Visegrad Countries: Integrated Approach

by

Kateřina Glumbíková

Jelena Petrucijová

Ewa Kantowicz

Izabela Kamińska-Jatczak

Miriam Slaná

Katarína Molnárová Letovancová

Boróka Féher

Réka Vályi

Małgorzata Ciczowska-Giedziun

and

Magdalena Zmysłowska

Sustainability 2021, 13(9), 5222; <https://doi.org/10.3390/su13095222> - 07 May 2021

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Abstract

Many key aspects of social work education are not sufficiently researched, and our knowledge of how students build values in social work education, despite its importance for creating concepts about values and their application in practice, is underexplored. The research aims to evaluate [...] [Read more.](#)

(This article belongs to the Section [Psychology of Sustainability and Sustainable Development](#))

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Open Access **Article**

What's the Name of the Game? The Impact of eHealth on Productive Interactions in Chronic Care Management

by

Carolina Wannheden

Ulrica von Thiele Schwarz

Claes-Göran Östenson

Karin Pukk Härenstam

and

Terese Stenfors

Sustainability **2021**, 13(9), 5221; <https://doi.org/10.3390/su13095221> - 07 May 2021

Viewed by 1011

Abstract

Chronic care management is dependent on productive interactions between patients and healthcare professionals. Digital health technologies (eHealth) open up new possibilities for improving the quality of care, but there is a limited understanding of what productive interactions entail. This study explores characteristics of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Digital Technology in Healthcare: Opportunities Offered by a Sustainable Relational Ecosystem](#))

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Open Access **Communication**

The Water–Energy–Food Nexus Discovery Map: Linking Geographic Information Systems, Academic Collaboration, and Large-Scale Data Visualization

by

Matthew Arenas

Pandara Valappil Femeena

and

Rachel A. Brennan

Sustainability 2021, 13(9), 5220; <https://doi.org/10.3390/su13095220> - 07 May 2021

Viewed by 694

Abstract

The Water–Energy–Food (WEF) Nexus framework for holistic sustainable development has spawned independent and academic communities around the globe that utilize the framework in research, implementation, policy development, and technological advancement. These communities, however, are geographically and topically segmented and lack large-scale databasing that [\[...\] Read more.](#)

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Open Access **Article**

Research into Individual Factors Affecting Safety within Airport Subsidiaries

by

Jin-Hwan Bae

and

Jin-Woo Park

Sustainability 2021, 13(9), 5219; <https://doi.org/10.3390/su13095219> - 07 May 2021

[Cited by 2](#) | Viewed by 571

Abstract

This study's purpose is to demonstrate that, from the point of view of employees in subsidiary companies, individual factors, notably attitude towards risk, cognitive bias, knowledge and experience, and risk perception, have generated unsafe behavior and unsafe conditions and have undermined safety performance [\[...\] Read more.](#)

(This article belongs to the Special Issue [Aviation Management and Air Transport Industry II](#))

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Open Access **Article**

Antecedents of Consumers' Purchase Intention towards Organic Food: Integration of Theory of Planned Behavior and Protection Motivation Theory

by

Suk Min Pang

Booi Chen Tan

and

Teck Chai Lau

Sustainability **2021**, 13(9), 5218; <https://doi.org/10.3390/su13095218> - 07 May 2021

[Cited by 9](#) | Viewed by 1401

Abstract

Before consequences of climate change continue to intensify and increasingly affect the entire planet, immediate action must be taken. For instance, adopt the pro-environmental behaviors such as purchase of organic food to minimize the harmful human-caused impacts to the environment. This paper aims [\[...\] Read more.](#)

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Open Access **Article**

Integrated Multidimensional Sustainability Assessment of Energy System Transformation Pathways

by

Tobias Naegler

Lisa Becker

Jens Buchgeister

Wolfgang Hauser

Heidi Hottenroth

Tobias Junne

,

Ulrike Lehr

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Oliver Scheel

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Ricarda Schmidt-Scheele

,

Sonja Simon

,

Claudia Sutardhio

,

Ingela Tietze

,

Philip Ulrich

,

Tobias Viere

and

Anke Weidlich

Sustainability **2021**, *13*(9), 5217; <https://doi.org/10.3390/su13095217> - 07 May 2021

Cited by 6 | Viewed by 1212

Abstract

Sustainable development embraces a broad spectrum of social, economic and ecological aspects. Thus, a sustainable transformation process of energy systems is inevitably multidimensional and needs to go beyond climate impact and cost considerations. An approach for an integrated and interdisciplinary sustainability assessment of [\[...\]](#)
[Read more.](#)

(This article belongs to the Special Issue [Analyzing Development Paths of Emerging Energy Technologies](#))

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Open AccessArticle

The Importance of Safety and Security Measures at Sharm El Sheikh Airport and Their Impact on Travel Decisions after Restarting Aviation during the COVID-19 Outbreak

by

[Thowayeb H. Hassan](#)

and

[Amany E. Salem](#)

Sustainability **2021**, *13*(9), 5216; <https://doi.org/10.3390/su13095216> - 07 May 2021

[Cited by 1](#) | Viewed by 1598

Abstract

Travel decisions during the COVID-19 pandemic might be substantially influenced by destination-based attributes, in particular, health safety measures at airports. In the current study, we aimed to assess the effects of the perceived importance of safety measures at the Sharm El Sheikh airport [\[...\] Read more.](#)

(This article belongs to the Special Issue [Post COVID-19: Sustainable Strategic Management and Consumer Behavior in the Hospitality/Tourism Industry](#))

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Open AccessArticle

Double Path Optimization of Transport of Industrial Hazardous Waste Based on Green Supply Chain Management

by

[Ziyuan Liu](#)

,

[Yingzhao Wu](#)

,

[Tianle Liu](#)

,

Xiaoxue Wang

Wenzhuo Li

Ying Yin

and

Xiangfei Xiao

Sustainability 2021, 13(9), 5215; <https://doi.org/10.3390/su13095215> - 07 May 2021

Cited by 3 | Viewed by 675

Abstract

With the deepening of the concepts of “sustainable development”, green supply chain management has gradually been attached great importance by the government and enterprises. Based on the green supply chain management method, this paper studies the path optimization of industrial hazardous waste treatment [\[...\] Read more.](#)

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Open Access **Article**

Integration of Theory of Planned Behavior, Sensation Seeking, and Risk Perception to Explain the Risky Driving Behavior of Truck Drivers

by

Zhenming Li

Siu Shing Man

Alan Hoi Shou Chan

and

Jianfang Zhu

Sustainability 2021, 13(9), 5214; <https://doi.org/10.3390/su13095214> - 07 May 2021

[Cited by 6](#) | Viewed by 928

Abstract

Truck-related accidents account for a substantial portion of traffic accidents. Risky driving behavior is a main cause of traffic accidents. Understanding the risky driving behavior of truck drivers is therefore important in reducing truck-related accidents. This study aimed to propose and validate a [\[...\] Read more.](#)

(This article belongs to the Special Issue [Driving Behavior and Road Safety](#))

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Open Access **Article**

Developing Hospital Emergency and Disaster Management Index Using TOPSIS Method

by

Mohammad Mojtahedi

,

Riza Yosia Sunindijo

,

Fatma Lestari

,

Suparni

and

Oktomi Wijaya

Sustainability **2021**, *13*(9), 5213; <https://doi.org/10.3390/su13095213> - 07 May 2021

[Cited by 4](#) | Viewed by 1064

Abstract

Indonesia is a country prone to experiencing natural hazards and disasters, which have frequently damaged public infrastructure, including hospitals. The role of hospitals is crucial to alleviate the impact of disasters. However, there is still a lack of study that analyzes the factors [\[...\] Read more.](#)

(This article belongs to the Special Issue [Disaster Risk Reduction and Resilient Built Environment](#))

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Open AccessArticle

Participatory Process for Regenerating Rural Areas through Heritage-Led Plans: The RURITAGE Community-Based Methodology

by

Claudia de Luca

,

Javier López-Murcia

,

Elisa Conticelli

,

Angela Santangelo

,

Michelle Perello

and

Simona Tondelli

Sustainability 2021, 13(9), 5212; <https://doi.org/10.3390/su13095212> - 07 May 2021

Cited by 3 | Viewed by 941

Abstract

Rural areas in Europe host more than 55% of the overall population and embed a unique and peculiar cultural and natural heritage. Nevertheless, they are facing common issues of disengagement, depopulation and economic and social crises. Rural communities are increasingly interested in setting [\[...\] Read more.](#)

(This article belongs to the Special Issue [A European Perspective on Cultural Heritage as a Driver for Sustainable Development and Regional Resilience](#))

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Open AccessArticle

Sustainable Development of Students' Learning Capabilities: The Case of University Students' Attitudes towards Teachers, Peers, and Themselves as Oral Feedback Sources in Learning English

by

Xiaoming Molly Wu

,

Helen R. Dixon

and

Lawrence Jun Zhang

Sustainability **2021**, 13(9), 5211; <https://doi.org/10.3390/su13095211> - 07 May 2021

Cited by 4 | Viewed by 1591

Abstract

In order to promote the sustainable development of students' learning capabilities, students are expected to take an active role in the feedback process. Ideally, students should not only actively interpret and act on the feedback received from their teachers, but they should also [\[...\] Read more.](#)

(This article belongs to the Special Issue [Towards Sustainable Language Learning and Teaching](#))

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Open Access **Article**

Tourists' Motivation, Place Attachment, Satisfaction and Support Behavior for Festivals in the Migrant Region of China

by

Yunyao Zhang

,

Keun-Soo Park

and

HakJun Song

Sustainability **2021**, 13(9), 5210; <https://doi.org/10.3390/su13095210> - 07 May 2021

Cited by 2 | Viewed by 732

Abstract

This study aimed to explore the relationships among tourist motivation, place attachment, satisfaction and support behavior for hosting festivals in the migrant region of China. A self-administered questionnaire was used to conduct an on-site survey and a second-order structural equation modeling (SEM) technique [\[...\] Read more.](#)

(This article belongs to the Collection [Intention and Tourism/Hospitality Development](#))

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Open AccessArticle

Energy Efficiency Measures in Bakeries toward Competitiveness and Sustainability—Case Studies in Quito, Ecuador

by

[Marco Briceño-León](#)

,

[Dennys Pazmiño-Quishpe](#)

,

[Jean-Michel Clairand](#)

and

[Guillermo Escrivá-Escrivá](#)

Sustainability **2021**, *13*(9), 5209; <https://doi.org/10.3390/su13095209> - 07 May 2021

Viewed by 995

Abstract

This paper evaluates the energy efficiency in the bakery industry toward competitiveness and sustainability through energy audits that were carried out on six bakeries located in Quito, Ecuador. Firstly, an initial meeting was held. After this, an energy survey was carried out in [\[...\] Read more.](#)

(This article belongs to the Special Issue [Energy Efficiency in Non-domestic Buildings: Policies, Designs, Methodologies and Technological Solutions](#))

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Open AccessArticle

Perceptions of Glacier Grafting: An Indigenous Technique of Water Conservation for Food Security in Gilgit-Baltistan, Pakistan

by

[Ramsha Munir](#)

,

[Umer Khayyam](#)

and

[Iftikhar Hussain Adil](#)

Sustainability **2021**, 13(9), 5208; <https://doi.org/10.3390/su13095208> - 07 May 2021

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Abstract

Climate change and disruption in the water cycle patterns are leading to water scarcity. This unsustainable water provision is drastically affecting the areas of limited water resources. This research has studied the impacts of climate change on water availability and the localized indigenous [\[...\] Read more.](#)

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Open Access **Article**

Contrasting Influences of Seasonal and Intra-Seasonal Hydroclimatic Variabilities on the Irrigated Rice Paddies of Northern Peninsular Malaysia for Weather Index Insurance Design

by

[Zed Zulkafli](#)

,

[Farrah Melissa Muharam](#)

,

[Nurfarhana Raffar](#)

,

[Amirparsa Jajarmizadeh](#)

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Mukhtar Jibril Abdi

Balqis Mohamed Rehan

and

Khairudin Nurulhuda

Sustainability **2021**, 13(9), 5207; <https://doi.org/10.3390/su13095207> - 07 May 2021

[Cited by 1](#) | Viewed by 860

Abstract

Good index selection is key to minimising basis risk in weather index insurance design. However, interannual, seasonal, and intra-seasonal hydroclimatic variabilities pose challenges in identifying robust proxies for crop losses. In this study, we systematically investigated 574 hydroclimatic indices for their relationships with [\[...\] Read more.](#)

(This article belongs to the Special Issue [Climate Risk Management for Resilient Agricultural Systems](#))

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Open Access **Article**

Experimental Study on the Effects of Aspect Ratio on the Wind Pressure Coefficient of Piloti Buildings

by

Jangyoul You

and

Changhee Lee

Sustainability **2021**, 13(9), 5206; <https://doi.org/10.3390/su13095206> - 06 May 2021

[Cited by 1](#) | Viewed by 623

Abstract

Owing to strong winds during the typhoon season, damage to pilotis in the form of dropout of the exterior materials occurs frequently. Pilotis placed at the end exhibit a large peak wind pressure coefficient of the ceiling. In this study, the experimental wind [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Engineering and Science](#))

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Open Access Article

Urban Rain Flood Ecosystem Design Planning and Feasibility Study for the Enrichment of Smart Cities

by

Yixin Zhou

,

Ashutosh Sharma

,

Mehedi Masud

,

Gurjot Singh Gaba

,

Gaurav Dhiman

,

Kayhan Zrar Ghafoor

and

Mohammed A. AlZain

Sustainability **2021**, *13*(9), 5205; <https://doi.org/10.3390/su13095205> - 06 May 2021

Cited by 7 | Viewed by 1118

Abstract

The urban flooding situations have arisen in the modern scenario of urbanization due to climatic changes. This work contributes to designing a planned and feasible urban rain flood ecosystem to promote the construction of a sponge city. It has various advantages of improving [\[...\] Read more.](#)

(This article belongs to the Special Issue [Next Generation Technologies for Building Sustainable Smart Cities](#))

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Open Access Article

Examining the Relationship between Income Inequality and Growth from the Perspective of EU Member States' Stage of Development

by

Ionuț Jianu

,

Marin Dinu

,

Dragoș Huru

and

Alexandru Bodislav

Sustainability **2021**, 13(9), 5204; <https://doi.org/10.3390/su13095204> - 06 May 2021

[Cited by 1](#) | Viewed by 864

Abstract

In this paper, we examined the relationship between income inequality and economic growth from the perspective of each country's level of development in the European Union, this linkage being reviewed using the median of GDP per capita expressed in the purchasing power standard [\[...\] Read more.](#)

(This article belongs to the Special Issue [Reduce Social Polarization, Inequality and Segregation](#))

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Open Access Article

Fostering Cultural Sustainability in Early Childhood Education through a Neighbourhood Project

by

Aihua Hu

and

Siv Ødemotland

Sustainability **2021**, 13(9), 5203; <https://doi.org/10.3390/su13095203> - 06 May 2021

[Cited by 1](#) | Viewed by 1018

Abstract

Culture is the life blood of a society, which influences people's worldviews, values, and behaviours. Research has confirmed that children's participation in culture helps develop thinking skills, builds self-esteem, and improves resilience. This paper aims to explore how a purposely designed project can [...] [Read more.](#)

(This article belongs to the Special Issue [Reimagining Early Childhood Education for Social Sustainability in a Future We Want](#))

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Open AccessArticle

Are There Differences and Complementarities between Senior and Young Entrepreneurs? An Intergenerational Perspective

by

[Adriana Perez-Encinas](#)

,

[Yolanda Bueno](#)

,

[Begoña Santos](#)

and

[Camila Nieto-Mejia](#)

Sustainability 2021, 13(9), 5202; <https://doi.org/10.3390/su13095202> - 06 May 2021

[Cited by 1](#) | Viewed by 749

Abstract

Social exclusion related to the unemployment of vulnerable population groups constitutes a crucial limitation to achieving a sustainable world. In particular, young and senior populations have specific characteristics that put them at risk of exclusion from the labor market. This circumstance has motivated [...] [Read more.](#)

(This article belongs to the Special Issue [Social Businesses and Social Entrepreneurship in the Face of Sustainable Development Challenges](#))

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Open AccessArticle

Modeling Energy Efficiency Performance and Cost-Benefit Analysis Achieving Net-Zero Energy Building Design: Case Studies of Three Representative Offices in Thailand

by

[Kittisak Lohwanitchai](#)

and

[Daranee Jareemit](#)

Sustainability **2021**, 13(9), 5201; <https://doi.org/10.3390/su13095201> - 06 May 2021

[Cited by 2](#) | Viewed by 1113

Abstract

The concept of a zero energy building is a significant sustainable strategy to reduce greenhouse gas emissions. The challenges of zero energy building (ZEB) achievement in Thailand are that the design approach to reach ZEB in office buildings is unclear and inconsistent. In [\[...\] Read more.](#)

(This article belongs to the Special Issue [Buildings and Sustainable Energy: Technologies, Policies, and Trends](#))

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Open AccessArticle

Sustainable Use of Waste Polypropylene Fibres to Enhance the Abrasion and Skid Resistance of Two-Stage Concrete

by

[Rayed Alyousef](#)

Sustainability **2021**, 13(9), 5200; <https://doi.org/10.3390/su13095200> - 06 May 2021

[Cited by 1](#) | Viewed by 545

Abstract

Two-stage concrete (TSC), also known as prepacked aggregate concrete (PAC), differs from traditional concrete in terms of site application and manufacturing process. Although this type of concrete is not a replacement for conventional concrete applications, it is an ideal option for unusual and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Towards Advanced Sustainable Recycled Materials and Technology](#))

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Open AccessArticle

Does Geopolitics Have an Impact on Energy Trade? Empirical Research on Emerging Countries

by

[Fen Li](#)

,

[Cunyi Yang](#)

,

[Zhenghui Li](#)

and

[Pierre Failler](#)

Sustainability **2021**, 13(9), 5199; <https://doi.org/10.3390/su13095199> - 06 May 2021

[Cited by 11](#) | Viewed by 1663

Abstract

The energy trade is an important pillar of each country's development, making up for the imbalance in the production and consumption of fossil fuels. Geopolitical risks affect the energy trade of various countries to a certain extent, but the causes of geopolitical risks [\[...\] Read more.](#)

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Open Access **Essay**

Conserving the Paraguay-Paraná Fluvial Corridor in the XXI Century: Conflicts, Threats, and Challenges

by

[Claudio Rafael Mariano Baigún](#)

and

[Priscilla Gail Minotti](#)

Sustainability **2021**, 13(9), 5198; <https://doi.org/10.3390/su13095198> - 06 May 2021

[Cited by 2](#) | Viewed by 768

Abstract

The Paraguay-Paraná river system represents a unique, free-flowing corridor that extends about 3500 km southwards from the Pantanal to the Rio de la Plata estuary, crossing four countries. The absence of fragmentation along the main channels and its still well-connected floodplains have preserved [\[...\] Read more.](#)

(This article belongs to the Special Issue [Durable Protections for Free-Flowing Rivers](#))

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Open AccessArticle

Analysis on the Influencing Factors of Farmers' Cognition on the Function of Agricultural Water Price—Taking Hexi Corridor as an Example

by

[Wei Qu](#)

,

[Jing Yan](#)

,

[Yanmei Tan](#)

and

[Qin Tu](#)

Sustainability **2021**, *13*(9), 5197; <https://doi.org/10.3390/su13095197> - 06 May 2021

Viewed by 605

Abstract

Analyzing the farmer's behavior and the water-saving incentive mechanism is of great significance to the implementation of the explicit subsidy policy of agricultural water prices. This paper introduces the concept of loss aversion from behavioral economics and conducts a theoretical analysis of the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Planning and Management of Water Resources in Agriculture](#))

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Open AccessArticle

Influence of Acidified Biochar on CO₂-C Efflux and Micronutrient Availability in an Alkaline Sandy Soil

by

[Mutair A. Akanji](#)

,

Adel R. A. Usman

and

Mohammad I. Al-Wabel

Sustainability **2021**, *13*(9), 5196; <https://doi.org/10.3390/su13095196> - 06 May 2021

Viewed by 562

Abstract

Biochar, an alkaline carbonaceous substance resulting from the thermal pyrolysis of biomass, reportedly enhances the micronutrient availability in acidic soils with little or no effect on alkaline soils. In this study, biochars were produced from poultry manure (PM) at 350 °C and 550 [\[...\]](#) [Read more.](#)

(This article belongs to the Special Issue [Biochar Stability and Long-Term Carbon Storage](#))

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Open Access **Correction**

Correction: Dillman et al. Review and Meta-Analysis of EVs: Embodied Emissions and Environmental Breakeven. *Sustainability* 2020, 12, 9390

by

Kevin Joseph Dillman

,

Áróra Árnadóttir

,

Jukka Heinonen

,

Michał Czepkiewicz

and

Brynhildur Davíðsdóttir

Sustainability **2021**, *13*(9), 5195; <https://doi.org/10.3390/su13095195> - 06 May 2021

Viewed by 707

Abstract

The authors would like to make the following corrections about the published paper [...] [Full article](#)

(This article belongs to the Special Issue [Transport Systems for Sustainability: Policy, Planning and Exploitation](#))

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Open AccessArticle

Attitudes, Perceptions, and On-Farm Self-Reported Practices of Shrimp Farmers' towards Adoption of Good Aquaculture Practices (GAP) in Thailand

by

[Chitrlada Booncharoen](#)

and

[Anil Kumar Anal](#)

Sustainability **2021**, *13*(9), 5194; <https://doi.org/10.3390/su13095194> - 06 May 2021

Viewed by 687

Abstract

The purpose of this research is to evaluate the perceptions and attitudes relating to Good Aquaculture Practices (GAP) in compliance held by a subgroup of Thai GAP certified shrimp farmers based on a structured questionnaire and in-depth interviews. Different levels of farmers' experiences [...] [Read more.](#)

(This article belongs to the Section [Sustainable Agriculture](#))

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Open AccessArticle

Growing the Beautiful Anthropocene: Ethics of Care in East European Food Gardens

by

[Lucie Sovová](#)

,

[Petr Jehlička](#)

and

Petr Daněk

Sustainability 2021, 13(9), 5193; <https://doi.org/10.3390/su13095193> - 06 May 2021

[Cited by 3](#) | Viewed by 1227

Abstract

This study contributes to research proposing the ethics of care framework as a way of imagining a food system that cares for Others. We expand this exploration to the everyday practice of home gardening and the related social relationships and material flows. This [\[...\] Read more.](#)

(This article belongs to the Special Issue [Geographies of Responsibility for Just and Sustainable Food Systems](#))

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Open Access **Article**

Upshots of Intrinsic Traits on Social Entrepreneurship Intentions among Young Business Graduates: An Investigation through Moderated-Mediation Model

by

Hameed Asghar Sana

,

Salem Alkhalaf

,

Salman Zulfiqar

,

Waleed Mugahed Al-Rahmi

,

Ahmad Samed Al-Adwan

and

Anas Ratib AlSoud

Sustainability 2021, 13(9), 5192; <https://doi.org/10.3390/su13095192> - 06 May 2021

[Cited by 4](#) | Viewed by 962

Abstract

Social entrepreneurship has recently become a much-desired area of research for academia, practices, and policymaking. Natural or cognitive personal thoughtfulness like loving-kindness meditation (LKM) and compassion trigger individual intentions towards the social entrepreneurial venture. In this process of individual social entrepreneurial intention personality [\[...\] Read more.](#)

(This article belongs to the Special Issue [Social Businesses and Social Entrepreneurship in the Face of Sustainable Development Challenges](#))

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Open AccessArticle

Climate Change Impact and Variability on Cereal Productivity among Smallholder Farmers under Future Production Systems in West Africa

by

[Dilys S. MacCarthy](#)

,

[Myriam Adam](#)

,

[Bright S. Freduah](#)

,

[Benedicta Yayra Fosu-Mensah](#)

,

[Peter A. Y. Ampim](#)

,

[Mouhamed Ly](#)

,

[Pierre S. Traore](#)

and

Samuel G. K. Adiku

Sustainability **2021**, 13(9), 5191; <https://doi.org/10.3390/su13095191> - 06 May 2021

[Cited by 2](#) | Viewed by 809

Abstract

Agriculture in West Africa is constrained by several yield-limiting factors, such as poor soil fertility, erratic rainfall distributions and low input systems. Projected changes in climate, thus, pose a threat since crop production is mainly rain-fed. The impact of climate change and its [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability and Production of Cropping Systems](#))

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[Open Access Article](#)

Local Communities' Willingness to Accept Compensation for Sustainable Ecosystem Management in Wadi Araba, South of Jordan

by

[Amani Al-Assaf](#)

,

[Abeer Albalawneh](#)

,

[Mohammad Majdalawi](#)

,

[Lana Abu Nowar](#)

,

[Rabab Kabariti](#)

,

[Amgad Hjazin](#)

,

[Safaa Aljaafreh](#)

Wafa'a Abu Hammour

Mai Diab

and

Nizar Haddad

Sustainability **2021**, 13(9), 5190; <https://doi.org/10.3390/su13095190> - 06 May 2021

Viewed by 812

Abstract

In developing countries, like Jordan, climate change and population growth have prompted land-use and land-cover changes that have profoundly affected ESs, especially by poor people living in fragile ecosystems. This study aimed to analyze the attitudes towards ES among households living in Wadi [\[...\] Read more.](#)

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Open Access Article

Determinants of Learning Management Systems during COVID-19 Pandemic for Sustainable Education

by

Nadire Cavus

Yakubu Bala Mohammed

and

Mohammed Nasiru Yakubu

Sustainability **2021**, 13(9), 5189; <https://doi.org/10.3390/su13095189> - 06 May 2021

[Cited by 7](#) | Viewed by 1830

Abstract

Research has shown that effective and efficient learning management systems (LMS) were the main reasons for sustainable education in developed nations during COVID-19 pandemic. However, due to slow take-up of LMS many schools in developing countries, especially Africa were completely shut down due [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Education and Approaches](#))

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Open Access **Review**

The Role of 5G Technologies in a Smart City: The Case for Intelligent Transportation System

by

[Ali Gohar](#)

and

[Gianfranco Nencioni](#)

Sustainability **2021**, *13*(9), 5188; <https://doi.org/10.3390/su13095188> - 06 May 2021

[Cited by 12](#) | Viewed by 2562

Abstract

A smart city is an urban area that collects data using various electronic methods and sensors. Smart cities rely on Information and Communication Technologies (ICT) and aim to improve the quality of services by managing public resources and focusing on comfort, maintenance, and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Vehicular Networks and Sustainability](#))

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Open Access **Article**

Postharvest Losses of Pomegranate Fruit at the Packhouse and Implications for Sustainability Indicators

by

[Ikechukwu Kingsley Opara](#)

,

[Olaniyi Amos Fawole](#)

and

[Umezuruike Linus Opara](#)

[Cited by 11](#) | Viewed by 929

Abstract

Pomegranate fruit, like other types of fresh horticultural produce, are susceptible to high incidence preharvest and postharvest losses and waste. Several studies have been done to improve the production and handling of pomegranate fruit to meet market standards, but little has been done [\[...\] Read more.](#)

(This article belongs to the Special Issue [Agricultural and Food Systems Sustainability: The Complex Challenge of Losses and Waste](#))

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Open Access **Article**

Impacts of COVID-19 on Agricultural Production Branches: An Investigation of Anxiety Disorders among Farmers

by

Celal Cevher

,

Bulent Altunkaynak

and

Meltem Gürü

[Cited by 3](#) | Viewed by 1221

Abstract

The aim of our study was to determine the level of anxiety among farmers in different agricultural branches in Turkey during the COVID-19 outbreak and to examine its association with socioeconomic concerns and social support variables. Based on a survey of 2125 Turkish [\[...\] Read more.](#)

(This article belongs to the Special Issue [Human, Cultural, Social, Political and Environmental Dimensions for a New Vision of the Sustainable Agro-Food System Post COVID-19](#))

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Open Access **Article**

Examining the Impact of E-Commerce Growth on the Spatial Distribution of Fashion and Beauty Stores in Seoul

by

Sohyun Park

and

Keumsook Lee

Sustainability **2021**, 13(9), 5185; <https://doi.org/10.3390/su13095185> - 06 May 2021

[Cited by 3](#) | Viewed by 1280

Abstract

E-commerce has dramatically expanded its sales, with people being increasingly accustomed to online shopping. This study aimed to examine changes in the distribution of retail stores that provide fashion and beauty products and services in terms of the number of online shopping transactions [\[...\] Read more.](#)

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Open Access **Article**

Enabling Factors for Better Multiplier Effects of the LEADER Programme: Lessons from Romania

by

Alexandru Olar

and

Mugurel I. Jitea

Sustainability **2021**, 13(9), 5184; <https://doi.org/10.3390/su13095184> - 06 May 2021

[Cited by 3](#) | Viewed by 712

Abstract

LEADER is an EU development method that aims to stimulate local actors to cooperate and co-produce ideas and projects that otherwise would not be possible. Therefore, the Local Action Groups (LAGs) should not only focus on implementing the Local Development Strategies but also [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Rural Development and Land Use Planning](#))

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Open Access Article

Identifying Unwanted Conditions through Chaotic Area Determination in the Context of Indonesia's Economic Resilience at the City Level

by

Yuyun Hidayat

,

Titi Purwandari

,

Subiyanto

and

Sukono

Sustainability 2021, 13(9), 5183; <https://doi.org/10.3390/su13095183> - 06 May 2021

[Cited by 1](#) | Viewed by 583

Abstract

The purpose of this research is to determine the unwanted condition as a strategic criterion in measuring the economic resilience of a city. A new approach in determining economic resilience was developed to overcome the weaknesses of the index method commonly used internationally. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Technologies for Sustainability in Smart Cities](#))

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Open Access Article

Sustainable Development of Foodservices under Uncertainty

by

Sohrab Abdollahzadeh

Sustainability 2021, 13(9), 5182; <https://doi.org/10.3390/su13095182> - 06 May 2021

Viewed by 474

Abstract

The purpose of the present study is to provide an approach to identify and investigate the effects of each factor on the development of foodservices in cities. The factors influencing the development of foodservices are extracted. Since there are many factors, interpretive structural [\[...\] Read more.](#)

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Open AccessArticle

Cultural Tourism in Nitra, Slovakia: Overview of Current and Future Trends

by

Alfred Krogmann

,

Peter Ivanič

,

Hilda Kramáreková

,

Lucia Petrikovičová

,

František Petrovič

and

Henrich Grežo

Sustainability **2021**, *13*(9), 5181; <https://doi.org/10.3390/su13095181> - 06 May 2021

[Cited by 4](#) | Viewed by 1181

Abstract

Cultural tourism has undergone fundamental changes in several countries of post-socialist Europe. In Slovakia, this fact concerns, for example, localities with a strong connection to the church and its cultural heritage. These monuments belong to the foundations of cultural tourism, yet the state [\[...\] Read more.](#)

(This article belongs to the Special Issue [A European Perspective on Cultural Heritage as a Driver for Sustainable Development and Regional Resilience](#))

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Open AccessArticle

Communities of Innovation for Climate Change Adaptation and Disaster Risk Reduction: Niche Creation and Anticipation

by

Elena López-Gunn

,

Julian Swinkels

,

Gerardo Anzaldúa

,

Manuel Bea

,

Maria Conceição Colaço

,

Mãra Deksne

,

Nensi Lalaj

,

Hugh McDonald

and

Marta Rica

Sustainability 2021, 13(9), 5180; <https://doi.org/10.3390/su13095180> - 06 May 2021

Viewed by 815

Abstract

This paper presents the concept of communities of innovation for climate change adaptation and disaster risk reduction. The paper discusses the added value of these types of communities to help address uncertain futures from the impact of climate change, which are highly context [\[...\] Read more.](#)

(This article belongs to the Special Issue [Nature Based Solutions to Support Climate Change Adaptation and Sustainable Development](#))

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Open AccessArticle

Drivers and Barriers Leading to a Successful Paradigm Shift toward Regenerative Neighborhoods

by

Edeltraud Haselsteiner

,

Blerta Vula Rizvanolli

,

Paola Villoria Sáez

and

Odysseas Kontovourkis

Sustainability **2021**, *13*(9), 5179; <https://doi.org/10.3390/su13095179> - 06 May 2021

[Cited by 3](#) | Viewed by 906

Abstract

Regenerative sustainability is gaining great attention as an essential concept for a transformative process, a re-designed mindset shifting from the narrowed focus of considering particular aspects such as energy efficiency, renewable materials, or sustainable technology towards the creation of a self-regenerating social and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Regenerative Buildings and Beyond: Scale Jumping Sustainable and Net-Zero Designs to Regenerative Neighbourhoods, Districts, Communities, and Cities](#))

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Open AccessArticle

Effects of Fire on the Organic and Chemical Properties of Soil in a *Pinus halepensis* Mill. Forest in Rocallaura, NE Spain

by

Miquel Àngel Xifré-Salvadó

Núria Prat-Guitart

Marcos Francos

Xavier Úbeda

and

Marc Castellnou

Sustainability **2021**, *13*(9), 5178; <https://doi.org/10.3390/su13095178> - 06 May 2021

Viewed by 737

Abstract

The present study was conducted following a fire that took place in Rocallaura (NE Iberian Peninsula) in 23 June 2016 with the aim of analyzing the chemical properties of soil in burnt and unburnt areas in order to determine the short-term effects of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Post Wildfire Management: Erosion and Land Degradation Control, Soil Restoration, and Vegetation Cover Recovery](#))

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Open Access **Article**

A Methodology to Study the University's Online Teaching Activity from Virtual Platform Indicators: The Effect of the Covid-19 Pandemic at Universitat Politècnica de Catalunya

by

Joana Prat

Ariadna Llorens

Francesc Salvador

,

Marc Alier

and

Daniel Amo

Sustainability **2021**, 13(9), 5177; <https://doi.org/10.3390/su13095177> - 06 May 2021

Cited by 3 | Viewed by 859

Abstract

The Covid-19 pandemic led Catalan universities to do all teaching and evaluation online from 11 March 2020 until the end of term on 30 July. Conventional universities made the transition to online teaching in just a few days and suddenly virtual platforms become [\[...\] Read more.](#)

(This article belongs to the Special Issue [Information Systems, E-learning and Knowledge Management](#))

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Open Access **Article**

Linking Agricultural Index Insurance with Factors That Influence Maize Yield in Rain-Fed Smallholder Farming Systems

by

Wonga Masiza

,

Johannes George Chirima

,

Hamisai Hamandawana

,

Ahmed Mukalazi Kalumba

and

Hezekiel Bheki Magagula

[Cited by 2](#) | Viewed by 818

Abstract

Weather extremes pose substantial threats to food security in areas where the main source of livelihood is rain-fed crop production. In most of these areas, agricultural index insurance (AI) is recognized as being capable of securitizing food production by providing safety nets against [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Agriculture](#))

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Open Access Article

Effects of the Curing Conditions on the Carbonation Curing Efficiency of Ordinary Portland Cement and a Belite-Rich Cement Mortar

by

[Hyeju Kim](#)

,

[Junjie Pei](#)

,

[Salman Siddique](#)

and

[Jeong-Gook Jang](#)

[Cited by 1](#) | Viewed by 706

Abstract

In the present study, the efficiency of five different carbonation and/or water curing conditions on the properties of belite-rich cement mortar and ordinary Portland cement mortar was investigated. The hybrid curing of samples was carried out by submerging samples at different levels in [\[...\] Read more.](#)

(This article belongs to the Special Issue [Low CO₂ Concrete](#))

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Open Access Article

The Brand Sustainability Obstacle: Viewpoint Incompatibility and Consumer Boycott

by

Chih-Chien Wang

,

Shu-Chen Chang

and

Pei-Ying Chen

Sustainability **2021**, 13(9), 5174; <https://doi.org/10.3390/su13095174> - 06 May 2021

Cited by 2 | Viewed by 844

Abstract

Brand equity is critical for brand sustainability. Companies participate in social issues to maintain brand equity by making the brand easily recognizable, superior in quality, and favored and affirmed by consumers. However, the ideological incompatibility between a brand and consumers may induce the [\[...\] Read more.](#)

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Open Access **Article**

Modeling the Fourth Dimension of Architectural Heritage: Enabling Processes for a Sustainable Conservation

by

Raissa Mammoli

,

Chiara Mariotti

and

Ramona Quattrini

Sustainability **2021**, 13(9), 5173; <https://doi.org/10.3390/su13095173> - 06 May 2021

Cited by 1 | Viewed by 634

Abstract

This study focuses on modeling the fourth dimension of historic architectures with an HBIM approach and special regard to stratigraphic analysis. The goal is to push the limits of current technology to understand the history of buildings, with impacts on protecting their authenticity; [\[...\] Read more.](#)

(This article belongs to the Special Issue [Affirming Authenticity: Sustainable Conservation of Cultural Heritage](#))

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Open AccessArticle

The Digitalization of Agriculture and Rural Areas: Towards a Taxonomy of the Impacts

by

[Silvia Rolandi](#)

,

[Gianluca Brunori](#)

,

[Manlio Bacco](#)

and

[Ivano Scotti](#)

Sustainability **2021**, *13*(9), 5172; <https://doi.org/10.3390/su13095172> - 06 May 2021

[Cited by 7](#) | Viewed by 1974

Abstract

The literature about digitalization in agriculture and rural areas is vast and sectorial at the same time. Both international political institutions and practitioners are interested in promoting digital technology, indicating and describing potential benefits and risks. Meanwhile, academics analyze the actual and possible [\[...\] Read more.](#)

(This article belongs to the Collection [Smart Farming and Sustainability](#))

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Open AccessArticle

Compulsory Education Teachers' Perceptions of Resources, Extracurricular Activities and Inclusive Pedagogical Training in Spain

by

[Juan José Leiva-Olivencia](#)

,

[Maria Carmen López-Berlanga](#)

,

[Antonio Miñán Espigares](#)

and

[Francisco Villegas Lirola](#)

Sustainability **2021**, *13*(9), 5171; <https://doi.org/10.3390/su13095171> - 06 May 2021

Viewed by 784

Abstract

Inclusive education is an issue of great interest and social and pedagogical significance in the quality of the education system. Its impact on the context, reality and training of teachers is a decisive impulse to build an open mind in relation to diversity [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Education: The Educational Response to Students with Disabilities](#))

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Open Access **Article**

A Comparison of Carbon Dioxide Emissions between Battery Electric Buses and Conventional Diesel Buses

by

[Feng Mao](#)

,

[Zhiheng Li](#)

and

[Kai Zhang](#)

Sustainability **2021**, *13*(9), 5170; <https://doi.org/10.3390/su13095170> - 06 May 2021

[Cited by 4](#) | Viewed by 732

Abstract

To prove the important role of battery electric buses (BEBs) in reducing carbon dioxide (CO) emissions, we propose a framework to compare CO emissions between BEBs and conventional diesel buses (CDBs) based on low sampling frequency BEBs data at the [\[...\] Read more.](#)

(This article belongs to the Section [Environmental Sustainability and Applications](#))

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Open Access **Review**

How Ready Is Higher Education for Quality 4.0 Transformation according to the LNS Research Framework?

by

[Bandar Alzahrani](#)

,

[Haitham Bahaiham](#)

,

[Murad Andejany](#)

and

[Ahmad Elshennawy](#)

Sustainability **2021**, *13*(9), 5169; <https://doi.org/10.3390/su13095169> - 06 May 2021

[Cited by 9](#) | Viewed by 1267

Abstract

The world is evolving, and it has transformed from the industrial age to the era of connected and intelligent products in both organizations and competition. The advances in technology in the last decade have led to the introduction of a new term called [\[...\] Read more.](#)

(This article belongs to the Topic [Industrial Engineering and Management](#))

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Open Access **Article**

Quantification of On-Farm Pomegranate Fruit Postharvest Losses and Waste, and Implications on Sustainability Indicators: South African Case Study

by

[Ikechukwu Kingsley Opara](#)

,

[Olaniyi Amos Fawole](#)

,

[Candice Kelly](#)

and

[Umezuruike Linus Opara](#)

Sustainability **2021**, 13(9), 5168; <https://doi.org/10.3390/su13095168> - 06 May 2021

[Cited by 7](#) | Viewed by 1089

Abstract

While there is a growing body of scientific knowledge on improved techniques and procedures for the production and handling of quality pomegranate fruit to meet market demand, little is known about the magnitude of losses that occur at the farm and post-farmgate. This [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability and Food Waste: Firm Strategies and Consumer Behaviour](#))

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Open Access **Article**

Evaluation of the Sustainable Coupling Coordination of the Logistics Industry and the Manufacturing Industry in the Yangtze River Economic Belt

by

[Ying Gong](#)

,

[Xiao-Qiong Yang](#)

,

[Chun-Yan Ran](#)

,

Victor Shi

and

Yu-Feng Zhou

Sustainability **2021**, *13*(9), 5167; <https://doi.org/10.3390/su13095167> - 05 May 2021

Cited by 3 | Viewed by 743

Abstract

In order to promote the sustainable and coordinated development of the logistics industry and the manufacturing industry in the Yangtze River Economic Belt of China and provide the policy makers with decision-making references, this paper explored the spatio-temporal evolution of the coupling coordination [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Logistics and Supply Chain Management in the Aspect of Globalization](#))

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Open Access **Article**

A Systematic Framework for State of Charge, State of Health and State of Power Co-Estimation of Lithium-Ion Battery in Electric Vehicles

by

Tao Zhang

,

Ningyuan Guo

,

Xiaoxia Sun

,

Jie Fan

,

Naifeng Yang

,

Junjie Song

and

Yuan Zou

Sustainability **2021**, 13(9), 5166; <https://doi.org/10.3390/su13095166> - 05 May 2021

Cited by 5 | Viewed by 710

Abstract

Due to its advantages of high voltage level, high specific energy, low self-discharging rate and relatively longer cycling life, the lithium-ion battery has been widely used in electric vehicles. To ensure safety and reduce degradation during the lithium-ion battery's service life, precise estimation [\[...\] Read more.](#)

(This article belongs to the Special Issue [Energy Efficiency of Electric Vehicles with Multiple Motors](#))

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Open Access **Article**

How Urban Planning Impacts Latino Vendor Markets

by

Edna Ledesma

Sustainability **2021**, 13(9), 5165; <https://doi.org/10.3390/su13095165> - 05 May 2021

Cited by 1 | Viewed by 621

Abstract

Flea markets and swap meets, classified here as Latino vendor markets (LVM), operate as social support systems for their communities. LVM are hubs of economic opportunity for business owners, yet they currently lack support from the field of urban planning. This paper explores [\[...\] Read more.](#)

(This article belongs to the Special Issue [Public Marketplaces Promoting Resilience and Sustainability](#))

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Open Access **Article**

A Novel Service Provision Mode for Sustainable Development of the Telecom Industry

by

Xueyan Wang

Hong Wu

and

Lu Lu

Sustainability 2021, 13(9), 5164; <https://doi.org/10.3390/su13095164> - 05 May 2021

Viewed by 710

Abstract

The deepening integration of telecommunication technology into other industries has giving birth to a variety of new applications, such as self-driving, telemedicine, and intelligent manufacturing. Whether the telecom service is traditional or new, users put forward personalized and multidimensional requirements for performance, which [\[...\]](#) [Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open AccessArticle

Understanding the Spread of COVID-19 in China: Spatial–Temporal Characteristics, Risk Analysis and the Impact of the Quarantine of Hubei Province on the Railway Transportation Network

by

Fang Wang

and

Fangqu Niu

Sustainability 2021, 13(9), 5163; <https://doi.org/10.3390/su13095163> - 05 May 2021

[Cited by 2](#) | Viewed by 764

Abstract

The rapid spread of COVID-19 and its global growth constitutes an international public-health emergency, posing a serious threat to global health, safety, and social economy. In this paper, we systematically studied the temporal and spatial characteristics of COVID-19, infectivity, and the impact of [\[...\]](#) [Read more.](#)

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Open Access Article

Automated Valuation Modelling: Analysing Mortgage Behavioural Life Profile Models Using Machine Learning Techniques

by

Ionuț Nica

,

Daniela Blană Alexandru

,

Simona Liliana Paramon Crăciunescu

and

Ștefan Ionescu

Sustainability 2021, 13(9), 5162; <https://doi.org/10.3390/su13095162> - 05 May 2021

Cited by 1 | Viewed by 966

Abstract

The main purpose of this research is to study the predictive power of behavioural life profile models for mortgages using machine learning techniques and emerging languages from the same data sets. Based on the results, banks can determine whether the predictive power of [...] [Read more.](#)

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Open Access Article

Influence of Non-Lignocellulosic Elements on the Combustion of Treated Wood and Wooden Panel

by

João Otávio Poletto Tomeleri

,

Luciano Donizeti Varanda

,

Leonardo Machado Pitombo

Fabio Minoru Yamaji

and

Franciane Andrade de Pádua

Sustainability **2021**, 13(9), 5161; <https://doi.org/10.3390/su13095161> - 05 May 2021

Viewed by 609

Abstract

Brazil stands out internationally in the production and commercialization of wood products. Although the external and internal demand for these products is met by the Brazilian forestry sector, challenges related to the internal management of lignocellulosic waste are evident, as the country has [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Development of Wood Chemistry](#))

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Open Access Article

Sustainability Concepts in Nordic Business Research: A Critical Perspective

by

Svein Gunnar Kjøde

Maja van der Velden

and

Mahsa Motevallian

Sustainability **2021**, 13(9), 5160; <https://doi.org/10.3390/su13095160> - 05 May 2021

Viewed by 746

Abstract

Current sustainability challenges force companies to radically rethink their operations to account for their business models' long-term ecological and social impact. Scholarly works on the topic reveal no solid consensus in defining sustainability for businesses, echoing the sustainability discourse in general. Such lack [\[...\] Read more.](#)

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Open AccessArticle

Management Influence on the Quality of an Agricultural Soil Destined for Forage Production and Evaluated by Physico-Chemical and Biological Indicators

by

Silvia Baizán

,

Fernando Vicente

and

Adela Martínez-Fernández

Sustainability **2021**, *13*(9), 5159; <https://doi.org/10.3390/su13095159> - 05 May 2021

Cited by 3 | Viewed by 635

Abstract

The European Common Agricultural Policy promotes the sustainable use of soils through the principle of cross-compliance that links direct payments to good farming practices. Thus, it is necessary to find sustainable alternatives to the conventional management for forage production in the Atlantic Arc [\[...\] Read more.](#)

(This article belongs to the Special Issue [Environmental Impact Assessment of Sustainable Agriculture: Enhancing Soil Fertility and Crop Production](#))

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Open AccessArticle

Social Life Cycle Assessment Used in Indigenous Contexts: A Critical Analysis

by

Kristina Sehlin MacNeil

,

Sheelagh Daniels-Mayes

,

Skye Akbar

,

Jillian Marsh

,

Jenny Wik-Karlsson

and

Åsa Össbo

Sustainability 2021, 13(9), 5158; <https://doi.org/10.3390/su13095158> - 05 May 2021

Viewed by 936

Abstract

This paper evaluates the method Social Life Cycle Assessment (S-LCA) from the perspectives of Indigenous methodologies and Indigenous standpoint, in order to identify some strengths and limitations of using S-LCA in Indigenous contexts. Life Cycle Assessment (LCA) is used to measure environmental impacts [\[...\] Read more.](#)

(This article belongs to the Special Issue [Understanding Arctic Sustainability Challenges from Systems Perspective](#))

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Open Access **Article**

Computer-Assisted Concept Analysis of Customer Centricity: A Review of the Literature on Employee Engagement, Culture, Leadership, and Identity Co-Creation

by

Elanor Colleoni

,

Flavia Bonaiuto

,

Laura Illia

and

Marino Bonaiuto

Sustainability 2021, 13(9), 5157; <https://doi.org/10.3390/su13095157> - 05 May 2021

Viewed by 821

Abstract

Customer centricity requires having customers at the core of the corporate organizational process. Yet, relationship marketing scholarships have not developed a clear understanding of how corporate culture, leadership, and identity may allow the establishment of customer centricity within the organization. To this aim, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Customer Relationship Management—Strategies and Business Implications](#))

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Open Access **Review**

The Impact of Social Norms on Pro-Environmental Behavior: A Systematic Literature Review of The Role of Culture and Self-Construal

by

[Selma Saracevic](#)

and

[Bodo B. Schlegelmilch](#)

Sustainability **2021**, *13*(9), 5156; <https://doi.org/10.3390/su13095156> - 05 May 2021

[Cited by 3](#) | Viewed by 1453

Abstract

This paper documents state-of-the-art research on the impact of social norms on pro-environmental consumer behavior. Our aim was to identify possible research gaps, in particular in terms of the moderating role of culture and self-construal, and to suggest potentially fruitful research avenues. To [\[...\] Read more.](#)

(This article belongs to the Special Issue [Pro-environmental Behavior – Social and Cultural Aspects](#))

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Open Access **Article**

Effectiveness of Public Aid for Inland Aquaculture in Poland—The Relevance of Traditional Performance Ratios

by

[Magdalena Raftowicz](#)

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[Bertrand le Gallic](#)

Magdalena Kalisiak-Mędeńska

Krzysztof Rutkiewicz

and

Emilia Konopska-Struś

Sustainability **2021**, *13*(9), 5155; <https://doi.org/10.3390/su13095155> - 05 May 2021

Viewed by 725

Abstract

Public financial aid is approached as one of the most important tools allowing, mainly small and medium-sized enterprises, to implement many of their investment intentions, thus improving their competitive position in the market. It is granted to enterprises regardless of whether they are [\[...\] Read more.](#)

(This article belongs to the Collection [Fisheries Economics and Management](#))

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Open Access Article

The Importance of Club Revenues for Player Salaries and Transfer Expenses—How Does the Coronavirus Outbreak (COVID-19) Impact the English Premier League?

by

Tommy Quansah

Bernd Frick

Markus Lang

and

Kieran Maguire

Sustainability **2021**, *13*(9), 5154; <https://doi.org/10.3390/su13095154> - 05 May 2021

[Cited by 1](#) | Viewed by 1603

Abstract

The COVID-19 pandemic has caused significant disruption in the sports industry and has raised the question of whether the football industry is based on a sustainable business model. Using data from the English Premier League (EPL), we develop a regression model to achieve [\[...\] Read more.](#)

(This article belongs to the Special Issue [Recovery and Sustainability of the Sport Sector during the COVID-19 Pandemic](#))

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Open Access **Review**

Public-Private Partnership as a Tool of Sustainable Development in the Oil-Refining Sector: Russian Case

by

[Irina Filatova](#)

,

[Liubov Nikolaichuk](#)

,

[Dokka Zakaev](#)

and

[Igor Ilin](#)

Sustainability **2021**, *13*(9), 5153; <https://doi.org/10.3390/su13095153> - 05 May 2021

[Cited by 15](#) | Viewed by 873

Abstract

Dramatic changes in the global energy market due to COVID-19 pandemic, the OPEC+ agreement, and increasing rates of green energy share in the world community have brought negative effects on the oil sector. In the long term, oil will reduce its importance as [\[...\] Read more.](#)

(This article belongs to the Special Issue [Resources Policy and Sustainable Development](#))

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Open Access **Article**

Development of a Low-Cost Biomass Furnace for Greenhouse Heating

by

[Asif Ali](#)

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[Tahir Iqbal](#)

,

[Muhammad Jehanzeb Masud Cheema](#)

,

[Arslan Afzal](#)

,

[Muhammad Yasin](#)

,

[Zia ul Haq](#)

,

[Arshad Mahmood Malik](#)

and

[Khalid Saifullah Khan](#)

Sustainability **2021**, 13(9), 5152; <https://doi.org/10.3390/su13095152> - 05 May 2021

Viewed by 725

Abstract

The energy crisis and increasing fossil fuel prices due to increasing demands, controlled supplies, and global political unrest have adversely affected agricultural productivity and farm profitability across the globe and Pakistan is not an exception. To cope with this issue of energy deficiency [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Agricultural, Biological, and Environmental Engineering Applications](#))

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Open Access **Article**

The Role of Commitment in the Relationship between Components of Organizational Culture and Intention to Stay

by

Smart A. Sarpong

,

Mary Safowah Akom

,

Emelia Kusi-Owusu

,

Irene Ofosua-Adjei

and

Youngjo Lee

Sustainability 2021, 13(9), 5151; <https://doi.org/10.3390/su13095151> - 05 May 2021

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Abstract

For an institution to be classified as one of the best or worst, it largely depends on the people behind it. An institution's human resource is, therefore, seen as its most important asset. This paper investigates the role of employee commitment in linking [...] [Read more.](#)

(This article belongs to the Section [Sustainable Management](#))

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Open Access **Article**

Parque Augusta (São Paulo/Brazil): From the Struggles of a Social Movement to Its Appropriation in the Real Estate Market and the Right to Nature in the City

by

Wendel Henrique Baumgartner

Sustainability 2021, 13(9), 5150; <https://doi.org/10.3390/su13095150> - 05 May 2021

Viewed by 861

Abstract

Through a dialectical approach, building a thesis, an antithesis and a synthesis, our goal in this article is to discuss the implementation of the Parque Augusta, in the center of São Paulo, Brazil. For years, an organized social movement struggled with the municipality [\[...\] Read more.](#)

(This article belongs to the Special Issue [Greening Cities Shaping Cities: Pinpointing Nature-Based Solutions in Cities between Shared Governance and Citizen Participation](#))

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Open Access **Article**

Implementing a Sustainability Legacy Strategy: A Case Study of PyeongChang 2018 Winter Olympic Games

by

Hyung-Min Kim

and

Jonathan Grix

Sustainability **2021**, 13(9), 5141; <https://doi.org/10.3390/su13095141> - 05 May 2021

[Cited by 2](#) | Viewed by 1745

Abstract

Given the growing need for hosts of sports mega-events to provide concrete plans for a sustainable sports mega-event at the bidding stage, it is perhaps surprising that there has not been more research on the actual implementation of the legacy plan in terms [\[...\] Read more.](#)

(This article belongs to the Special Issue [Socio-Economic and Environmental Impacts of Sports Facility Development and Sports Event Management](#))

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Open Access **Concept Paper**

Fuel Cell Electric Vehicles (FCEV): Policy Advances to Enhance Commercial Success

by

Usman Asif

and

Klaus Schmidt

Sustainability **2021**, 13(9), 5149; <https://doi.org/10.3390/su13095149> - 04 May 2021

[Cited by 3](#) | Viewed by 1062

Abstract

Many initiatives and policies attempt to make our air cleaner by reducing the carbon foot imprint on our planet. Most of the existing and planned initiatives have as their objectives the reduction of carbon dependency and the enhancement of newer or better technologies [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Transportation](#))

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Open AccessArticle

Using FADN Data to Estimate CO₂ Abatement Costs from Italian Arable Crops

by

[Guido M. Bazzani](#)

,

[Giuliano Vitali](#)

,

[Concetta Cardillo](#)

and

[Maurizio Canavari](#)

Sustainability 2021, 13(9), 5148; <https://doi.org/10.3390/su13095148> - 04 May 2021

Viewed by 788

Abstract

The assessment of economic and environmental sustainability of agricultural systems represents a critical issue, which has been addressed in this work with a multi-objective programming model to explore the abatement costs (AC) of CO₂ for a set of representative contexts of Italian [\[...\] Read more.](#)

(This article belongs to the Special Issue [Farming System Design and Assessment for Sustainable Agroecological Transition](#))

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Open AccessReview

Social Capital on Social Networking Sites: A Social Network Perspective

by

Natalia Sánchez-Arrieta

Rafael A. González

Antonio Cañabate

and

Ferran Sabate

Sustainability 2021, 13(9), 5147; <https://doi.org/10.3390/su13095147> - 04 May 2021

[Cited by 1](#) | Viewed by 978

Abstract

Although social capital has been researched from many approaches and attempts have been made to measure it online, the literature lacks an operational description that would allow its measurement criteria to be established from a social network perspective. Therefore, the purpose of this [\[...\] Read more.](#)

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Open Access **Article**

Vehicle Lane-Changing Safety Pre-Warning Model under the Environment of the Vehicle Networking

by

Qiang Luo

Xiaodong Zang

Xu Cai

Huawei Gong

Jie Yuan

and

Junheng Yang

Sustainability **2021**, 13(9), 5146; <https://doi.org/10.3390/su13095146> - 04 May 2021

Cited by 1 | Viewed by 644

Abstract

Lane-changing behavior is one of the most common driving behaviors while driving. Due to the complexity of its operation, vehicle collision accidents are prone to occur when changing lanes. Under the environment of vehicle networking, drivers can obtain more accurate traffic information in [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainable Traffic Variation, Development and Analysis under COVID-19 Influence](#))

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Open Access **Article**

Exploring Creative Tourism Based on the Cultural and Creative Cities (C3) Index and Using Bootstrap Confidence Intervals

by

Mercedes Mareque

,

Elena de Prada Creo

and

Marcos Álvarez-Díaz

Sustainability **2021**, 13(9), 5145; <https://doi.org/10.3390/su13095145> - 04 May 2021

Cited by 2 | Viewed by 808

Abstract

Creative tourism is a novel segment of the tourism market that may turn into a great opportunity for small cities to attract visitors. Thus, it can be a possible economic and social driver for local development. Despite its potentiality, not much empirical research [\[...\] Read more.](#)

(This article belongs to the Special Issue [Cultural, Creative and Sustainable Cities](#))

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Open AccessArticle

A Practical Vision of Heritage Tourism in Low-Population-Density Areas. The Spanish Mediterranean as a Case Study

by

Pablo Altaba

and

Juan A. García-Esparza

Sustainability 2021, 13(9), 5144; <https://doi.org/10.3390/su13095144> - 04 May 2021

Cited by 2 | Viewed by 705

Abstract

Heritage tourism bases its definition on searching for different, authentic, and somewhat unexplored places. Recent literature speaks of the growth of new forms of tourism based on the tradition that seeks to surprise visitors with popular culture, traditional activities, or actions that bring [\[...\] Read more.](#)

(This article belongs to the Section [Tourism, Culture, and Heritage](#))

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Open AccessArticle

Development of an Early Warning and Incident Response System for the Protection of Visitors from Natural Hazards in Important Outdoor Sites in Greece

by

Chrysostomos Psaroudakis

,

Gavriil Xanthopoulos

,

Dimitris Stavrakoudis

,

Antonios Barnias

,

Vassiliki Varela

,

Ilias Gkotsis

,

Anna Karvouniari

,

Spyridon Agorgianitis

,

Ioannis Chasiotis

,

Diamando Vlachogiannis

,

Athanasios Sfetsos

,

Konstantinos Kaoukis

,

Aikaterini Christopoulou

,

Petros Antakis

and

Ioannis Z. Gitas

[Cited by 1](#) | Viewed by 918

Abstract

Safety in touristic destinations is of utmost importance since tourists' preferences change frequently in response to emerging threats. Natural hazards are a significant risk and, as such, they need to be considered in the effort for safe tourism. Services and systems monitoring and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Climate-Related Hazards and Human Health: Mortality, Psychosocial Aspects, and Mitigation Policies](#))

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Open AccessArticle

Environmental Problem Shifting Analysis of Pollution Control Units in a Coal-Fired Powerplant Based on Multiple Regression and LCA Methodology

by

Harnpon Phungrassami

and

Phairat Usubharatana

Sustainability **2021**, *13*(9), 5142; <https://doi.org/10.3390/su13095142> - 04 May 2021

Viewed by 590

Abstract

Coal-fired power generation leads to serious environmental pollution, such as air and water pollution; thus, pollution control or treatment is necessary. However, end-of-pipe treatments are still indispensable approaches to reducing environmental stress, and focusing on each in turn leads to pollutant-by-pollutant features. The [\[...\] Read more.](#)

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Open AccessArticle

Aeroponics Root Chamber Temperature Conditioning Design for Smart Mini-Tuber Potato Seed Cultivation

by

C. Bambang Dwi Kuncoro

Tandi Sutandi

Cornelia Adristi

and

Yean-Der Kuan

Sustainability **2021**, 13(9), 5140; <https://doi.org/10.3390/su13095140> - 04 May 2021

Viewed by 1048

Abstract

The aeroponic plant root environment has a significant role in producing high-quality seed tuber potatoes. However, in lowland and tropical regions, the aeroponic system cannot yield high-quality potato seed because the average environment temperature year-round is high. In a high-temperature environment, the potato [\[...\] Read more.](#)

(This article belongs to the Special Issue [Developing Agricultural Produce as Part of Local Sustainable Management: New Challenges and Opportunities](#))

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Open AccessArticle

Reimagining “Collaborative Exploration”—A Signature Pedagogy for Sustainability in Early Childhood Education and Care

by

Elin Eriksen Ødegaard

Sustainability **2021**, 13(9), 5139; <https://doi.org/10.3390/su13095139> - 04 May 2021

[Cited by 3](#) | Viewed by 1383

Abstract

The purpose of this article is to identify the components and features of a signature pedagogy for sustainability in early childhood education and care to respond to the call for tradition and innovation in early childhood education. Collaborative exploration is proposed as a [\[...\] Read more.](#)

(This article belongs to the Special Issue [Reimagining Early Childhood Education for Social Sustainability in a Future We Want](#))

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Open AccessArticle

The Effect of Supply Chain Management Strategy on Operational and Financial Performance

by

Rok Lee

Sustainability **2021**, 13(9), 5138; <https://doi.org/10.3390/su13095138> - 04 May 2021

Cited by 6 | Viewed by 1116

Abstract

Given that small and medium manufacturing enterprises (SMEs) are key to national economic development, the application of supply chain strategies that support their sustainability is critical. This study aims to identify the effects of supply chain management (SCM) on the operational performance of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Digitalization and Sustainable Supply Chain Management in a Period of Crisis](#))

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Open Access **Article**

Predicting Increase in Demand for Public Buses in University Students Daily Life Needs: Case Study Based on a City in Japan

by

Ali Bakdur

,

Fumito Masui

and

Michal Ptaszynski

Sustainability **2021**, 13(9), 5137; <https://doi.org/10.3390/su13095137> - 04 May 2021

Viewed by 1151

Abstract

Accessibility and economic sustainability of public bus services (PBS) have been in a continuous decline in Japan's countryside. Rural cities also suffer from population transformation toward industrial centers experiencing rapid economic growth. In the present study, we reviewed the current demand status of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Active Transport among University Students: Patterns, Motivations and Challenges](#))

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Open AccessArticle

Effect of Acetic Acid on Compressive Strength and Geometric Texture of the Surface of C20/25 Class Concrete

by

[Joanna Witkowska-Dobrev](#)

,

[Olga Szlachetka](#)

,

[Marek Dohojda](#)

and

[Krzysztof Wiśniewski](#)

Sustainability 2021, 13(9), 5136; <https://doi.org/10.3390/su13095136> - 04 May 2021

[Cited by 2](#) | Viewed by 763

Abstract

Concrete is a highly alkaline material; therefore, the presence of organic acids (acetic, butyric, lactic) from agricultural sewage constitutes a threat to the concrete and the environment. The investigations were aimed at simulating the influence of highly concentrated organic acids on concrete elements [\[...\] Read more.](#)

(This article belongs to the Special Issue [Strategies toward a Green Deal and Circular Economy](#))

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Open AccessArticle

Time to Get Emotional: Determinants of University Students' Intention to Return to Rural Areas

by

[Francisco Simões](#)

,

Antonella Rocca

,

Rui Rocha

,

Carlos Mateus

,

Elena Marta

and

Jale Tosun

Sustainability **2021**, *13*(9), 5135; <https://doi.org/10.3390/su13095135> - 04 May 2021

Cited by 3 | Viewed by 1011

Abstract

The social sustainability of rural areas is affected by the phenomenon of “brain drain” due to younger generations’ outward migration. Our study examines how structural and subjective factors determine the returning intentions of university students over time, before completion of their studies. We [\[...\] Read more.](#)

(This article belongs to the Special Issue [Lessons on Building More Sustainable Rural Societies: Youth and Mobility](#))

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Open Access **Article**

Evaluation of Rapid Exit Locations Based on Veer-Off Risk for Landing Aircraft

by

Sameeraü Galagedera

,

Varuna Adikariwattage

and

H. R. Pasindu

Sustainability **2021**, *13*(9), 5134; <https://doi.org/10.3390/su13095134> - 04 May 2021

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Abstract

Rapid exit taxiways enhance runway operational capacities by means of reducing the runway occupancy times of aircraft. The selection of rapid exit taxiway locations is important to achieve the optimum runway capacity. This paper presents a methodology for locating rapid exits based on [\[...\] Read more.](#)

(This article belongs to the Special Issue [Toward Sustainability: Airport Risk Assessment](#))

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Open Access **Editor's Choice** Article

How to Sustain Sustainability Monitoring in Cities: Lessons from 49 Community Indicator Initiatives across 10 Latin American Countries

by

Ludger Niemann

and

Thomas Hoppe

Sustainability **2021**, 13(9), 5133; <https://doi.org/10.3390/su13095133> - 04 May 2021

[Cited by 1](#) | Viewed by 744

Abstract

Since the 1990s, many countries have witnessed the emergence of organizations publishing environmental, social, and quality-of-life indicators at a city level in order to promote public awareness, democratic participation, and sustainability policies. Many such initiatives are short-lived, however, and reasons for their success [\[...\] Read more.](#)

(This article belongs to the Special Issue [State of the Art and Future Perspectives in Smart and Sustainable Urban Development](#))

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Open Access **Article**

Inclusive Settlement of Young Asylum Seekers in a Rural Region: The Role of Informal Support and Mentoring

by

Xavier Alarcón

Xavier Casademont

Vladislava Lendzhova

and

Emre Erdoğın

Sustainability **2021**, 13(9), 5132; <https://doi.org/10.3390/su13095132> - 04 May 2021

[Cited by 1](#) | Viewed by 1038

Abstract

In the last ten years, the settlement and integration of refugee families and asylum seekers have represented some of the main challenges faced by European territories. People in need of international protection can face challenges in being settled and integrated into rural areas [\[...\] Read more.](#)

(This article belongs to the Special Issue [Lessons on Building More Sustainable Rural Societies: Youth and Mobility](#))

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Open Access **Review**

Standardizing Melanopic Effects of Ocular Light for Ecological Lighting Design of Nonresidential Buildings—An Overview of Current Legislation and Accompanying Scientific Studies

by

Marcel Neberich

and

Frank Opferkuch

Sustainability **2021**, 13(9), 5131; <https://doi.org/10.3390/su13095131> - 04 May 2021

[Cited by 4](#) | Viewed by 894

Abstract

DIN SPEC 5031-100 and CIE S 026:2018 are regulatory frameworks that are intended to establish health-preserving indoor lighting in Europe. Therefore, they are crucial for the visual environment and its sustainability. The standards are largely congruent. Inconsistencies should now be harmonized with the [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Future of Interior Lighting is here](#))

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Open AccessArticle

Transition and Transformation of a Rural Landscape: Abandonment and Rewilding

by

[Julia Ellis Burnet](#)

,

[Daniela Ribeiro](#)

and

[Wei Liu](#)

Sustainability **2021**, 13(9), 5130; <https://doi.org/10.3390/su13095130> - 04 May 2021

Viewed by 761

Abstract

The concepts of slow environmental change through evolutionary processes associated with ordinary artefacts from Central European rural life as part of biogeographical morphology was studied in Goričko Landscape Park, northeastern Slovenia. The research was based on field observations, including the recording of a [\[...\] Read more.](#)

(This article belongs to the Special Issue [Historical Ecology and Landscape Archaeology: Cross-Disciplinary Approaches to the Long Anthropocene](#))

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Open AccessArticle

Cause-Related Marketing in the Telecom Sector: Understanding the Dynamics among Environmental Values, Cause-Brand Fit, and Product Type

by

[Tsungjen Shih](#)

and

[Shaojung Sharon Wang](#)

Sustainability **2021**, 13(9), 5129; <https://doi.org/10.3390/su13095129> - 03 May 2021

[Cited by 1](#) | Viewed by 1020

Abstract

Due to heightened ecological awareness and concern in recent years, many businesses have started to employ cause-related marketing (CRM) strategies aiming at communicating sustainability-based value to their potential targets. Building on the growing body of research on cause-brand fit and product types, the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Marketing Management](#))

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Open Access **Article**

Consumers' and Farmers' Perceptions in Europe Regarding the Use of Composted Bedding Material from Cattle

by

[Marija Klopčič](#)

,

[Karmen Erjavec](#)

,

[Megan Waldrop](#)

,

[Jutta Roosen](#)

,

[Petra Engel](#)

,

[Paul Galama](#)

and

[Abele Kuipers](#)

Sustainability **2021**, *13*(9), 5128; <https://doi.org/10.3390/su13095128> - 03 May 2021

[Cited by 2](#) | Viewed by 798

Abstract

By-products like sawdust and straw are applied in compost bedded-pack barns (CBP) for cattle. These materials, which are gradually mixed with excreta and undergo a composting process, serve as a lying bed for the cattle. This study aims to assess the perception of [\[...\] Read more.](#)

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Open AccessArticle

Exploring the Inclusion of Sustainability into Strategy and Management Control Systems in Peruvian Manufacturing Enterprises

by

[Luis Jesús Córdova-Aguirre](#)

and

[Juan Manuel Ramón-Jerónimo](#)

Sustainability 2021, 13(9), 5127; <https://doi.org/10.3390/su13095127> - 03 May 2021

[Cited by 3](#) | Viewed by 859

Abstract

The aim of this work is to explore the incorporation of sustainability into strategy and management control systems (MCSs) in Peruvian manufacturing enterprises in the plastics sector. The study focuses on identifying and analyzing the current way they incorporate and manage sustainability to [\[...\] Read more.](#)

(This article belongs to the Special Issue [New and Renewed Manufacturing Paradigms for Sustainable Production](#))

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Open AccessArticle

Understanding Pro-Environmental Behavior of Citizen Science: An Exploratory Study of the Bird Survey in Taoyuan's Farm Ponds Project

by

[Shan-Hui Chao](#)

,

[Jin-Zhang Jiang](#)

,

[Kuan-Chu Wei](#)

[Eric Ng](#)

[Chia-Hsuan Hsu](#)

[Yi-Te Chiang](#)

and

[Wei-Ta Fang](#)

Sustainability **2021**, 13(9), 5126; <https://doi.org/10.3390/su13095126> - 03 May 2021

[Cited by 3](#) | Viewed by 1053

Abstract

This exploratory study aims to fill the gap by adopting Hirose's two-phase decision-making model with the theory of social networks to explore the environmentally friendly attitudes and environmental behavioral intentions toward pro-environmental behaviors of the citizen scientists who participated in the Bird Survey [\[...\] Read more.](#)

(This article belongs to the Special Issue [Pro-environmental Behavior – Social and Cultural Aspects](#))

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Open Access **Article**

Analyzing Sustainability Reports of Global, Public Corporations by Industrial Sectors and National Origins

by

[Hyun-Duck Kim](#)

Sustainability **2021**, 13(9), 5125; <https://doi.org/10.3390/su13095125> - 03 May 2021

Viewed by 648

Abstract

Due to the demand by stakeholder groups of global public corporations for greater transparency in business operations, corporations have continuously tried to embody the concept of sustainability in their business strategies and operations. That is, they have collectively published sustainability reports to state [\[...\] Read more.](#)

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Open Access Article

Multi-Criteria Decision Analysis Using Life Cycle Assessment and Life Cycle Costing in Circular Building Design: A Case Study for Wall Partitioning Systems in the Circular Retrofit Lab

by

[Neethi Rajagopalan](#)

,

[Stijn Brancart](#)

,

[Sofie De Regel](#)

,

[Anne Paduart](#)

,

[Niels De Temmerman](#)

and

[Wim Debacker](#)

Sustainability **2021**, 13(9), 5124; <https://doi.org/10.3390/su13095124> - 03 May 2021

[Cited by 3](#) | Viewed by 979

Abstract

The Circular Economy (CE) paradigm has been gaining momentum. However, the tools and methods used to design, measure and implement circularity are not immediately suitable for decision making and practice by key stakeholders. This article details a qualitative and a quantitative method to [\[...\] Read more.](#)

(This article belongs to the Special Issue [Life Cycle Assessment and Environmental Footprinting](#))

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Open AccessArticle

Optimum Configuration of a Renewable Energy System Using Multi-Year Parameters and Advanced Battery Storage Modules: A Case Study in Northern Saudi Arabia

by

Abdullahi Abubakar Mas'ud

and

Hassan Zuhair Al-Garni

Sustainability 2021, 13(9), 5123; <https://doi.org/10.3390/su13095123> - 03 May 2021

Cited by 4 | Viewed by 807

Abstract

Understanding the impact of global warming and the availability of renewable sources has motivated many countries to utilize solar and wind as an alternative to conventional energy sources. One county at the forefront in the development of these technologies is the Kingdom of [\[...\] Read more.](#)

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Open AccessEditorial

Household Food Waste from an International Perspective

by

Claudia Giordano

and

Silvio Franco

Sustainability 2021, 13(9), 5122; <https://doi.org/10.3390/su13095122> - 03 May 2021

Cited by 3 | Viewed by 898

Abstract

The food waste debate has flourished during the last years, leading to an impressive increase in the number of scientific publications [...] [Full article](#)

(This article belongs to the Special Issue [Household Food Waste: From an International Perspective](#))

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Open Access Article

A Study of Multiregional Economic Correlation Analysis Based on Big Data—Taking the Regional Economy of Cities in Shaanxi Province, China, as an Example

by

Shouheng Tuo

and

Hong He

Sustainability **2021**, *13*(9), 5121; <https://doi.org/10.3390/su13095121> - 03 May 2021

Cited by 2 | Viewed by 590

Abstract

To enhance the sustainability of the regional economy, this study attempts to integrate historical big data of multiregional and multi-industry economic indicators, aiming to explore and discover the correlations among regions, industries, or cross-regional economic indicators. In this paper, two correlation analysis models [\[...\] Read more.](#)

(This article belongs to the Special Issue [Advanced Modelling Tools to Support Urban and Regional Planning](#))

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Open Access Article

Risk Assessment and Sustainability of Wastewater Treatment Plant Operation

by

Irena Tušer

and

Alena Oulehlová

Sustainability **2021**, *13*(9), 5120; <https://doi.org/10.3390/su13095120> - 03 May 2021

Cited by 1 | Viewed by 1082

Abstract

Water and water management, which also includes wastewater treatment plants (WWTPs), are considered essential elements critical infrastructure. A disruption of their operation can result in the discharge of wastewater into the environment without having been adequately treated. This can cause health problems, contamination [\[...\] Read more.](#)

(This article belongs to the Special Issue [Security Challenges in the Context of Sustainability](#))

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Open AccessArticle

Does Income Inequality Exist among Urban Farmers? A Demonstration of Lorenz Curves from Northern Thailand

by

Daranrat Jaitiang

,

Wen-Chi Huang

and

Shang-Ho Yang

Sustainability **2021**, *13*(9), 5119; <https://doi.org/10.3390/su13095119> - 03 May 2021

[Cited by 1](#) | Viewed by 1098

Abstract

This study was motivated by the profound disparity of farmers' income in northern Thailand. We aimed to investigate the inequalities in the distribution of estimated income among urban farmers in the Mueang district area of Nan province using the Lorenz curves and Gini [\[...\] Read more.](#)

(This article belongs to the Special Issue [Resources Policy and Sustainable Development](#))

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Open AccessArticle

Difference in the Attitude of Students and Employees of the University of Ljubljana towards Work from Home and Online Education: Lessons from COVID-19 Pandemic

by

Varineja Drašler

,

Jasna Bertonec

,

Mojca Korošec

Tanja Pajk Žontar

Nataša Poklar Ulrih

and

Blaž Cigić

Sustainability **2021**, *13*(9), 5118; <https://doi.org/10.3390/su13095118> - 03 May 2021

Cited by 9 | Viewed by 2626

Abstract

The COVID-19 pandemic caused a large and involuntary shift to work from home (WFH) or teleworking, and widespread adoption of web-based platforms. This study aims to uncover the attitude and perception of WFH and online education among students and employees of the University [...] [Read more.](#)

(This article belongs to the Special Issue [Effects of COVID 19 for Sustainable Education, Systems and Institutions](#))

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Open Access **Article**

An Innovative and Interactive Teaching Model for Cultivating Talent's Digital Literacy in Decision Making, Sustainability, and Computational Thinking

by

Yu-Hsi Yuan

Chia-Hui Liu

and

Szu-Sheng Kuang

Sustainability **2021**, *13*(9), 5117; <https://doi.org/10.3390/su13095117> - 03 May 2021

Cited by 3 | Viewed by 1013

Abstract

In the modern era, talent cultivation plays an essential role in the transition process to sustainable development. The emerging direction of talent cultivation is intended to achieve global competence in computational thinking and digital literacy; however, there is still a gap in Taiwan. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Selected Papers from Eurasian Conference on Educational Innovation 2021](#))

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Open Access **Article**

Evaluation of Coal Fly Ash for Modulating the Plant Growth, Yield, and Antioxidant Properties of *Daucus carota* (L.): A Sustainable Approach to Coal Waste Recycling

by

[Adnan Shakeel](#)

,

[Abrar Ahmad Khan](#)

,

[Hesham F. Alharby](#)

,

[Atif A. Bamagoos](#)

,

[Huseyin Tombuloglu](#)

and

[Khalid Rehman Hakeem](#)

Sustainability **2021**, *13*(9), 5116; <https://doi.org/10.3390/su13095116> - 03 May 2021

[Cited by 3](#) | Viewed by 763

Abstract

In search of a safe, cost-effective, and sustainable method for the disposal and management of coal fly ash (CFA), seeds of carrot were sown in earthen pots containing growth substrate consisting of field soil amended with different concentrations of weathered CFA at w/w [\[...\] Read more.](#)

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Open AccessArticle

Modeling and Application of Controllers for a Photovoltaic Inverter for Operation in a Microgrid

by

Rubén Ortega

,

Víctor H. García

,

Adrián L. García-García

,

Jaime J. Rodríguez

,

Virgilio Vásquez

and

Julio C. Sosa-Savedra

Sustainability 2021, 13(9), 5115; <https://doi.org/10.3390/su13095115> - 03 May 2021

[Cited by 2](#) | Viewed by 789

Abstract

The penetration of renewable energies in the context of distributed generation represents challenges such as maintaining the reliability and stability of the system and considering the random behavior proper of generation and consumption. In this context, microgrids make it possible to manage effectively [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Conversion of Renewable Energy Sources](#))

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subject

Open AccessReview

Reviewing the Impact of Vehicular Pollution on Road-Side Plants—Future Perspectives

by

[Manikandan Muthu](#)

,

[Judy Gopal](#)

,

[Doo-Hwan Kim](#)

and

[Iyyakkannu Sivanesan](#)

Sustainability **2021**, *13*(9), 5114; <https://doi.org/10.3390/su13095114> - 03 May 2021

[Cited by 3](#) | Viewed by 922

Abstract

With population explosion, automobiles have also exploded and so has pollution due to vehicular emissions. Road-side plants and highway vegetation are the first targets of these vehicular emissions. This review briefly presents a snapshot of how vehicular emission can affect plants. On the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Chemical Pollution, Prevention, and Environmental Sustainability](#))

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Open Access **Article**

Instrumentalization of a Model for the Evaluation of the Level of Satisfaction of Graduates under an *E-Learning* Methodology: A Case Analysis Oriented to Postgraduate Studies in the Environmental Field

by

[Eduardo García Villena](#)

,

[Silvia Pueyo-Villa](#)

,

[Irene Delgado Noya](#)

,

Kilian Tutusaus Pifarré

,

Roberto Ruíz Salces

and

Alina Pascual Barrera

Sustainability **2021**, *13*(9), 5112; <https://doi.org/10.3390/su13095112> - 03 May 2021

Viewed by 729

Abstract

The purpose of this article was to evaluate the level of satisfaction of a sample of graduates in relation to different online postgraduate programs in the environmental area, as part of the process of continuous improvement in which the educational institution was immersed [\[...\] Read more.](#)

(This article belongs to the Topic [Scientific Advances in STEM: From Professor to Students](#))

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Open Access **Article**

Study of the Hydrodynamic Unsteady Flow Inside a Centrifugal Fan and Its Downstream Pipe Using Detached Eddy Simulation

by

Jian-Cheng Cai

,

Hao-Jie Chen

,

Volodymyr Brazhenko

and

Yi-Hong Gu

Sustainability **2021**, *13*(9), 5113; <https://doi.org/10.3390/su13095113> - 02 May 2021

Viewed by 737

Abstract

The detailed unsteady turbulent flow inside a centrifugal fan and its downstream pipe was studied using detached eddy simulation (DES) at three flowrates, namely, the best efficiency point (BEP), 0.75BEP, and 1.49BEP. Both the mean and fluctuating flow fields were analyzed on the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Environmental Energy Harvesting and Storage](#))

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Open AccessArticle

Gender Diversity in Research and Innovation Projects: The Proportion of Women in the Context of Higher Education

by

[Natalia Restrepo](#)

,

[Alfonso Unceta](#)

and

[Xabier Barandiaran](#)

Sustainability **2021**, *13*(9), 5111; <https://doi.org/10.3390/su13095111> - 02 May 2021

Viewed by 989

Abstract

Europe has gradually consolidated its integration of the gender dimension in the field of research and innovation. Institutional structures have shown that the development of gender diversity policies have improved the conditions of equality between women and men. However, the representation of women [\[...\] Read more.](#)

(This article belongs to the Special Issue [Gender Diversity in STEM Disciplines](#))

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Open AccessArticle

Optimizing the Power Generation of a Wind Farm in Low Wind Speed Regions

by

[Hanan M. Taleb](#)

and

Bassam Abu Hijleh

Sustainability **2021**, 13(9), 5110; <https://doi.org/10.3390/su13095110> - 02 May 2021

[Cited by 1](#) | Viewed by 847

Abstract

The aim of this research is to optimize the power generation of a wind farm (WF) in order to maximize the energy output, especially in low wind speeds regions such as UAE. A new WF was proposed to be built in Sir Bani [\[...\] Read more.](#)

(This article belongs to the Special Issue [Renewable Generation and Environmental Impact Management: A Review of Current Knowledge and Practices](#))

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Open AccessArticle

The Influence of the Digital Supply Chain on Operational Performance: A Study of the Food and Beverage Industry in Indonesia

by

Mohammad Agung Saryatmo

and

Vatcharapol Sukhotu

Sustainability **2021**, 13(9), 5109; <https://doi.org/10.3390/su13095109> - 02 May 2021

[Cited by 2](#) | Viewed by 1604

Abstract

In this rapidly developing digital era, digital transformations take place within every industry, and they have effects on the management of the supply chains. The aim of this study is to delve into the influence of the digital supply chain on the quality, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Digital Supply Chain and Sustainability](#))

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Open AccessArticle

Large-Scale Road Network Congestion Pattern Analysis and Prediction Using Deep Convolutional Autoencoder

by

Navin Ranjan

Sovit Bhandari

Pervez Khan

Youn-Sik Hong

and

Hoon Kim

Sustainability 2021, 13(9), 5108; <https://doi.org/10.3390/su13095108> - 02 May 2021

[Cited by 2](#) | Viewed by 1020

Abstract

The transportation system, especially the road network, is the backbone of any modern economy. However, with rapid urbanization, the congestion level has surged drastically, causing a direct effect on the quality of urban life, the environment, and the economy. In this paper, we [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Transportation](#))

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Open Access **Article**

Photovoltaic BIPV Systems and Architectural Heritage: New Balance between Conservation and Transformation. An Assessment Method for Heritage Values Compatibility and Energy Benefits of Interventions

by

Cristina S. Polo López

Floriana Troia

and

Francesco Nocera

Sustainability **2021**, 13(9), 5107; <https://doi.org/10.3390/su13095107> - 02 May 2021

[Cited by 2](#) | Viewed by 890

Abstract

This paper proposes to identify an approach methodology for the incorporation of building-integrated photovoltaic systems (BIPV) in existing architectural heritage, considering regulatory, conservation and energy aspects. The main objective is to provide information about guidance criteria related to the integration of BIPV in [\[...\] Read more.](#)

(This article belongs to the Special Issue [Advances in Historic Buildings Conservation and Energy Efficiency](#))

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Open Access **Article**

Evacuation Shelter Decision Method Considering Non-Cooperative Evacuee Behavior to Support the Disaster Weak

by

Tomoki Tanaka

,

Yuki Matsuda

,

Manato Fujimoto

,

Hirohiko Suwa

and

Keiichi Yasumoto

Sustainability **2021**, 13(9), 5106; <https://doi.org/10.3390/su13095106> - 02 May 2021

Viewed by 950

Abstract

In disaster situations, special support for the disaster weak are crucial to keep them safe. Common evacuation strategies guide individuals to the shelters closest to their present locations. If evacuees are unevenly distributed across areas, some shelters will not be able to accommodate [\[...\] Read more.](#)

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Open AccessArticle

Implementing Gehl's Theory to Study Urban Space. The Case of Monotowns

by

Damiano Cerrone

,

Jesús López Baeza

,

Panu Lehtovuori

,

Daniele Quercia

,

Rossano Schifanella

and

Luca Aiello

Sustainability **2021**, *13*(9), 5105; <https://doi.org/10.3390/su13095105> - 02 May 2021

[Cited by 1](#) | Viewed by 968 | [Correction](#)

Abstract

The paper presents a method to operationalize Jan Gehl's questions for public space into metrics to map Russian monotowns' urban life in 2017. With the use of social media data, it becomes possible to scale Gehl's approach from the survey of small urban [\[...\] Read more.](#)

(This article belongs to the Special Issue [Understanding Human-Urban Environment Interactions through Geolocated Social Media Data](#))

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Open AccessArticle

Does Job Embeddedness Mediate the Effect of Resilience on Cabin Attendants' Career Satisfaction and Creative Performance?

by

Aram Eslamlou

,

Osman M. Karatepe

and

Mehmet Mithat Uner

Sustainability **2021**, 13(9), 5104; <https://doi.org/10.3390/su13095104> - 02 May 2021

Viewed by 799

Abstract

An increasing body of research suggests job embeddedness (JE) as a motivational variable influencing employees' attitudinal and behavioral outcomes such as quitting intentions and task performance. Personal resources have been reported to affect JE and these outcomes. However, little work has investigated the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Marketing Management in Hospitality and Tourism Industries](#))

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Open Access **Article**

Operational and Safety Management at Intersections: Can the Turbo-Roundabout Be an Effective Alternative to Conventional Solutions?

by

Vincenzo Gallelli

,

Giusi Perri

and

Rosolino Vaiana

Sustainability **2021**, 13(9), 5103; <https://doi.org/10.3390/su13095103> - 01 May 2021

[Cited by 4](#) | Viewed by 1155

Abstract

The European Union policy strategies on the sustainability of the transport system pursue the goals of maximizing safety and environmental benefits and reducing the severity and frequency of crashes, congestion, and pollutant emission rates. A common issue is the planning of the most [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable and Safe Roundabouts](#))

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Open Access **Feature Paper** Article

Sustainable Logistics Management Maturity—The Theoretical Assessment Framework and Empirical Results from Poland

by

[Karolina Werner-Lewandowska](#)

and

[Paulina Golinska-Dawson](#)

Sustainability **2021**, *13*(9), 5102; <https://doi.org/10.3390/su13095102> - 01 May 2021

[Cited by 2](#) | Viewed by 1062

Abstract

Poland is Europe's leader in international freight transport. The majority of companies in the Polish logistics sector are small-sized enterprises with limited human and material resources, which reduces their ability to implement corporate social responsibility practices. In this paper, we explore the logistics [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainability on Production and Industrial Management](#))

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Open Access **Article**

On the Road of Discovery with Systemic Exploratory Constellations: Potentials of Online Constellation Exercises about Sustainability Transitions

by

[Antje Disterheft](#)

,

[Denis Pijetlovic](#)

and

Georg Müller-Christ

Sustainability 2021, 13(9), 5101; <https://doi.org/10.3390/su13095101> - 01 May 2021

Viewed by 1028

Abstract

Sustainability transitions are shaped by specific dynamics, dependencies, and influences among the actors and elements that are part of the system. Systemic constellations as a social science research method can offer tangible visualizations of such system dynamics and thereby extract valuable, often hidden [\[...\] Read more.](#)

(This article belongs to the Special Issue [Emerging Research on Socio-Technological Sustainability Transitions](#))

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Open AccessArticle

What Makes Environmental and Sustainability Education Transformative: A Re-Appraisal of the Conceptual Parameters

by

Niranjan Casinader

Sustainability 2021, 13(9), 5100; <https://doi.org/10.3390/su13095100> - 01 May 2021

[Cited by 4](#) | Viewed by 799

Abstract

As with all educational policy and practice, Environmental and Sustainability Education, if it is to be effective and meaningful, has to be designed and implemented in ways that reflect twenty-first-century circumstances, which are characterized by a globalized society in which cultural diversities amongst [\[...\] Read more.](#)

(This article belongs to the Special Issue [Developing \(Transformative\) Environmental and Sustainability Education in Classroom Practice](#))

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Open AccessArticle

Understanding the Impact of Social Capital on the Innovation Performance of Construction Enterprises: Based on the Mediating Effect of Knowledge Transfer

by

Qing'e Wang

Luwei Zhao

Alice Chang-Richards

Yuanyuan Zhang

and

Hujun Li

Sustainability 2021, 13(9), 5099; <https://doi.org/10.3390/su13095099> - 01 May 2021

Cited by 2 | Viewed by 753

Abstract

In knowledge economy era, enterprise needs to innovate to maintain its advantages and competitiveness. Construction enterprises, being pillars of China's economy and confronting the challenge brought by the strategy of "going out", the call for their technology or management innovation was broadly pronounced [\[...\] Read more.](#)

(This article belongs to the Special Issue [Professional Ethics in Sustainable Construction](#))

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Open Access **Article**

Application of Shrimp Waste for the Synthesis of Polyurethane–Chitosan Materials with Potential Use in Sorption of Oil Micro-Spills in Water Treatment

by

Agnieszka Piotrowska-Kirschling

Katarzyna Szelągowska-Rudzka

Jakub Karczewski

and

Joanna Brzeska

Sustainability **2021**, 13(9), 5098; <https://doi.org/10.3390/su13095098> - 01 May 2021

[Cited by 3](#) | Viewed by 793

Abstract

Shrimp waste is a common waste in seafood processing. It is used as part of the fish meal which is added to feed. Bearing in mind the Green Deal and sustainability development, it was proposed to use northern prawn shells to obtain chitosan [\[...\] Read more.](#)

(This article belongs to the Special Issue [Strategies toward a Green Deal and Circular Economy](#))

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Open Access **Review**

Teachers' Knowledge Regarding Autism Spectrum Disorder (ASD): A Systematic Review

by

Irene Gómez-Marí

,

Pilar Sanz-Cervera

and

Raúl Tárraga-Mínguez

Sustainability **2021**, 13(9), 5097; <https://doi.org/10.3390/su13095097> - 01 May 2021

[Cited by 1](#) | Viewed by 1583

Abstract

The increasing number of students with autism spectrum disorder (ASD) in mainstream education environments require teachers to know how to identify their needs, being capable to adapt their education processes and make their inclusion easier. The purpose of this study is to conduct [\[...\] Read more.](#)

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Open Access **Article**

Personal Watercraft Incident Court Decisions: The Plaintiff's Odds?

by

Eui-Yul Choi

and

Woo Jeong Cho

Sustainability **2021**, *13*(9), 5096; <https://doi.org/10.3390/su13095096> - 01 May 2021

Viewed by 598

Abstract

A personal watercraft (PWC) is a vessel that uses an inboard motor powering a water jet pump as a source of power and is operated by a person sitting, standing, or kneeling. Maneuvering a PWC is different from operating a motor vehicle or [\[...\] Read more.](#)

(This article belongs to the Section [Hazards and Sustainability](#))

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Open Access **Article**

Uncovering the Providers' Continuance Intention of Participation in the Sharing Economy: A Moderated Mediation Model

by

Jiang Jiang

,

Rui Feng

and

Eldon Y. Li

Sustainability **2021**, *13*(9), 5095; <https://doi.org/10.3390/su13095095> - 01 May 2021

[Cited by 3](#) | Viewed by 764

Abstract

The sharing economy has evolved into a promising business concept that enables individuals to share their idle resources, improving resource utilization efficiency commercially. Recently, it has gained enormous academic attention. However, little concern has been given to the behavior of individual providers on [\[...\] Read more.](#)

(This article belongs to the Section [Resources and Sustainable Utilization](#))

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Open AccessArticle

Distractive Tasks and the Influence of Driver Attributes

by

Sónia Soares

,

Carlos Campos

,

João Miguel Leitão

,

António Lobo

,

António Couto

and

Sara Ferreira

Sustainability **2021**, *13*(9), 5094; <https://doi.org/10.3390/su13095094> - 01 May 2021

Cited by 2 | Viewed by 628

Abstract

Driver distraction is a major problem nowadays, contributing to many deaths, injuries, and economic losses. Despite the effort that has been made to minimize these impacts, considering the technological evolution, distraction at the wheel has tended to increase. Not only tech-related tasks but [\[...\] Read more.](#)

(This article belongs to the Special Issue [Collaborative Technology for a Sustainable Transition to Automated Driving](#))

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Open AccessArticle

Employable through Social Media: An Intervention Study

by

Omar Habets

Beatrice Van der Heijden

Omar Ramzy

Jol Stoffers

and

Pascale Peters

Sustainability **2021**, 13(9), 5093; <https://doi.org/10.3390/su13095093> - 01 May 2021

[Cited by 1](#) | Viewed by 745

Abstract

This longitudinal, quantitative study contributes to the debate on technology-based professional development by examining the extent to which a learning (LinkedIn) intervention in a university setting affects an individual's social media use for professional development, and the extent to which this relates to [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Factor Time in Research on Sustainable Employability? Results of Theory-Based Organizational Research](#))

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Open Access **Article**

A New Equation to Estimate Energy Expenditure Using Heart Rate in Children

by

Mihyun Lee

Jeong-Hui Park

Myong-Won Seo

Seoung-Ki Kang

and

Jung-Min Lee

Sustainability **2021**, *13*(9), 5092; <https://doi.org/10.3390/su13095092> - 01 May 2021

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Abstract

The first aim of this study was to develop equations to predict physical activity energy expenditure (PAEE) for children utilizing heart rate monitors (HRM) and vector magnitudes (VM) from accelerometers. The second aim was to cross-validate the developed PAEE prediction equations and compare [\[...\] Read more.](#)

(This article belongs to the Special Issue [Physical Activity, Health and Sustainability](#))

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Open Access **Article**

Preliminary Reports on Comparative Weed Competitiveness of Bangladeshi Monsoon and Winter Rice Varieties under Puddled Transplanted Conditions

by

A. K. M. Mominul Islam

,

Mohammad Nasir

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Mahmuda Akter Mou

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Sabina Yeasmin

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Md. Shafiqul Islam

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Sharif Ahmed

Md. Parvez Anwar

Adel Hadifa

Alaa Baazeem

Muhammad Aamir Iqbal

Abdul Shukor Juraimi

and

Ayman EL Sabagh

Sustainability 2021, 13(9), 5091; <https://doi.org/10.3390/su13095091> - 01 May 2021

[Cited by 2](#) | Viewed by 992

Abstract

Weed-competitive rice cultivars, a viable tool for integrated weed management of rice-field weeds, may greatly reduce the weed pressure and excessive dependence on herbicide in controlling weeds. Based on this premise, field experiments were conducted in 2018 and 2019 during the monsoon and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Management of Weeds and Herbicide Resistance](#))

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Open Access Article

Sustaining User Experience in a Smart System in the Retail Industry

by

Sheng-Chi Chen

and

Shari S. C. Shang

Viewed by 1025

Abstract

Retail enterprises are embracing new technologies to provide innovative services to customers and engage them. Unmanned retail stores offer a completely new seamless shopping experience for customers. Moreover, artificial intelligence (AI) technology and sophisticated customer behavior should be explored in depth to develop [\[...\] Read more.](#)

(This article belongs to the Special Issue [Disruptive Technologies in Smart Systems for Sustainability: Challenges and Opportunities](#))

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Open Access **Article**

Resilience in Retrospective: The Trajectory of Agro-Pastoral Systems in the Centro Region of Portugal

by

Isabel Dinis

and

Orlando Simões

Viewed by 604

Abstract

Agro-pastoral systems in southern European regions have been subjected to various disturbances in the past few decades. Still, a certain amount of resilience allowed to withstand its sharp decline. The *Serra da Estrela* cheese production, the most representative agro-pastoral system of the Portuguese [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Agriculture](#))

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Open Access **Article**

The Spatial and Temporal Decomposition of the Effect of Floods on Single-Family House Prices: A Laval, Canada Case Study

by

Maha AbdelHalim

Jean Dubé

and

Nicolas Devaux

Sustainability **2021**, 13(9), 5088; <https://doi.org/10.3390/su13095088> - 01 May 2021

[Cited by 2](#) | Viewed by 570

Abstract

This paper aims to estimate and decompose the spatial and temporal effect of a flood event occurring in the city of Laval in 1998 using a hedonic pricing model (HPM) based on a difference-in-differences (DID) estimator. The empirical investigation of the impact of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Flood Vulnerability and Resilience in Urban Settings: Perspectives for Sustainability](#))

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Open Access **Article**

Evaluation of the Shear Strength Behavior of TDA Mixed with Fine and Coarse Aggregates for Backfilling around Buried Structures

by

Hany El Naggar

and

Ali Iranikhah

Sustainability **2021**, 13(9), 5087; <https://doi.org/10.3390/su13095087> - 01 May 2021

[Cited by 1](#) | Viewed by 503

Abstract

Although some discarded tires are reused in various applications, a considerable number end up in landfills, where they pose diverse environmental problems. Waste tires that are shredded to produce tire-derived aggregates (TDA) can be reused in geotechnical engineering applications. Many studies have already [\[...\] Read more.](#)

(This article belongs to the Special Issue [Structural Engineering and Sustainable Civil Construction](#))

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Open AccessArticle

Jet Impingement Heat Transfer of Confined Single and Double Jets with Non-Newtonian Power Law Nanofluid under the Inclined Magnetic Field Effects for a Partly Curved Heated Wall

by

Fatih Selimefendigil

,

Hakan F. Oztop

and

Ali J. Chamkha

Sustainability **2021**, 13(9), 5086; <https://doi.org/10.3390/su13095086> - 01 May 2021

[Cited by 3](#) | Viewed by 670

Abstract

Single and double impinging jets heat transfer of non-Newtonian power law nanofluid on a partly curved surface under the inclined magnetic field effects is analyzed with finite element method. The numerical work is performed for various values of Reynolds number (Re , between 100 [\[...\] Read more.](#)

(This article belongs to the Special Issue [Thermal Management in Energy Systems](#))

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Open AccessArticle

A Privacy-Oriented Local Web Learning Analytics JavaScript Library with a Configurable Schema to Analyze Any Edtech Log: Moodle's Case Study

by

Daniel Amo

,

Sandra Cea

,

Nicole Marie Jimenez

Pablo Gómez

and

David Fonseca

Sustainability **2021**, 13(9), 5085; <https://doi.org/10.3390/su13095085> - 01 May 2021

[Cited by 2](#) | Viewed by 1085

Abstract

Educational institutions are transferring analytics computing to the cloud to reduce costs. Any data transfer and storage outside institutions involve serious privacy concerns, such as student identity exposure, rising untrusted and unnecessary third-party actors, data misuse, and data leakage. Institutions that adopt a [\[...\] Read more.](#)

(This article belongs to the Special Issue [Information Systems, E-learning and Knowledge Management](#))

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Open Access **Article**

Sustainable Green Product Adoption Test Using Logistic Regression: Comparison of Glass and Electronic Products

by

Lan-Lan Wan

and

Hong-Youl Ha

Sustainability **2021**, 13(9), 5084; <https://doi.org/10.3390/su13095084> - 01 May 2021

Viewed by 753

Abstract

Marketing literature emphasizes the importance of green product adoption for environmental sustainability. However, consumers' evaluations of the key factors (for adopting green products) differ in critical ways. Drawing on a consumer–marketing interface, this study uses a binary logit model to investigate how consumers [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Evolution of Consumer Behavior in the Sustainable Business: Evidence from COVID-19](#))

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Open Access Article

Differences in the Aroma Profile of Chamomile (*Matricaria chamomilla* L.) after Different Drying Conditions

by

Ahmed Mahmoud Abbas

,

Mohamed Abdelmoneim Seddik

,

Abd-Allah Gahory

,

Sabri Salaheldin

and

Wagdi Saber Soliman

Sustainability 2021, 13(9), 5083; <https://doi.org/10.3390/su13095083> - 01 May 2021

Cited by 3 | Viewed by 651

Abstract

This experiment was conducted to examine the influence of drying methods on the essential oil of chamomile (*Matricaria chamomilla* L.) and its chemical composition. Chamomile flower heads were dried using five different methods: sunlight for 72 h; shade for 1 week; oven [\[...\] Read more.](#)

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Open Access Article

Evaluation of Rainfall Interception by Vegetation Using a Rainfall Simulator

by

Thiago Augusto Mendes

,

Roberto Dutra Alves

Gilson de Farias Neves Gitirana, Jr.

Sávio Aparecido dos Santos Pereira

Juan Félix Rodríguez Rebolledo

and

Marta Pereira da Luz

Sustainability 2021, 13(9), 5082; <https://doi.org/10.3390/su13095082> - 01 May 2021

[Cited by 1](#) | Viewed by 674

Abstract

Interception by vegetation is one of the main variables controlling hydrological and geo-environmental problems such as erosion, landslides and floods. Interception, along with precipitation and evapotranspiration, is required for the modeling of infiltration, percolation and runoff. Unfortunately, the measurement of interception in the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Applications of Complex System Approach in Project Management](#))

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Open Access **Article**

Livelihood Impacts of Forest Carbon Protection in the Context of Redd+ in Cross River State, Southeast Nigeria

by

Ushuki A. Amuyou

Yi Wang

Francis Bisong

and

Alexander S. Antonarakis

Sustainability **2021**, 13(9), 5081; <https://doi.org/10.3390/su13095081> - 30 Apr 2021

[Cited by 1](#) | Viewed by 764

Abstract

The rate of landcover change linked to deforestation and forest degradation in tropical environments has continued to surge despite a series of forest governance policy instruments over the years. These informed the launch of one of the most important international policies called Reducing [\[...\] Read more.](#)

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Open AccessArticle

Impact of Externalities on the Design and Management of Multimodal Logistic Networks

by

Daniela Ambrosino

and

Anna Sciomachen

Sustainability **2021**, 13(9), 5080; <https://doi.org/10.3390/su13095080> - 30 Apr 2021

Viewed by 768

Abstract

It is now widely accepted that the locations of intermediate facilities, such as logistics platforms or inland ports, are key elements of multimodal freight distribution networks and heavily influence their effectiveness. This crucial role of localization decisions is even more significant if we [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability in Synchromodal Logistics and Transportation](#))

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Open AccessArticle

Commitment Ladder in the Relationship between Service Providers and Customers as Added Value in Sustainable Services Development

by

Śławomir Ostrowski

Sustainability **2021**, 13(9), 5079; <https://doi.org/10.3390/su13095079> - 30 Apr 2021

[Cited by 1](#) | Viewed by 834

Abstract

The socioeconomic sphere and the relationships in which commitment occurs are important elements in the development of sustainable services. The study reported in this article identifies the elements that influence the development of the relationship between service providers and their customers and proposes [\[...\] Read more.](#)

(This article belongs to the Special Issue [New Technologies in Customer Value Management in the Perspective of Sustainable Development](#))

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Open Access **Article**

Intrinsic Value and Perceived Essentialism of Culture Heritage Sites as Tools for Planning Interventions

by

Magdalena Roszczynska-Kurasinska

,

Anna Domaradzka

,

Anna Wnuk

and

Tomasz Oleksy

Sustainability **2021**, 13(9), 5078; <https://doi.org/10.3390/su13095078> - 30 Apr 2021

[Cited by 5](#) | Viewed by 794

Abstract

In order to remain alive and relevant, cultural heritage sites have to react and adapt to changing context in a coherent manner, i.e., in a way that is in line with the memory and identity of the place. The incoherent changes, i.e., the [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Valorization of the Cultural Heritage and Landscape as the Entrance Point for the Circular City Strategy](#))

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Open AccessArticle

Impacts of Digital Technostress and Digital Technology Self-Efficacy on Fintech Usage Intention of Chinese Gen Z Consumers

by

You-Kyung Lee

Sustainability **2021**, 13(9), 5077; <https://doi.org/10.3390/su13095077> - 30 Apr 2021

[Cited by 2](#) | Viewed by 1400

Abstract

The role of digital technostress and self-efficacy in digital marketing research is seldom discussed and even more rarely examined among Gen Z consumers. This study investigates the relationships between four sub-dimensions of technostress (complexity, overload, invasion, and uncertainty), digital technology self-efficacy, and fintech [\[...\] Read more.](#)

(This article belongs to the Special Issue [Insurtech, Proptech & Fintech Environment: Sustainability, Global Trends and Opportunities](#))

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Virtual Airport Hub—A New Business Model to Reduce GHG Emissions in Continental Air Transport

by

Wojciech Paprocki

Sustainability **2021**, 13(9), 5076; <https://doi.org/10.3390/su13095076> - 30 Apr 2021

[Cited by 1](#) | Viewed by 850

Abstract

The virtual airport hub business model is an innovative solution supported by digital technologies; the implementation of which in continental air transport may lead to a reduction in energy consumption and to a reduction in greenhouse gas emissions. The prerequisites for the implementation [\[...\] Read more.](#)

(This article belongs to the Special Issue [Advanced Transport Systems and Methods for Design of Sustainable Mobility](#))

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Open Access Article

Assessment of Land-Use/Cover Changes and Its Ecological Effect in Rapidly Urbanized Areas—Taking Pearl River Delta Urban Agglomeration as a Case

by

[Panpan Hu](#)

,

[Feng Li](#)

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[Xiao Sun](#)

,

[Yali Liu](#)

,

[Xinchuang Chen](#)

and

[Dan Hu](#)

Sustainability 2021, 13(9), 5075; <https://doi.org/10.3390/su13095075> - 30 Apr 2021

[Cited by 2](#) | Viewed by 706

Abstract

Based on the land-use data of 2000 and 2015, this study makes a quantitative analysis of the ecological environment effect in Pearl River Delta using the ecological environment quality index and the ecological contribution rate of land-use change types. The results showed the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Integrate Landscape Ecology and Landscape Architecture to Approach Urban Resilience and Sustainability](#))

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Open Access Article

Phytoextraction of Lead Using a Hedge Plant [*Alternanthera bettzickiana* (Regel) G. Nicholson]: Physiological and Biochemical Alterations through Bioresource Management

by

Urooj Kanwal

,

Muhammad Ibrahim

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Farhat Abbas

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Muhammad Yamin

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Fariha Jabeen

,

Anam Shahzadi

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Aitazaz A. Farooque

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Muhammad Imtiaz

,

Allah Ditta

and

Shafaqat Ali

Sustainability **2021**, *13*(9), 5074; <https://doi.org/10.3390/su13095074> - 30 Apr 2021

[Cited by 1](#) | Viewed by 942

Abstract

Phytoremediation is a cost-effective and environmentally friendly approach that can be used for the remediation of metals in polluted soil. This study used a hedge plant—calico (*Alternanthera betzickiana* (Regel) G. Nicholson) to determine the role of citric acid in lead (Pb) phytoremediation [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Approaches for Plant Conservation under Emerging Pollutants](#))

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Open AccessArticle

A Comparative Evaluation of Utility Value Based on User Preferences for Urban Streets: The Case of Seoul, Korea

by

[Minho Seo](#)

and

[Seiyong Kim](#)

Sustainability **2021**, *13*(9), 5073; <https://doi.org/10.3390/su13095073> - 30 Apr 2021

Viewed by 633

Abstract

Currently, there is a lack of objective evaluations clarifying characteristics of urban streets from the users' perspective, particularly regarding the most effective spatial composition. This study investigated the value of spatial components of urban streets preferred by users through a conjoint analysis based [\[...\] Read more.](#)

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Open AccessArticle

Accommodation, Seasonality and Domestic Tourism to National Parks: Implications for Environmental Policy

by

[Flora Maria Díaz-Pérez](#)

,

[Carlos Gustavo García-González](#)

and

[Alan Fyall](#)

Sustainability **2021**, *13*(9), 5072; <https://doi.org/10.3390/su13095072> - 30 Apr 2021

[Cited by 2](#) | Viewed by 867

Abstract

The analysis of seasonality and domestic tourism from the perspective of the accommodation sector has, to date, been unsatisfactorily studied in the domain of visitors to national parks. In light of the scale of accommodation development and its crucial role in tourism, most [\[...\] Read more.](#)

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Open AccessArticle

Practical Functioning of a Sustainable Urban Complex with a Park—The Case Study of Stavros Niarchos Foundation Cultural Center in Athens

by

Beata Makowska

Sustainability **2021**, 13(9), 5071; <https://doi.org/10.3390/su13095071> - 30 Apr 2021

[Cited by 1](#) | Viewed by 920

Abstract

Intensive urban development has created a shortage of urban green areas. The need to economically plan and use urban green spaces has fueled the redefinition of public spaces and parks so as to provide the residents with both recreation and relaxation facilities, as [\[...\] Read more.](#)

(This article belongs to the Special Issue [Natural Environment and Cultural Heritage in the City, A Sustainability Perspective](#))

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Open AccessArticle

The Effects of Financial Literacy on Sustainable Entrepreneurship

by

Alberto Burchi

,

Bogdan Włodarczyk

,

Marek Szturo

and

Duccio Martelli

Sustainability **2021**, 13(9), 5070; <https://doi.org/10.3390/su13095070> - 30 Apr 2021

[Cited by 2](#) | Viewed by 1349

Abstract

Entrepreneurship contributes to the economic well-being of every country. Specifically, the level of individual entrepreneurship is crucial in the process of developing and building economic potential, especially in Central European countries. Among the several factors impacting entrepreneurship, the ability to access the necessary [\[...\]](#)
[Read more.](#)

(This article belongs to the Special Issue [Micro and Macroeconomic Determinants of Productivity Growth and Long-Term Sustainable Development in Central European Economies](#))

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Open Access **Article**

Systemic Innovation Areas for Heritage-Led Rural Regeneration: A Multilevel Repository of Best Practices

by

Aitziber Egusquiza

,

Mikel Zubiaga

,

Alessandra Gandini

,

Claudia de Luca

and

Simona Tondelli

Sustainability **2021**, 13(9), 5069; <https://doi.org/10.3390/su13095069> - 30 Apr 2021

[Cited by 4](#) | Viewed by 963

Abstract

This paper presents the result of the analysis of the data gathered from 20 Role Models (RM) case studies regarding their successful heritage-led rural regeneration models. For the study and comparison of the narratives of these Role Models two tools were used: the [\[...\] Read more.](#)

(This article belongs to the Special Issue [A European Perspective on Cultural Heritage as a Driver for Sustainable Development and Regional Resilience](#))

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Open AccessArticle

Food and Nutrient Supply from Organic Agriculture in the Least Developed Countries and North America

by

[Niraj Prakash Joshi](#)

and

[Luni Piya](#)

Sustainability **2021**, *13*(9), 5068; <https://doi.org/10.3390/su13095068> - 30 Apr 2021

Viewed by 729

Abstract

Although organic agriculture (OA) is praised unequivocally for its environmental and health benefits, its potential for food security is often questioned because of its perceived lower yield. Least developed countries (LDCs), which have a high prospect of conversion to OA, are underrepresented in [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Food](#))

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Open AccessArticle

U.S. Potential of Sustainable Backyard Distributed Animal and Plant Protein Production during and after Pandemics

by

[Theresa K. Meyer](#)

,

Alexis Pascaris

,

David Denkenberger

and

Joshua M. Pearce

Sustainability **2021**, 13(9), 5067; <https://doi.org/10.3390/su13095067> - 30 Apr 2021

[Cited by 2](#) | Viewed by 2321

Abstract

To safeguard against meat supply shortages during pandemics or other catastrophes, this study analyzed the potential to provide the average household's entire protein consumption using either soybean production or distributed meat production at the household level in the U.S. with: (1) pasture-fed rabbits, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Post-COVID-19 Agriculture and Food Security](#))

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Open Access Feature Paper Article

Wastewater Treatment Costs: A Research Overview through Bibliometric Analysis

by

Leticia Gallego-Valero

,

Encarnación Moral-Parajes

and

Isabel María Román-Sánchez

Sustainability **2021**, 13(9), 5066; <https://doi.org/10.3390/su13095066> - 30 Apr 2021

[Cited by 3](#) | Viewed by 949

Abstract

Given the problem of water scarcity and the importance of this resource for the sustainability of the planet, wastewater treatment and its costs have become a key issue for proper water management. Using bibliometric analysis of publications in the Web of Science database, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Wastewater Based Microbial Biorefinery for Bioenergy Production](#))

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Open Access Feature Paper Article

Suggesting an Extensive Interpretation of the Concept of Novelty That Looks at the Bio-Cultural Dimension of Food

by

Margherita Paola Poto

and

Mathilde D. Morel

Sustainability **2021**, *13*(9), 5065; <https://doi.org/10.3390/su13095065> - 30 Apr 2021

[Cited by 1](#) | Viewed by 859

Abstract

“Novel food” in the European Union’s (EU) legal terms refers to any food that was not used for human consumption to a significant degree within the EU before 15 May 1997 (Regulation 2015/2283/EU (2015)). Placing novel food on the market requires a safety [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Food Systems and Food Safety](#))

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Open Access Feature Paper Review

Agroecology for Food and Water Security in Times of Climate Consciousness: A Bibliometric Analysis of Peer-Reviewed Literature Published from 1990 to 2020

by

Tavseef Mairaj Shah

,

Sumbal Tasawwar

and

Ralf Otterpohl

Sustainability **2021**, *13*(9), 5064; <https://doi.org/10.3390/su13095064> - 30 Apr 2021

Viewed by 810

Abstract

The discrepancies in our food systems have become more pronounced in the last couple of years due to natural disasters of huge magnitude and the current pandemic, that have served to make them visible to a wider range of population. As a result, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Responding to Global Changes through Science Promotion and Ecological Education](#))

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Open Access Feature Paper Article

Testing the Effect of Hedge Height on Perceived Safety—A Landscape Design Intervention

by

[Katinka H. Evensen](#)

,

[Helena Nordh](#)

,

[Ramzi Hassan](#)

and

[Aslak Fyhri](#)

Sustainability **2021**, *13*(9), 5063; <https://doi.org/10.3390/su13095063> - 30 Apr 2021

[Cited by 1](#) | Viewed by 874

Abstract

Access to safe, green urban environments is important for quality of life in cities. The objective of this study is to explore the impact of a safety-enhancing landscape design measure on visitors' experiences in an urban park. Additionally, this paper combines the use [\[...\] Read more.](#)

(This article belongs to the Special Issue [Landscape Architecture Design to Promote Well-Being](#))

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Open Access Article

The First City Organizational LCA Case Study: Feasibility and Lessons Learned from Vienna

by

[Alexander Cremer](#)

,

[Markus Berger](#)

,

[Katrin Müller](#)

and

[Matthias Finkbeiner](#)

Sustainability 2021, 13(9), 5062; <https://doi.org/10.3390/su13095062> - 30 Apr 2021

[Cited by 4](#) | Viewed by 790

Abstract

Cities are recognized as a major contributor to environmental pressures. Recently, organizational LCA (OLCA) has been found to align well with requirements for city-scale environmental decision support and a novel city-OLCA framework was introduced. City-OLCA combines two relevant aspects: It covers activities beyond [\[...\] Read more.](#)

(This article belongs to the Special Issue [Life Cycle Analysis and Urban Sustainability](#))

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Open Access Article

Networking Digital Platforms and Healthcare Project Finance Bankability

by

[Roberto Moro-Visconti](#)

Sustainability 2021, 13(9), 5061; <https://doi.org/10.3390/su13095061> - 30 Apr 2021

[Cited by 1](#) | Viewed by 866

Abstract

Framework: Healthcare project finance (PF) involves long-term structural investments in hospitals, typically within a public–private partnership (PPP). Banks represent the third major stakeholder, supporting the private player. Within this well-known framework, digital platforms represent a new virtual stakeholder, operating as a bridging node [\[...\] Read more.](#)

(This article belongs to the Special Issue [Public Projects, Public–Private Partnerships and Economic Sustainability Evaluation](#))

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Open AccessArticle

R&D Intensity and Its Curvilinear Relationship with Firm Profitability: Perspective from the Alternative Energy Sector

by

Natasha Hazarika

Sustainability **2021**, 13(9), 5060; <https://doi.org/10.3390/su13095060> - 30 Apr 2021

[Cited by 1](#) | Viewed by 668

Abstract

There is an inconclusive debate concerning the relationship between environmental research and development (R&D) and corporate financial performance (CFP). The debate becomes more complex because a win–win situation between environmental and financial goals is not as plausible in practice as it is in [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability on Natural Resource Economics](#))

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Open AccessArticle

The Meat We Do Not Eat. A Survey of Meat Waste in German Hospitality and Food Service Businesses

by

Annika Johanna Thies

,

Felicitas Schneider

and

Josef Efken

Sustainability **2021**, 13(9), 5059; <https://doi.org/10.3390/su13095059> - 30 Apr 2021

[Cited by 1](#) | Viewed by 790

Abstract

Food waste is a global challenge. Detailed information on quantities and drivers is needed to provide tailored recommendations for prevention measures. Current studies on meat waste in the Hospitality and Food Service business (HaFS) sector are rare, often based on small sample sizes, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Food Waste Management in Foodservice Establishments](#))

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Open AccessArticle

Flexible Continuous-Time Modeling for Multi-Objective Day-Ahead Scheduling of CHP Units

by

[Elnaz Davoodi](#)

,

[Salar Balaei-Sani](#)

,

[Behnam Mohammadi-Ivatloo](#)

and

[Mehdi Abapour](#)

Sustainability **2021**, *13*(9), 5058; <https://doi.org/10.3390/su13095058> - 30 Apr 2021

Viewed by 535

Abstract

Increasing applications of CHP units have turned the problem of finding the best optimization model into a significant subject for scholars. In this respect, this paper is aimed at driving a novel formulation to the multi-objective day-ahead scheduling of CHP units using Bernstein [\[...\] Read more.](#)

(This article belongs to the Special Issue [Energy Systems Integration: From Policy-Makers to Consumers](#))

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Open AccessArticle

Growth of Firms in a Fragmented Cultural Industry: Italian Commercial Art Galleries' Competitive Strategies

by

[Donatella Depperu](#)

[Giacomo Magnani](#)

[Lisa Crosato](#)

and

[Caterina Liberati](#)

Sustainability **2021**, *13*(9), 5057; <https://doi.org/10.3390/su13095057> - 30 Apr 2021

[Cited by 1](#) | Viewed by 834

Abstract

The growth of cultural firms is important in developing local economies, enhancing employment, and improving urban sustainability, but it is difficult to achieve in fragmented industries that are populated by the smallest firms and offer a particularly unfavorable context for growth. The study [\[...\] Read more.](#)

(This article belongs to the Special Issue [Determinants of Functioning and Sustainable Growth of Small and Medium-Sized Enterprises from the Regional and International Perspectives](#))

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Open Access **Article**

Representativeness in Geographical Indications: A Comparison between the State-Driven and Producer-Driven Systems in Vietnam and France

by

[Barbara Pick](#)

and

[Delphine Marie-Vivien](#)

Sustainability **2021**, *13*(9), 5056; <https://doi.org/10.3390/su13095056> - 30 Apr 2021

[Cited by 2](#) | Viewed by 612

Abstract

This paper explores the issues of representativeness and participation in the collective processes involved in the elaboration of the geographical indications (GI) specifications and the governance of the GI initiatives. The objective is to understand the relationship among collective dynamics, representativeness of relevant [\[...\] Read more.](#)

(This article belongs to the Special Issue [Geographical Indications, Public Goods, and Sustainable Development](#))

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Open Access Article

Natural Disasters and Economic Growth: The Mitigating Role of Microfinance Institutions

by

John Sseruyange

and

Jeroen Klomp

Sustainability **2021**, *13*(9), 5055; <https://doi.org/10.3390/su13095055> - 30 Apr 2021

[Cited by 1](#) | Viewed by 655

Abstract

In this study, we explore whether microfinance institutions (MFIs) can mitigate the adverse macroeconomic consequences of natural disasters. The provision of capital immediately following a natural event is recognized as one of the necessary conditions for a fast economic recovery. However, one concern [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Finance and the 2030 Agenda: Investing to Transform the World](#))

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Open Access Article

The Imperativeness of Environmental Quality in China Amidst Renewable Energy Consumption and Trade Openness

by

Özgür Bayram Soylu

,

Tomiwa Sunday Adebayo

and

Dervis Kirikkaleli

Sustainability **2021**, *13*(9), 5054; <https://doi.org/10.3390/su13095054> - 30 Apr 2021

[Cited by 36](#) | Viewed by 1011

Abstract

It is widely accepted that CO₂ emissions are the primary cause of climate change and environmental destruction. China, the world's biggest carbon emitter, is the subject of this research. Utilizing the wavelet tools (wavelet correlation, wavelet coherence, multiple wavelet coherence, and partial [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open AccessArticle

Developing a Measurement Scale of Opposition in Tourism Public-Private Partnerships Projects

by

[Alaa M. S. Azazz](#)

,

[Ibrahim A. Elshaer](#)

and

[Marwa Ghanem](#)

Sustainability **2021**, *13*(9), 5053; <https://doi.org/10.3390/su13095053> - 30 Apr 2021

[Cited by 3](#) | Viewed by 675

Abstract

Stakeholder opposition is reported as a central aspect of public-private partnership (PPP) failure; however, it has not gained much attention in either tourism or general PPP studies. Therefore, this study seeks to explore stakeholder opposition and develop a measurements scale of opposition in [\[...\] Read more.](#)

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Open AccessArticle

Investment Leverage for Adaptive Reuse of Cultural Heritage

by

[Tracy Pickerill](#)

Sustainability **2021**, *13*(9), 5052; <https://doi.org/10.3390/su13095052> - 30 Apr 2021

[Cited by 2](#) | Viewed by 1337

Abstract

This article tracks the design of a panoptic toolkit of complementary financial (grant and endowment, tax, debt and equity) and non-financial (regulation, real estate, risk mitigation and performance, capacity building, impact metric and digital network) instruments, designed to leverage capital investment and engender [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Valorization of the Cultural Heritage and Landscape as the Entrance Point for the Circular City Strategy](#))

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Open Access **Article**

Influence of Ships Docking System in the Reduction of CO₂ Emissions in Container Ports

by

[Emma Díaz-Ruiz-Navamuel](#)

,

[Andrés Ortega Piris](#)

,

[Alfonso-Isidro López-Díaz](#)

,

[Miguel A. Gutiérrez](#)

,

[Manuel Andres Roiz](#)

and

[Jesus M. Oria Chaveli](#)

Sustainability **2021**, *13*(9), 5051; <https://doi.org/10.3390/su13095051> - 30 Apr 2021

[Cited by 1](#) | Viewed by 671

Abstract

Taking into account the increase in the emission of greenhouse gases produced by ships, during navigation and maneuvering in port, a direct consequence of the increase in maritime traffic, the international community has developed a broad set of regulations to limit such emissions. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Maritime Transportation: Risks, Health and Environmental Protections](#))

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Open AccessArticle

An Auxiliary Index for Reducing Brent Crude Investment Risk—Evaluating the Price Relationships between Brent Crude and Commodities

by

[Yu-Wei Chen](#)

,

[Chui-Yu Chiu](#)

and

[Mu-Chun Hsiao](#)

Sustainability **2021**, *13*(9), 5050; <https://doi.org/10.3390/su13095050> - 30 Apr 2021

Viewed by 529

Abstract

Examining the price relationships of Brent Crude with 78 global commodities, our study shows that the spot price of a certain commodity, New York Harbor No. 2 Heating Oil Spot Price FOB, can serve as an auxiliary forecasting index of the rise and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Energy Return on Energy Investment](#))

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Open AccessArticle

Methodology of Implementing Virtual Reality in Education for Industry 4.0

by

[Andrzej Paszkiewicz](#)

,

[Mateusz Salach](#)

,

Paweł Dymora

Marek Bolanowski

Grzegorz Budzik

and

Przemysław Kubiak

Sustainability **2021**, 13(9), 5049; <https://doi.org/10.3390/su13095049> - 30 Apr 2021

Cited by 6 | Viewed by 1502

Abstract

This paper presents an entirely new approach to the use of virtual reality (VR) in the educational process for the needs of Industry 4.0. It is based on the proposed comprehensive methodology, including the design, creation, implementation and evaluation of individual courses implemented [\[...\] Read more.](#)

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Open Access **Communication**

Societal Digital Platforms for Sustainability: Agriculture

by

Srikanta Bhaskara

and

Kamaljit S. Bawa

Sustainability **2021**, 13(9), 5048; <https://doi.org/10.3390/su13095048> - 30 Apr 2021

Cited by 1 | Viewed by 730

Abstract

During the last several decades, international and national agricultural research infrastructures have rapidly expanded, bringing the outputs of agricultural research to the world's farmers. However, despite huge investments in agricultural research, there have been few systematic efforts to create digital platforms to meet [\[...\] Read more.](#)

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Open Access Article

Determinants of Rice Farmer Participation in the Direct Marketing Channel in Ghana

by

Eunice Adu Donkor

,

Elena Garnevska

,

Muhammad Imran Siddique

and

Emmanuel Donkor

Sustainability **2021**, 13(9), 5047; <https://doi.org/10.3390/su13095047> - 30 Apr 2021

Cited by 2 | Viewed by 880

Abstract

Enhancing smallholder farmers' access to reliable, ready, and direct marketing channels is a prerequisite for sustainable food supply and poverty reduction in the developing countries including Ghana. However, it is a great challenge for smallholder farmers to access direct marketing channels in Ghana. [\[...\] Read more.](#)

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Open Access Article

State of Charge Estimation of Lithium-Ion Battery Based on Improved Adaptive Unscented Kalman Filter

by

Jie Xing

and

Peng Wu

Sustainability **2021**, 13(9), 5046; <https://doi.org/10.3390/su13095046> - 30 Apr 2021

Cited by 5 | Viewed by 590

Abstract

State of charge (SOC) of the lithium-ion battery is an important parameter of the battery management system (BMS), which plays an important role in the safe operation of electric vehicles. When existing unknown or inaccurate noise statistics of the system, the traditional unscented [\[...\] Read more.](#)

(This article belongs to the Special Issue [Advanced Battery Management Strategies for a Sustainable Future](#))

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Open AccessArticle

Effects of Selection Regime on Invasive Characteristics in an Emerging Biomass Crop, Switchgrass (*Panicum virgatum* L.)

by

[Shelby A. Flint](#)

,

[Ruth G. Shaw](#)

and

[Nicholas R. Jordan](#)

Sustainability **2021**, *13*(9), 5045; <https://doi.org/10.3390/su13095045> - 30 Apr 2021

[Cited by 1](#) | Viewed by 634

Abstract

Production of biomass feedstock crops could produce substantial environmental benefits, but these will be sharply reduced if these crops become invasive. Switchgrass (*Panicum virgatum* L.) is being bred for biomass production; these selective efforts may enhance invasive traits. To inform the assessment [\[...\] Read more.](#)

(This article belongs to the Special Issue [Biodiversity and Natural Resources Management](#))

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Open AccessArticle

Family Control and Corporate Innovation in Stakeholder-Oriented Corporate Governance

by

[Hideaki Sakawa](#)

and

Naoki Watanabel

Sustainability **2021**, 13(9), 5044; <https://doi.org/10.3390/su13095044> - 30 Apr 2021

[Cited by 1](#) | Viewed by 726

Abstract

This study investigates the effects of family control on corporate innovation activity in publicly traded firms in Japan under stakeholder-oriented corporate governance. In a sample of 14,991 firm-year observations in publicly traded firms in Japan during the period 2007 to 2016, we tested [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Perceptions of Teachers in Training on Water Issues and Their Relationship to the SDGs

by

Francisca Ruiz-Garzón

,

María del Carmen Olmos-Gómez

and

Ligia Isabel Estrada-Vidal

Sustainability **2021**, 13(9), 5043; <https://doi.org/10.3390/su13095043> - 30 Apr 2021

[Cited by 2](#) | Viewed by 624

Abstract

Water conservation is essential for any activity, as well as for the survival of both human and other living beings. It is commonly associated with access to clean water and sanitation, or even to unsustainable production and consumption, or sustainable cities and communities. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Intercultural Education and Promotion of Sustainability, as An Improvement in Educational Quality, with A Focus on Technological Advancement](#))

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Open AccessArticle

An Improved Method for Urban Built-Up Area Extraction Supported by Multi-Source Data

by

[Chengming Li](#)

[Xiaoyan Wang](#)

[Zheng Wu](#)

[Zhaoxin Dai](#)

[Jie Yin](#)

and

[Chengcheng Zhang](#)

Sustainability **2021**, *13*(9), 5042; <https://doi.org/10.3390/su13095042> - 30 Apr 2021

[Cited by 1](#) | Viewed by 487

Abstract

Urban built-up areas, where urbanization process takes place, represent well-developed areas in a city. The accurate and timely extraction of urban built-up areas has a fundamental role in the comprehension and management of urbanization dynamics. Urban built-up areas are not only a reflection [\[...\] Read more.](#)

(This article belongs to the Special Issue [Multi-Temporal Analysis of Landscapes and Urban Areas](#))

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Open Access **Article**

Estidama and the Pearl Rating System: A Comprehensive Review and Alignment with LCA

by

[Ayyagari Ramani](#)

and

[Borja García de Soto](#)

[Cited by 2](#) | Viewed by 695

Abstract

Multiple sustainability standards and rating systems have been developed to draw attention to constructing sustainable buildings. The Pearl Rating System (PRS) is a mandate for all new construction projects in Abu Dhabi. Hence, it is important to understand the main components, advantages, and [\[...\] Read more.](#)

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Open Access **Article**

Digitalization as a Strategic Means of Achieving Sustainable Efficiencies in Construction Management: A Critical Review

by

[Bahareh Nikmehr](#)

,

[M. Reza Hosseini](#)

,

[Igor Martek](#)

,

[Edmundas Kazimieras Zavadskas](#)

and

[Jurgita Antucheviciene](#)

[Cited by 4](#) | Viewed by 1789

Abstract

Construction is a complex activity, characterized by high levels of capital investment, relatively long delivery durations, multitudinous risks and uncertainties, as well as requiring the integration of multiple skills delivering a huge volume of tasks and processes. All of these must be coordinated [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Construction Engineering and Management](#))

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Cittaslow Idea as a New Proposition to Stimulate Sustainable Local Development

by

Zbigniew Brodziński

and

Krystyna Kurowska

Sustainability **2021**, 13(9), 5039; <https://doi.org/10.3390/su13095039> - 30 Apr 2021

Cited by 5 | Viewed by 730

Abstract

The idea of “good quality of life” cities was introduced to Poland in 2006, when the Polish National Cittaslow City Network was founded i.a. by Lidzbark Warmiński. In the context of popularizing the idea—slow-style of life—it was decided to undertake research aimed at [\[...\] Read more.](#)

(This article belongs to the Special Issue [Micro and Macroeconomic Determinants of Productivity Growth and Long-Term Sustainable Development in Central European Economies](#))

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Open AccessArticle

Factors for Sustainable Online Learning in Higher Education during the COVID-19 Pandemic

by

Amanda M. Y. Chu

, [Connie K. W. Liu](#), [Mike K. P. So](#) and [Benson S. Y. Lam](#)

Sustainability **2021**, 13(9), 5038; <https://doi.org/10.3390/su13095038> - 30 Apr 2021

Cited by 8 | Viewed by 1670

Abstract

The coronavirus disease 2019 (COVID-19) pandemic has affected educational institutions and instructors in an unprecedented way. The majority of educational establishments were forced to take their courses online within a very short period of time, and both instructors and students had to learn [\[...\] Read more.](#)

(This article belongs to the Collection [Education, Innovation and Training for Sustainable Development in the Context of COVID-19](#))

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Open Access Article

Improved Method of Boron Fertilization in Rice (*Oryza sativa* L.)–Mustard (*Brassica juncea* L.) Cropping System in Upland Calcareous Soils

by

Ranjan Laik

,

Santosh Kumar Singh

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Biswajit Pramanick

,

Vandana Kumari

,

Debabrata Nath

,

Eldessoky S. Dessoky

,

Attia O. Attia

,

Mohamed M. Hassan

and

Akbar Hossain

Sustainability **2021**, *13*(9), 5037; <https://doi.org/10.3390/su13095037> - 30 Apr 2021

Viewed by 567

Abstract

Calcareous soils are highly deficient in boron (B) due to having high levels of free CaCO₃ and low organic matter. This has become one of the most important deficient micronutrients in Indian soil after zinc (Zn). For various rice (*Oryza sativa*) [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Agricultural Intensification and Soil Fertility](#))

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Open Access **Feature Paper** **Review**

Investigating Circular Business Model Innovation through Keywords Analysis

by

[Barbara Bigliardi](#)

and

[Serena Filippelli](#)

Sustainability **2021**, *13*(9), 5036; <https://doi.org/10.3390/su13095036> - 30 Apr 2021

[Cited by 4](#) | Viewed by 1011

Abstract

Ongoing economic, social and environmental developments have forced the production system to undertake a profound transformation, shifting from a linear to a circular model. The transformation towards a circular economy poses significant challenges for established companies, in many cases requiring a strong modification [...] [Read more.](#)

(This article belongs to the Special Issue [Feature Papers in Economic and Business Aspects of Sustainability](#))

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Open Access **Article**

Effect of Micronutrient and Hormone on Microalgae Growth Assessment for Biofuel Feedstock

by

[Ayesha Aslam](#)

,

[Sumaira Rasul](#)

,

Ali Bahadar

,

Nazia Hossain

,

Muhammad Saleem

,

Sabir Hussain

,

Lubna Rasool

and

Hamid Manzoor

Sustainability 2021, 13(9), 5035; <https://doi.org/10.3390/su13095035> - 30 Apr 2021

Cited by 3 | Viewed by 892

Abstract

The individual and combined effects of micronutrients and hormones on freshwater-borne microalgae growth were investigated for biofuel feedstock in this experimental study. Five algal strains of *Chlorella* sp., *Chlorococcum* sp., *Phormidium* sp., *Chlorella* sp. and *Cosmarium* sp., AZH, AZS, ZAA1, ZAA2, and ZAA3, [...] [Read more.](#)

(This article belongs to the Special Issue [Biofuel Production and its Applications, a Practice to the Sustainable Future Renewable Source of Energy](#))

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Open Access **Article**

Social Exclusion and Effectiveness of Self-Benefit versus Other-Benefit Marketing Appeals for Eco-Friendly Products

by

Ahyoung Yu

and

Seunghee Han

Sustainability **2021**, 13(9), 5034; <https://doi.org/10.3390/su13095034> - 30 Apr 2021

[Cited by 2](#) | Viewed by 683

Abstract

Despite the growing need, marketers of eco-friendly products have not yet identified the most effective ways to attract consumers to their products. The current research explores the effectiveness of two distinct marketing appeals for eco-friendly upcycling products. In particular, an experiment is conducted [\[...\] Read more.](#)

(This article belongs to the Special Issue [Exploring Global Environmentalism: Environmental Identity, Belief, and Pro-environmental Behaviors](#))

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Open AccessArticle

The Role of Biophilic Agents in Building a Green Resilient City; the Case of Birmingham, UK

by

Linda Novosadová

and

Wim van der Knaap

Sustainability **2021**, 13(9), 5033; <https://doi.org/10.3390/su13095033> - 30 Apr 2021

[Cited by 3](#) | Viewed by 1193

Abstract

The present research offers an exploration into the biophilic approach and the role of its agents in urban planning in questions of building a green, resilient urban environment. Biophilia, the innate need of humans to connect with nature, coined by Edgar O. Wilson [\[...\] Read more.](#)

(This article belongs to the Special Issue [Green Urban Development](#))

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Open AccessArticle

Disaster Chain Analysis of Landfill Landslide: Scenario Simulation and Chain-Cutting Modeling

by

[Wenqun Xiu](#)

,

[Shuying Wang](#)

,

[Wenguang Qi](#)

,

[Xue Li](#)

and

[Chisheng Wang](#)

Sustainability **2021**, *13*(9), 5032; <https://doi.org/10.3390/su13095032> - 30 Apr 2021

[Cited by 1](#) | Viewed by 553

Abstract

Landfill landslide is a man-made event that occurs when poorly managed garbage mounds at landfills collapse. It has become common in recent decades due to the rising waste volumes in cities. Normally, it is a complex process involving many disaster-causing factors and composed [\[...\] Read more.](#)

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Open Access **Article**

Exploring Antibiotic Susceptibility, Resistome and Mobilome Structure of Planctomycetes from *Gemmataceae* Family

by

[Anastasia A. Ivanova](#)

,

[Kirill K. Miroshnikov](#)

and

Igor Y. Oshkin

Sustainability 2021, 13(9), 5031; <https://doi.org/10.3390/su13095031> - 30 Apr 2021

[Cited by 2](#) | Viewed by 636

Abstract

The family *Gemmataceae* accommodates aerobic, chemoorganotrophic planctomycetes with large genome sizes, is mostly distributed in freshwater and terrestrial environments. However, these bacteria have recently also been found in locations relevant to human health. Since the antimicrobial resistance genes (AMR) from environmental resistome have [...] [Read more.](#)

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Open Access **Article**

Keeping the Competitive Edge of a Convention and Exhibition Center in MICE Environment: Identification of Event Attributes for Long-Run Success

by

Jaeyoung An

,

Hany Kim

and

Dongkeun Hur

Sustainability 2021, 13(9), 5030; <https://doi.org/10.3390/su13095030> - 30 Apr 2021

[Cited by 3](#) | Viewed by 916

Abstract

Understanding the weaknesses and strengths of event attributes plays a significant role in business survivability, specifically the meetings, incentives, conventions, and exhibitions (MICE) industry, in which the business environment is competitive. To be in business and survive long-term, service and product offerings must [...] [Read more.](#)

(This article belongs to the Special Issue [Business and Management Aspects of Sustainability on Media and Creative Industries](#))

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Open Access **Article**

A Novel Oil-free Dual Piston Compressor Driven by a Moving Coil Linear Motor with Capacity Regulation Using R134a

by

Jian Sun

,

Jianguo Li

,

Yuanli Liu

,

Zhijie Huang

and

Jinghui Cai

Sustainability 2021, 13(9), 5029; <https://doi.org/10.3390/su13095029> - 30 Apr 2021

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Abstract

Improving compressor efficiency is very important to save energy and reduce greenhouse gas emissions. A novel oil-free dual piston compressor prototype driven by a moving coil linear motor was developed, and its working principle was described in detail. The prototype was integrated with [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable and Renewable Energy Technologies in the Built Environment](#))

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Open Access **Article**

Better Enforcement Is Essential, but May Be Inadequate: Findings of a Survey on the Factors Affecting Payment of Speeding Fines in Cape Town, South Africa

by

Jason Bantjes

,

[Sophia du Plessis](#)

,

[Ada Jansen](#)

and

[Krige Siebrits](#)

Sustainability **2021**, *13*(9), 5028; <https://doi.org/10.3390/su13095028> - 30 Apr 2021

[Cited by 1](#) | Viewed by 659

Abstract

While a large body of research has established that effective enforcement of speeding laws is essential for reducing the economic and social costs of road accidents, some studies have suggested that interventions aimed at moral beliefs about speeding and peer-related and other social [\[...\] Read more.](#)

(This article belongs to the Special Issue [From National Transport Policies to Regional and Local Implementation—Incentive Schemes for Sustainable Mobility](#))

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Open Access **Article**

Time-Dependent Strength Behavior, Expansion, Microstructural Properties, and Environmental Impact of Basic Oxygen Furnace Slag-Treated Marine-Dredged Clay in South Korea

by

[Gyeong-o Kang](#)

,

[Jung-goo Kang](#)

,

[Jin-young Kim](#)

and

[Young-sang Kim](#)

Sustainability **2021**, *13*(9), 5026; <https://doi.org/10.3390/su13095026> - 30 Apr 2021

Viewed by 656

Abstract

The aim of this study was to investigate the mechanical characteristics, microstructural properties, and environmental impact of basic oxygen furnace (BOF) slag-treated clay in South Korea. Mechanical characteristics were determined via the expansion, vane shear, and unconfined compression tests according to various curing [...] [Read more.](#)

(This article belongs to the Collection [Advanced Materials, Systems and Policies for Achieving Sustainability Goals in Construction](#))

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Impact of Universities' Partnerships on Students' Sustainable Entrepreneurship Intentions: A Comparative Study

by

[Shehnaz Tehseen](#)

and

[Syed Arslan Haider](#)

Sustainability **2021**, 13(9), 5025; <https://doi.org/10.3390/su13095025> - 30 Apr 2021

[Cited by 3](#) | Viewed by 945

Abstract

This study investigated the impact of entrepreneurial attitude, perceived desirability, and perceived feasibility on sustainable entrepreneurship intentions under the moderating impact of entrepreneurial passion among undergraduate students of Malaysia. It was a quantitative study that compared two groups of students, i.e., Group A, [...] [Read more.](#)

(This article belongs to the Special Issue [Entrepreneurial Education Strengthening Resilience, Societal Change and Sustainability](#))

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Open AccessArticle

Study on the Influence of Mounting Dimensions of PV Array on Module Temperature in Open-Joint Photovoltaic Ventilated Double-Skin Façades

by

[Wenjie Zhang](#)

Tongdan Gong

Shengbing Ma

Jianwei Zhou

and

Yingbo Zhao

Sustainability **2021**, *13*(9), 5027; <https://doi.org/10.3390/su13095027> - 29 Apr 2021

Viewed by 607

Abstract

In building integrated photovoltaics (PV), it is important to solve the heat dissipation problem of PV modules. In this paper, the computational fluid dynamics (CFD) method is used to simulate the flow field around the open-joint photovoltaic ventilated double-skin façades (OJ-PV-DSF) to study [\[...\] Read more.](#)

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Open Access Article

Shades between Black and Green Investment: Balance or Imbalance?

by

Vítor Manuel de Sousa Gabriel

María Mar Miralles-Quirós

and

José Luis Miralles-Quirós

Sustainability **2021**, *13*(9), 5024; <https://doi.org/10.3390/su13095024> - 29 Apr 2021

[Cited by 1](#) | Viewed by 624

Abstract

This paper analyses the links established between environmental indices and the oil price adopting a double perspective, long-term and short-term relationships. For that purpose, we employ the Bounds Test and bivariate conditional heteroscedasticity models. In the long run, the pattern of behaviour of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Finance and the 2030 Agenda: Investing to Transform the World](#))

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Open AccessArticle

The Gig Economy: Current Issues, the Debate, and the New Avenues of Research

by

Radosław Malik

,

Anna Visvizi

and

Małgorzata Skrzek-Lubasińska

Sustainability **2021**, *13*(9), 5023; <https://doi.org/10.3390/su13095023> - 29 Apr 2021

[Cited by 6](#) | Viewed by 2028

Abstract

In the context of the debate on platform economy, on the one hand, and the gig economy, on the other, this paper delineates the conceptual boundaries of both concepts to query the gig economy research included in the Web of Science database. The [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability in International Business: Talent Management, Market Entry Strategies, Competitiveness](#))

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Optimal Operation of a Hybrid Power System as an Island Microgrid in South-Korea

by

Yeon-Ju Choi

,

[Byeong-Chan Oh](#)

[Moses Amoasi Acquah](#)

[Dong-Min Kim](#)

and

[Sung-Yul Kim](#)

Sustainability **2021**, *13*(9), 5022; <https://doi.org/10.3390/su13095022> - 29 Apr 2021

[Cited by 5](#) | Viewed by 705

Abstract

The microgrid is a power distribution system that supplies power from distributed generation to end-users. Demonstration projects and R&D regarding microgrids are currently in development in several advanced countries. In South Korea, renewable energy-based microgrid demonstration projects are carried out mainly as island [\[...\] Read more.](#)

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Open Access **Editor's Choice Article**

Nature-Based Solutions and Sustainable Urban Planning in the European Environmental Policy Framework: Analysis of the State of the Art and Recommendations for Future Development

by

[Claudia de Luca](#)

[Sandra Naumann](#)

[McKenna Davis](#)

and

[Simona Tondelli](#)

Sustainability **2021**, *13*(9), 5021; <https://doi.org/10.3390/su13095021> - 29 Apr 2021

Viewed by 992

Abstract

Sustainable urban planning (SUP) is crucial in the development of sustainable cities, as also underlined by the New Urban Agenda. Nature-based solutions (NBS) are increasingly being recognized for their potential to offer multiple benefits that are necessary in order to cope with present [\[...\] Read more.](#)

(This article belongs to the Special Issue [Towards a Sustainable Urban Planning for the Green Deal Era](#))

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Open Access Article

The Relations between Teaching Strategies, Students' Engagement in Learning, and Teachers' Self-Concept

by

[Feifei Han](#)

Sustainability **2021**, *13*(9), 5020; <https://doi.org/10.3390/su13095020> - 29 Apr 2021

[Cited by 3](#) | Viewed by 1182

Abstract

Good teaching strategies may not only engage students in learning but may also promote teachers' self-concept about teaching. The present study empirically investigated the contributions of four popular teaching strategies, namely, feedback, scaffolding, active learning, and collaborating, to students' engagement in learning and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Instructional Support and Engagement: Working toward Sustainable Education](#))

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Open Access Article

Antioxidant and Antimicrobial Influence on Oyster Mushrooms (*Pleurotus ostreatus*) from Substrate Supplementation of Calcium Silicate

by

[Rossana V. C. Cardoso](#)

Márcio Carochó

,

Ângela Fernandes

,

José Pinela

,

Dejan Stojković

,

Marina Soković

,

Diego Cunha Zied

,

Juan Diego Valenzuela Cobos

,

Ana M. González-Paramás

,

Isabel C. F. R. Ferreira

and

Lillian Barros

Sustainability **2021**, *13*(9), 5019; <https://doi.org/10.3390/su13095019> - 29 Apr 2021

Cited by 2 | Viewed by 714

Abstract

Supplementation of the substrate of mushrooms with calcium silicate and other minerals is usually used as a preventive measure against pests and other contaminants during the production of oyster mushrooms. Little is known of the effects of this supplementation on the quality of [...] [Read more.](#)

(This article belongs to the Section [Sustainable Agriculture](#))

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Open Access **Review**

Integration of Technology to Learning-Teaching Processes and Google Workspace Tools: A Literature Review

by

[Umut Akcil](#)

,

[Huseyin Uzunboylu](#)

and

[Elanur Kinik](#)

Sustainability **2021**, 13(9), 5018; <https://doi.org/10.3390/su13095018> - 29 Apr 2021

Viewed by 1737

Abstract

During the pandemic, educators around the world were unexpectedly encouraged to switch to online and distance learning. They tried to integrate face-to-face learning–teaching processes in the classrooms into the technological environment and to sustain this process in the best way. In this research, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Selected Papers from Eurasian Conference on Educational Innovation 2021](#))

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subject

Open Access **Article**

The Current Status and Challenges of China Railway Express (CRE) as a Key Sustainability Policy Component of the Belt and Road Initiative

by

[Kyoung-Suk Choi](#)

Sustainability **2021**, 13(9), 5017; <https://doi.org/10.3390/su13095017> - 29 Apr 2021

Viewed by 933

Abstract

Under the auspices of the Belt and Road Initiative (BRI), China has been expanding the operation of its CRE (China Railway Express) system that links China and Europe. The CRE is today regarded as an important measure of progress by which BRI-related goals [\[...\] Read more.](#)

(This article belongs to the Special Issue [In the Wake of One Belt One Road: Transplanting and Translating Chinese Planning and Policy Laws, Standards and Ideas to Belt and Road Nations](#))

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Open AccessArticle

The Relationship between Endurance Involvement and Travel Behavior in Camping and the Moderating Effect of Place Attachment

by

[Jehn-Yih Wong](#)

,

[Ming-Lee Hsiung](#)

,

[Shu-Ju Lee](#)

and

[Chia-Ying ChouHuang](#)

Sustainability 2021, 13(9), 5016; <https://doi.org/10.3390/su13095016> - 29 Apr 2021

[Cited by 1](#) | Viewed by 800

Abstract

Camping tourism is one of the fastest growing segments of the tourism industry. Global trends in camping show that this type of recreational activity has begun to emerge in Asia. Meeting the expectations of potential and current tourists in a camping destination will [\[...\] Read more.](#)

(This article belongs to the Special Issue [Marketing Management in Hospitality and Tourism Industries](#))

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Open AccessArticle

Risk Management in Corporate Governance Framework

by

Hania Rehman

,

Muhammad Ramzan

,

Muhammad Zia UI Haq

,

Jinsoo Hwang

and

Kyoung-Bae Kim

Sustainability **2021**, 13(9), 5015; <https://doi.org/10.3390/su13095015> - 29 Apr 2021

[Cited by 2](#) | Viewed by 1029

Abstract

There is a scarcity of literature involving studies about the effect of risk management on the relationship between corporate governance and a firm's financial performance, especially in emerging markets. The study fills this gap and adds to the existing literature by investigating whether [\[...\] Read more.](#)

(This article belongs to the Special Issue [Corporate Governance and Sustainability Performance](#))

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Open Access **Article**

Corporate Governance vs. Financial Performance for Intensity of Innovation Investments

by

Raminta Benetyte

,

Halit Gonenc

and

Rytis Krusinskas

Sustainability **2021**, 13(9), 5014; <https://doi.org/10.3390/su13095014> - 29 Apr 2021

Viewed by 851

Abstract

In a rapidly changing technology world, companies need to conform to their customers' expectations if they wish to remain competitive in the marketplace. New products, services, processes, marketing, management, and organizational innovation can all be tools to keep companies competitive. Research and development [\[...\] Read more.](#)

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Open AccessArticle

Spatiotemporal Heterogeneity of Ecological Policy Compromises Human Well-Being and Giant Panda Habitat Conservation in Giant Panda National Park

by

[Dan Zhu](#)

and

[Degang Yang](#)

Sustainability **2021**, *13*(9), 5013; <https://doi.org/10.3390/su13095013> - 29 Apr 2021

Viewed by 748

Abstract

Identifying how policy, socioeconomic factors, and environmental factors influence changes in human well-being (HWB) and conservation efficiency is important for ecological management and sustainable development, especially in the Giant Panda National Park (GPNP). In this study, we systematically analyzed the differences in the [\[...\] Read more.](#)

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Open AccessArticle

Construction Sector Contribution to Economic Stability: Malaysian GDP Distribution

by

[Wesam Salah Alaloul](#)

,

[Muhammad Ali Musarat](#)

Muhammad Babar Ali Rabbani

Qaiser Iqbal

Ahsen Maqsoom

and

Waqas Farooq

Sustainability 2021, 13(9), 5012; <https://doi.org/10.3390/su13095012> - 29 Apr 2021

[Cited by 15](#) | Viewed by 1771

Abstract

The construction sector exerts an exceptional impact on economic development all over the world. Adequate buildings and infrastructures made by the construction sector ensure that a country reaches certain targets like social development, industrialization, freight transportation, sustainable development, and urbanization. This study aims [\[...\]](#)
[Read more.](#)

(This article belongs to the Special Issue [Appropriate Wisdom, Technology, and Management toward Environmental Sustainability for Development](#))

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Open Access **Article**

Assessing the Impacts of Climate Variations on the Potato Production in Bangladesh: A Supply and Demand Model Approach

by

Arifa Jannat

Yuki Ishikawa-Ishiwata

and

Jun Furuya

Sustainability 2021, 13(9), 5011; <https://doi.org/10.3390/su13095011> - 29 Apr 2021

[Cited by 2](#) | Viewed by 915

Abstract

From the perspective of nutritional security, we investigated the influence of climate change on potato production in Bangladesh using a supply and demand model by considering the potato as an important non-cereal food crop. To provide an outlook on the variation in potato [\[...\] Read more.](#)

(This article belongs to the Section [Air, Climate Change and Sustainability](#))

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Open Access **Article**

Achieving Sustainability in Food Systems: Addressing Changing Climate through Real Time Nitrogen and Weed Management in a Conservation Agriculture-Based Maize–Wheat System

by

[Kapila Shekhawat](#)

,

[Vinod K. Singh](#)

,

[Sanjay Singh Rathore](#)

,

[Rishi Raj](#)

and

[T. K. Das](#)

Sustainability **2021**, *13*(9), 5010; <https://doi.org/10.3390/su13095010> - 29 Apr 2021

[Cited by 1](#) | Viewed by 582

Abstract

The proven significance of conservation agriculture (CA) in enhancing agronomic productivity and resource use efficiency across diverse agro-ecologies is often challenged by weed interference and nitrogen (N) immobilization. The collective effect of real-time N and weed management has been scarcely studied. To evaluate [\[...\] Read more.](#)

(This article belongs to the Special Issue [Food Systems to Address Climate Challenges](#))

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Open AccessArticle

Beyond the Image of COVID-19 as Nature's Revenge: Understanding Globalized Capitalism through an Epidemiology of Money

by

Alf Hornborg

Sustainability 2021, 13(9), 5009; <https://doi.org/10.3390/su13095009> - 29 Apr 2021

Cited by 1 | Viewed by 1189

Abstract

Public discussion of the implications of the COVID-19 pandemic has reproduced several recurrent and interrelated topics in discourses on sustainability and the Anthropocene. First, there is an ambiguous concern—sometimes ominous, sometimes hopeful—that the pandemic will precipitate radical social transformation or even collapse. Second, [...] [Read more.](#)

(This article belongs to the Special Issue [Exploring and Analyzing Links between the COVID-19 Pandemic and Globalization—Levers for Sustainability Transitions?](#))

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Open AccessArticle

The Differences in the Propensity of Providing Smart Services by SMEs from the Electrical Engineering Industry with Regard to Their Cooperation and Innovation Flexibility

by

Lucie Kaňovská

and

Veronika Bumberová

Sustainability 2021, 13(9), 5008; <https://doi.org/10.3390/su13095008> - 29 Apr 2021

Cited by 2 | Viewed by 659

Abstract

There is still a lack of empirical evidence about smart service in general, and more particularly, in small and medium sized firms (SMEs). For SMEs, where the implementation of smart technologies is more demanding, the importance of cooperation with other business partners and [...] [Read more.](#)

(This article belongs to the Special Issue [Digital Entrepreneurship and the Cultural and Creative Industries \(CCIs\)](#))

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Open AccessArticle

Robust Scheduling of Waste Wood Processing Plants with Uncertain Delivery Sources and Quality

by

Balázs Dávid

,

Olivér Ósz

and

Máté Hegyháti

Sustainability **2021**, *13*(9), 5007; <https://doi.org/10.3390/su13095007> - 29 Apr 2021

[Cited by 1](#) | Viewed by 1281

Abstract

While the study of reverse wood value chains has become an important topic recently, optimization-focused studies usually consider network-level problems and decisions, and do not address the individual processes in the network. In the case of waste wood, one such important process is [\[...\] Read more.](#)

(This article belongs to the Special Issue [Operational Research Tools for Solving Sustainable Engineering Problems](#))

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Open AccessArticle

Effects of an Autonomy Support Intervention on the Involvement of Higher Education Students

by

José Eduardo Lozano-Jiménez

,

Elisa Huéscar

and

Juan Antonio Moreno-Murcia

Sustainability **2021**, 13(9), 5006; <https://doi.org/10.3390/su13095006> - 29 Apr 2021

[Cited by 3](#) | Viewed by 833

Abstract

Intervention studies based on Self-Determination Theory (SDT) in educational contexts prove the importance of the teacher's motivating interpersonal style, promoting positive results in students' motivation. However, college practices and processes have new challenges. This study examines the repercussions of an intervention program with [\[...\]](#)
[Read more.](#)

(This article belongs to the Special Issue [Instructional Support and Engagement: Working toward Sustainable Education](#))

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Open Access **Article**

The Sustainable Success and Growth of Social Ventures: Their Internal and External Factors

by

Jisong Kim

,

Jinhee Lee

and

Timothy J. Lee

Sustainability **2021**, 13(9), 5005; <https://doi.org/10.3390/su13095005> - 29 Apr 2021

[Cited by 2](#) | Viewed by 804

Abstract

The social venture ecosystem is important for the growth and sustainability of social ventures. This study aims to expand our understanding of the sustainable success and growth of social ventures by analyzing both their internal and external factors using interviews with social venture [\[...\]](#) [Read more.](#)

(This article belongs to the Special Issue [Social Businesses and Social Entrepreneurship in the Face of Sustainable Development Challenges](#))

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Open AccessArticle

Sustainable Innovation in Higher Education: The Impact of Gender on Innovation Competences

by

Raquel Ferreras-Garcia

,

Jordi Sales-Zaguirre

and

Enric Serradell-López

Sustainability 2021, 13(9), 5004; <https://doi.org/10.3390/su13095004> - 29 Apr 2021

[Cited by 5](#) | Viewed by 1127

Abstract

There is currently an increasing interest for sustainable innovation in our society. The European agendas highlight the role of higher education institutions in the formation and development of innovation competences among students. Our study aimed to contribute to the analysis of the level [\[...\] Read more.](#)

(This article belongs to the Special Issue [Gender in Sustainable Innovation](#))

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Open AccessArticle

Identifying the Daily Activity Spaces of Older Adults Living in a High-Density Urban Area: A Study Using the Smartphone-Based Global Positioning System Trajectory in Shanghai

by

Jiatian Bu

,

Jie Yin

,

Yifan Yu

and

Ye Zhan

Sustainability **2021**, 13(9), 5003; <https://doi.org/10.3390/su13095003> - 29 Apr 2021

Viewed by 567

Abstract

The characteristics of the built environment and the configuration of public facilities can affect the health and well-being of older adults. Recognizing the range of daily activities and understanding the utilization of public facilities among older adults has become essential in planning age-friendly [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Transportation Planning and Policy](#))

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Open Access Article

Sustainable Leadership in Frontier Asia Region: Managerial Discretion and Environmental Innovation

by

[Qaisar Iqbal](#)

,

[Noor Hazlina Ahmad](#)

and

[Yongmei Li](#)

Sustainability **2021**, 13(9), 5002; <https://doi.org/10.3390/su13095002> - 29 Apr 2021

[Cited by 8](#) | Viewed by 1006

Abstract

Climate change brings severe impact to frontier Asia in the shape of its significant negative effect on workability and livability. Drawing on the upper echelon theory (UET), this study aims to investigate the mechanism and conditional factors of a sustainable leadership–environmental performance relationship. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Management of Natural Resources](#))

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Open Access Article

Socio-Economic and Spatial Characteristics of Wielkopolski National Park: Application of the Hedonic Pricing Method

by

Cyprian Chwiałkowski

and

Adam Zydrón

Sustainability **2021**, 13(9), 5001; <https://doi.org/10.3390/su13095001> - 29 Apr 2021

Cited by 1 | Viewed by 736

Abstract

The study aimed to determine the influence of the proximity of Wielkopolski National Park (WNP) on the value of dwelling units in Mosina municipality. The research was conducted based on 1182 residential property transactions in the period from 2014 to 2018. The input [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open Access **Article**

Long-Term Sustainable Investment for Retirement

by

Iqbal Owadally

,

Jean-René Mwizere

,

Neema Kalidas

,

Kalyanie Murugesu

and

Muhammad Kashif

Sustainability **2021**, 13(9), 5000; <https://doi.org/10.3390/su13095000> - 29 Apr 2021

Viewed by 1118

Abstract

We consider whether sustainable investment can deliver performance comparable to conventional investment in investors' long-term retirement plans. On the capital markets, sustainable investment can be achieved through various instruments and strategies, one of them being investment in mutual funds that subscribe to ESG [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Investment Issues: Financial Products, Performance and Methodologies](#))

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Open Access **Article**

Children's Pictorial Expression of Plant Life and Its Connection with School-Based Greenness

by

Ilargi Zaballa

,

Maria Merino

and

José Domingo Villarroel

Sustainability **2021**, *13*(9), 4999; <https://doi.org/10.3390/su13094999> - 29 Apr 2021

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Abstract

Previous research highlights the positive influence that experiences in nature have on children's physical, emotional and conceptual development. There is also evidence that indicates that the availability of green areas on school grounds is associated with pupils' better academic performance as well as [\[...\] Read more.](#)

(This article belongs to the Special Issue [Environmental and Sustainability Education: Building Bridges in Times of Climate Urgency](#))

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Open Access **Review**

Shipping Bunker Cost Risk Assessment and Management during the Coronavirus Oil Shock

by

Tzeu-Chen Han

and

Chih-Min Wang

Sustainability **2021**, 13(9), 4998; <https://doi.org/10.3390/su13094998> - 29 Apr 2021

Cited by 2 | Viewed by 758

Abstract

This research explores ways to develop a risk management strategy that enables shipping companies to reduce unnecessary fuel cost risks, fuel price fluctuations and improve financial management. Through the Monte Carlo method, the study makes use of the simulation of the conditional value-at-risk [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Assessment in Supply Chain and Infrastructure Management](#))

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Open Access **Article**

Assessing Public Open Spaces: A Case of City Nagpur, India

by

Pritam Ahirrao

and

Smita Khan

Sustainability **2021**, 13(9), 4997; <https://doi.org/10.3390/su13094997> - 29 Apr 2021

Cited by 2 | Viewed by 902

Abstract

Major Indian cities have a lower public open space (POS)-capita ratio and do not meet national and international standards. Moreover, factors such as lack of design guidelines for POSs, limited funding, and lack of public participation have affected these limitedly available POSs and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Livable Public Spaces and Sustainable Urban Regeneration](#))

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Open Access Article

Is Urbanization Good for the Health of Middle-Aged and Elderly People in China?—Based on CHARLS Data

by

[Xuena Liu](#)

,

[Wei Fang](#)

,

[Haiming Li](#)

,

[Xiaodan Han](#)

and

[Han Xiao](#)

Sustainability 2021, 13(9), 4996; <https://doi.org/10.3390/su13094996> - 29 Apr 2021

Viewed by 556

Abstract

The purpose of this paper is to test whether improved healthcare services can mitigate health hazards resulting from environmental pollution in the urbanization process. Specifically, using China Health and Retirement Longitudinal Study (CHARLS) data and official statistics, this paper constructs comprehensive urbanization indicators [\[...\] Read more.](#)

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Open Access Article

Evaluation of Soil–Structure Interaction in Structure Models via Shaking Table Test

by

[Seongnoh Ahn](#)

,

[Gun Park](#)

Hyungchul Yoon

Jae-Hyeok Han

and

Jongwon Jung

Sustainability **2021**, *13*(9), 4995; <https://doi.org/10.3390/su13094995> - 29 Apr 2021

[Cited by 3](#) | Viewed by 599

Abstract

Modeling the soil–structure interaction (SSI) in seismic design involves the use of soil response curves for single-degree-of-freedom (SDOF) structures; however, real structures have multiple degrees of freedom (MDOF). In this study, shaking-table-derived p-y curves for SDOF and MDOF superstructures were compared using numerical [\[...\]](#)
[Read more.](#)

(This article belongs to the Topic [Industrial Engineering and Management](#))

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Open Access **Article**

Introducing and Evaluating the Effective Inclusion of Gender Dimension in STEM Higher Education

by

Marta Peña

Noelia Olmedo-Torre

Elisabet Mas de les Valls

and

Amaia Lusa

Sustainability **2021**, *13*(9), 4994; <https://doi.org/10.3390/su13094994> - 29 Apr 2021

[Cited by 1](#) | Viewed by 846

Abstract

The need to incorporate the gender dimension in higher education is a central element of gender equality policies within the European Union (EU). When most institutions of higher education have already strengthened and consolidated their curricula, the next challenge is to include and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Gender Diversity in STEM Disciplines](#))

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Open Access **Article**

Prejudice towards Immigrants: The Importance of Social Context, Ideological Postulates, and Perception of Outgroup Threat

by

Macarena Vallejo-Martín

,

Jesús M. Canto

,

Jesús E. San Martín García

and

Fabiola Perles Novas

Sustainability **2021**, *13*(9), 4993; <https://doi.org/10.3390/su13094993> - 29 Apr 2021

Viewed by 691

Abstract

Recent years have witnessed a rise in support for political parties with an anti-immigration sentiment and nationalistic rhetoric as their distinguishing traits. Within this context, our study, through a survey, analyses the relation of prejudice toward immigrants with ideological postulates of right-wing authoritarianism [\[...\] Read more.](#)

(This article belongs to the Special Issue [Migration-Refugee Policies and Socioeconomics, Well-Being and Sustainable Outcomes](#))

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The COVID-19 Outbreak and Psychological Distress in Healthcare Workers: The Role of Personality Traits, Attachment Styles, and Sociodemographic Factors

by

Cristina Mazza

,

Marco Colasanti

,

Eleonora Ricci

,

Serena Di Giandomenico

,

Daniela Marchetti

,

Lilybeth Fontanesi

,

Maria Cristina Verrocchio

,

Stefano Ferracuti

and

Paolo Roma

Sustainability **2021**, *13*(9), 4992; <https://doi.org/10.3390/su13094992> - 29 Apr 2021

Cited by 3 | Viewed by 1207

Abstract

The COVID-19 outbreak has exposed healthcare professionals (HPs) to increased workloads and a high risk of contagion. The present study aimed at examining the effects of the COVID-19 outbreak on the mental health of HPs in Italy, investigating the role of attachment style, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Working during the COVID-19 Global Pandemic](#))

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Open AccessArticle

From Fragility through Agility to Resilience: The Role of Sustainable Improvement in Increasing Organizational Maturity

by

[Agnieszka Stachowiak](#)

and

[Irena Pawłyszyn](#)

Sustainability 2021, 13(9), 4991; <https://doi.org/10.3390/su13094991> - 29 Apr 2021

[Cited by 2](#) | Viewed by 712

Abstract

Nowadays, due to a large number of changes in the external environment, as well as increased competition, organizations must actively support business processes. Internal management processes must be constantly improved. To understand whether a company is developing in the right direction, it is [\[...\] Read more.](#)

(This article belongs to the Special Issue [Distributed and Sustainable Manufacturing](#))

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Open AccessArticle

Implementation of a Recycled Polypropylene Homopolymer Material for Use in Additive Manufacturing

by

[Jozef Dobránsky](#)

,

[Martin Pollák](#)

,

[Luboš Běhálek](#)

and

Jozef Svetlík

Sustainability **2021**, 13(9), 4990; <https://doi.org/10.3390/su13094990> - 29 Apr 2021

Viewed by 732

Abstract

The main objective of the presented scientific article is to define the mechanical properties of polypropylene homopolymer with a prescribed percentage ratio of recycled granulate. The chosen material is intended for injection molding and especially for the production of products made by additive [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Manufacturing and Supply Chain in the Context of Industry 4.0: Opportunities and Challenges](#))

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Open Access **Article**

Intelligence and Green Total Factor Productivity Based on China's Province-Level Manufacturing Data

by

Yining Zhang

and

Zhong Wu

Sustainability **2021**, 13(9), 4989; <https://doi.org/10.3390/su13094989> - 29 Apr 2021

[Cited by 3](#) | Viewed by 717

Abstract

The application of intelligent technology has an important impact on the green total factor productivity of China's manufacturing industry. Based on the provincial panel data of China's manufacturing industry from 2008 to 2017, this article uses the Malmquist–Luenburger (ML) model to measure the [\[...\] Read more.](#)

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Open Access **Review**

Selected Respiratory Protective Devices: Respirators and Significance of Some Markings

by

Pavel Otrisal

Constantin Bungau

Vladimír Obsel

Zdeněk Melicharik

and

Gabriela Tont

Sustainability 2021, 13(9), 4988; <https://doi.org/10.3390/su13094988> - 29 Apr 2021

[Cited by 7](#) | Viewed by 672

Abstract

Currently, setting the obligation to use respiratory protective equipment with a level of protection of at least FFP2 in public transport and commercial and shopping centers are considered within the European Union. Many new products appeared on the European market within these specifications, [\[...\] Read more.](#)

(This article belongs to the Special Issue [COVID-19: Defense Strategies and Technologies](#))

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Open Access Article

Sustainability and Tourism Marketing: A Bibliometric Analysis of Publications between 1997 and 2020 Using VOSviewer Software

by

William Quezado de F. Cavalcante

Arnaldo Coelho

and

Cristela Maia Bairrada

Sustainability 2021, 13(9), 4987; <https://doi.org/10.3390/su13094987> - 29 Apr 2021

[Cited by 9](#) | Viewed by 1835

Abstract

Several studies have empirically explored the association between practices in sustainable tourism and their impact on tourism marketing. However, bibliometric studies that organize the production in this field are still scarce. The objective of this study is thus to provide a bibliometric analysis [\[...\] Read more.](#)

(This article belongs to the Special Issue [Marketing for Sustainable Tourism II](#))

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Open AccessArticle

Effects of the COVID-19 Pandemic on Classrooms: A Case Study on Foreigners in South Korea Using Applied Machine Learning

by

[Imatitikua D. Aiyanyo](#)

,

[Hamman Samuel](#)

and

[Heuseok Lim](#)

Sustainability **2021**, *13*(9), 4986; <https://doi.org/10.3390/su13094986> - 29 Apr 2021

[Cited by 1](#) | Viewed by 1255

Abstract

In this study, we qualitatively and quantitatively examine the effects of COVID-19 on classrooms, students, and educators. Using a new Twitter dataset specific to South Korea during the pandemic, we sample the sentiment and strain on students and educators using applied machine learning [\[...\] Read more.](#)

(This article belongs to the Special Issue [Working during the COVID-19 Global Pandemic](#))

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Open AccessFeature PaperArticle

Applied Big Data Analysis to Build Customer Product Recommendation Model

by

[Rong-Ho. Lin](#)

Wei-Wei Chuang

Chun-Ling Chuang

and

Wan-Sin Chang

Sustainability **2021**, 13(9), 4985; <https://doi.org/10.3390/su13094985> - 29 Apr 2021

[Cited by 1](#) | Viewed by 865

Abstract

With the development of the Internet environment, the trend of the retail industry in the future. It cannot be separated from the community, data and experience. Consumers' lifestyles and purchasing behaviors are constantly changing and retailers must adopt policies to understand consumers. This [\[...\] Read more.](#)

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Open Access **Article**

Analysis of the Visual Perception of the Competences of Project Managers

by

Rocio Poveda-Bautista

Jose-Antonio Diego-Mas

and

Jorge Alcaide-Marzal

Sustainability **2021**, 13(9), 4984; <https://doi.org/10.3390/su13094984> - 29 Apr 2021

Viewed by 617

Abstract

Based on the appearance of their faces, we attribute to people personality traits, moods, capacities, or competences. This unconscious process plays a central role in our everyday decisions and how we choose partners or our favorite candidate. This work is the first approach [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Contribution of the Project Management to the Sustainable Development Goals \(SDGs\)](#))

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Open AccessArticle

Scale Change and Correlation of Plant Functional Characteristics in the Desert Community of Ebinur Lake

by

[Hanpeng Li](#)

,

[Guanghai Lv](#)

,

[Lamei Jiang](#)

and

[Jinlong Wang](#)

Sustainability **2021**, *13*(9), 4983; <https://doi.org/10.3390/su13094983> - 29 Apr 2021

Viewed by 457

Abstract

The difference of functional traits among different species is the basis of species coexistence in natural ecosystems, and the variation of traits among individuals within species also plays an important role in species coexistence and distribution. Taking the desert plant community of Ebinur [\[...\] Read more.](#)

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Open AccessArticle

Using Internet of Things and Distributed Ledger Technology for Digital Circular Economy Enablement: The Case of Electronic Equipment

by

[Chiara Magrini](#)

,

Jana Nicolas

Holger Berg

Alberto Bellini

Enrico Paolini

Nazarena Vincenti

Luca Campadello

and

Alessandra Bonoli

Sustainability 2021, 13(9), 4982; <https://doi.org/10.3390/su13094982> - 29 Apr 2021

[Cited by 8](#) | Viewed by 1483

Abstract

Nowadays, high expectations are set for a digitally enabled circular economy (CE), to enhance resource efficiency. Tracing, tracking, and storing information is most important for this. In this paper, the application of Internet of Things (IoT) and Distributed Ledger Technology (Blockchain) are hence [\[...\] Read more.](#)

(This article belongs to the Special Issue [Circular Economy in the Digital Age](#))

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Open Access **Article**

Analyzing Restaurant Customers' Evolution of Dining Patterns and Satisfaction during COVID-19 for Sustainable Business Insights

by

[Susan \(Sixue\) Jia](#)

[Cited by 5](#) | Viewed by 1589

Abstract

Observing and interpreting restaurant customers' evolution of dining patterns and satisfaction during COVID-19 is of critical importance in terms of developing sustainable business insights. This study describes and analyzes customers' dining behavior before and after the pandemic outbreak by means of statistically aggregating [...] [Read more.](#)

(This article belongs to the Special Issue [The Evolution of Consumer Behavior in the Sustainable Business: Evidence from COVID-19](#))

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subject

Open Access **Article**

Impacts of Simulated Acid Rain on the Growth and the Yield of Soybean (*Glycine max* (L.) Merr.) in the Mountains of Northern Vietnam

by

[Ha T. T. Pham](#)

,

[An Thinh Nguyen](#)

,

[Anh T. Ngoc. Do](#)

and

[Luc Hens](#)

[Cited by 2](#) | Viewed by 1002

Abstract

In the mountains of Northern Vietnam, frequent and intense acid rain affects the crops. This paper assesses the impacts of simulated acid rain (SAR) on the growth and the yield of soybeans (*Glycine max* (L.) Merr.) in Hoa Binh province. A field [...] [Read more.](#)

(This article belongs to the Special Issue [Frontiers of Sustainable Environmental Management: From the View of Human Ecology](#))

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Open Access Article

A Multi-Objective Optimal Power Flow Control of Electrical Transmission Networks Using Intelligent Meta-Heuristic Optimization Techniques

by

Hatem Diab

,

Mahmoud Abdelsalam

and

Alaa Abdelbary

Sustainability **2021**, 13(9), 4979; <https://doi.org/10.3390/su13094979> - 29 Apr 2021

[Cited by 1](#) | Viewed by 779

Abstract

Optimal power flow (OPF) is considered one of the most critical challenges that can substantially impact the sustainable performance of power systems. Solving the OPF problem reduces three essential items: operation costs, transmission losses, and voltage drops. An intelligent controller is needed to [\[...\] Read more.](#)

(This article belongs to the Special Issue [Optimal Dynamic Control of Active Distribution Power System](#))

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Open Access Article

The Relationship between Well-Being and Knowledge Sharing

by

Kei Aoki

Sustainability **2021**, 13(9), 4978; <https://doi.org/10.3390/su13094978> - 29 Apr 2021

Viewed by 693

Abstract

This research studies the relationship between well-being and knowledge sharing. While user innovation has garnered greater attention in recent years, the market has failed to properly incentivize the diffusion of user innovations. This study proposes that this shortcoming could be resolved through a [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Business Models: Implications for Consumer Marketing](#))

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Open AccessArticle

The Valuation of Aesthetic Preferences and Consequences for Urban Transport Infrastructures

by

Christos Evangelinos

and

Stefan Tscharaktschiew

Sustainability 2021, 13(9), 4977; <https://doi.org/10.3390/su13094977> - 29 Apr 2021

Cited by 2 | Viewed by 700

Abstract

The importance of transport infrastructure for individual well-being and regional economic development and growth, but also its adverse side-effects, make a comprehensive assessment of the general appropriateness of new construction and rebuild indispensable. Assessments, however, often lack certain issues. For instance, aesthetic aspects [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Transportation and Regional Economic Development](#))

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Open AccessArticle

Virgin Natural Cork Characterization as a Sustainable Material for Use in Acoustic Solutions

by

Juan Miguel Barrigón Morillas

,

David Montes González

,

Rosendo Vílchez-Gómez

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Valentín Gómez Escobar

Rubén Maderuelo-Sanz

Guillermo Rey Gozalo

and

Pedro Atanasio Moraga

Sustainability **2021**, 13(9), 4976; <https://doi.org/10.3390/su13094976> - 29 Apr 2021

[Cited by 2](#) | Viewed by 866

Abstract

A characterization of the sound absorption of a sustainable material with scarce current use such as natural virgin cork is presented in this paper in order to explore further possible applications in the design of acoustic solutions. Different samples of virgin cork not [\[...\] Read more.](#)

(This article belongs to the Special Issue [Noise Pollution Management](#))

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Open Access Article

The Impact of the Industry 4.0 Concept on Slovak Business Sustainability within the Issue of the Pandemic Outbreak

by

Adriana Grenčíková

Marcel Kordoš

Jozef Bartek

and

Vladislav Berkovič

Sustainability **2021**, 13(9), 4975; <https://doi.org/10.3390/su13094975> - 29 Apr 2021

[Cited by 1](#) | Viewed by 932

Abstract

Many studies have found that the most significant job structure changes in the Slovak business environment can be expected in production and logistics. The biggest manpower shortages are in the fields of mechanical engineering, production, construction, information sciences and communication technologies, and medical [\[...\] Read more.](#)

(This article belongs to the Special Issue [Entrepreneurship and Business Sustainability](#))

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Open Access **Article**

Framing the Values of Vernacular Architecture for a Value-Based Conservation: A Conceptual Framework

by

Obafemi A. P. Olukoya

Sustainability **2021**, 13(9), 4974; <https://doi.org/10.3390/su13094974> - 29 Apr 2021

[Cited by 2](#) | Viewed by 855

Abstract

While a growing number of researchers have provided series of tough critiques of the typology-led heritage value assessment over the recent years, the impacts have been constrained by the continued obsession with expanding the list of the predetermined value typologies rather than escaping [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Social Dimension of Heritage Values—Re-thinking Methodological Approaches for Heritage Management and Research](#))

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Open Access **Review**

A Review on Effective Use of Daylight Harvesting Using Intelligent Lighting Control Systems for Sustainable Office Buildings in India

by

Gnana Swathika Odiyur Vathanam

,

Karthikeyan Kalyanasundaram

,

Rajvikram Madurai Elavarasan

,

Shabir Hussain Khahro

,

Umashankar Subramaniam

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Rishi Pugazhendhi

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Mehana Ramesh

and

Rishi Murugesan Gopalakrishnan

Sustainability **2021**, 13(9), 4973; <https://doi.org/10.3390/su13094973> - 29 Apr 2021

Cited by 5 | Viewed by 1500

Abstract

Lighting is a fundamental requirement of our daily life. A lot of research and development is carried out in the field of daylight harvesting, which is the need of the hour. One of the most desirable attributes of daylight harvesting is that daylight [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Buildings and Energy Performance](#))

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Open Access **Article**

Hazards, Infrastructure Networks and Unspecific Resilience

by

Nabil Touili

Sustainability **2021**, 13(9), 4972; <https://doi.org/10.3390/su13094972> - 29 Apr 2021

Cited by 1 | Viewed by 859

Abstract

The aim of this paper is to provide a framework to improve urban resilience independently of the nature of the disturbances. Recent disasters had a significant impact on critical infrastructures providing essential urban services such as energy, transportation, telecommunication, water and food supply [...] [Read more.](#)

(This article belongs to the Special Issue [Flood Vulnerability and Resilience in Urban Settings: Perspectives for Sustainability](#))

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Open AccessArticle

Multiple Effects of Different Nickel Concentrations on the Stability of Anaerobic Digestion of Molasses

by

[Sohail Khan](#)

,

[Fuzhi Lu](#)

,

[Muhammad Kashif](#)

and

[Peihong Shen](#)

Sustainability **2021**, *13*(9), 4971; <https://doi.org/10.3390/su13094971> - 29 Apr 2021

Viewed by 557

Abstract

Molasses is a highly thick by-product produced after sugarcane crystallization constitutes large amounts of biodegradable organics. These organic compounds can be converted to renewable products through anaerobic digestion. Nevertheless, its anaerobic digestion is limited due to its high chemical oxygen demand (COD) and [...] [Read more.](#)

(This article belongs to the Section [Energy Sustainability](#))

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Open AccessArticle

The Effects of the Economic Adjustment Programmes for Greece: A Quasi-Experimental Approach

by

Julio Revuelta

Sustainability **2021**, 13(9), 4970; <https://doi.org/10.3390/su13094970> - 28 Apr 2021

Viewed by 1826

Abstract

Three Economic Adjustment Programmes (EAPs) were implemented in Greece, between 2010 and 2015, without achieving the proposed economic objectives. This article analyses the impact of the EAPs in Greece using the synthetic control method (SCM) and has three main contributions. First, it identifies [...] [Read more.](#)

(This article belongs to the Special Issue [Fiscal Policy, the Theory and its Role in a Future Sustainable Economy Development](#))

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Open Access **Article**

Effects of Hydro-Meteorological Factors on Streamflow Withdrawal for Irrigation in Yeongsan River Basin

by

Jang Hyun Sung

,

Donghae Baek

,

Young Ryu

,

Seung Beom Seo

and

Kee-Won Seong

Sustainability **2021**, 13(9), 4969; <https://doi.org/10.3390/su13094969> - 28 Apr 2021

[Cited by 2](#) | Viewed by 626

Abstract

The relationships between a variety of hydro-meteorological variables and irrigation water use rates (WUR) were investigated in this study. Standardized Precipitation Index (SPI), Potential Evapotranspiration (PET), and Normalized Difference Vegetation Index (NDVI) were explored to identify the relationship with the WUR. The Yeongsan [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Water Resources Management under Climate Change](#))

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Open AccessArticle

Adoption of Green Environmental Practices in Small and Medium-Sized Enterprises: Entrepreneur and Business Policies Patterns in Romania

by

[Ionela Maniu](#)

,

[Cătălina Costache](#)

and

[Dănuț-Dumitru Dumitrașcu](#)

Sustainability **2021**, *13*(9), 4968; <https://doi.org/10.3390/su13094968> - 28 Apr 2021

[Cited by 1](#) | Viewed by 701

Abstract

Current research shows that SMEs' social and environmental actions are fragmented and informal, and few have formal policies and intentions. At the same time, many SMEs are engaged with environmental policies, often not knowing it. Concurrently, there is a gap between the pro-environmental [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open AccessArticle

Impact of COVID-19 and Anti-Pandemic Measures on the Sustainability of Demand in Suburban Bus Transport. The Case of the Slovak Republic

by

[Vladimír Konečný](#)

’
Mária Brídžiková

and

Šimon Senko

Sustainability **2021**, 13(9), 4967; <https://doi.org/10.3390/su13094967> - 28 Apr 2021

[Cited by 8](#) | Viewed by 884

Abstract

The COVID-19 pandemic has had a major impact on global social and economic development, including the transport sector. To prevent the spread of COVID-19, individual states had to take radical measures, including the closure of schools, offices, and businesses. At present, an extraordinary [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Transportation](#))

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Open AccessArticle

Gene Editing for Improved Animal Welfare and Production Traits in Cattle: Will This Technology Be Embraced or Rejected by the Public?

by

Maria Cristina Yunes

’

Zimbábwe Osório-Santos

’

Marina A. G. von Keyserlingk

and

Maria José Hötzel

Sustainability **2021**, 13(9), 4966; <https://doi.org/10.3390/su13094966> - 28 Apr 2021

[Cited by 4](#) | Viewed by 1443

Abstract

Integrating technology into agricultural systems has gained considerable traction, particularly over the last half century. Agricultural systems that incorporate the public's concerns regarding farm animal welfare are more likely to be socially accepted in the long term, a key but often forgotten component [\[...\] Read more.](#)

(This article belongs to the Special Issue [Genome Editing in Animal System to Support Sustainable Farming and Pest Control](#))

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Open AccessArticle

Expansion of the Fuel and Energy Balance Structure in Russia through the Development of a Closed-Loop Recycling

by

[Olga Novikova](#)

,

[Iaroslav Vladimirov](#)

and

[Tatiana Bugaeva](#)

Sustainability **2021**, *13*(9), 4965; <https://doi.org/10.3390/su13094965> - 28 Apr 2021

[Cited by 1](#) | Viewed by 566

Abstract

The goal of the study is to propose the basis for the concept of expanding the fuel balance in Russia through the development of a closed-loop resource cycle. We propose to use the criterion of energy potential of waste to generate new data [\[...\] Read more.](#)

(This article belongs to the Section [Energy Sustainability](#))

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Incentive Contracts for Sustainable Growth of Small or Medium-Sized Enterprise

by

[Daehyeon Park](#)

,

Jinhyeong Jo

and

Doojin Ryu

Sustainability **2021**, *13*(9), 4964; <https://doi.org/10.3390/su13094964> - 28 Apr 2021

Cited by 1 | Viewed by 624

Abstract

This study analyzes incentive contracts in public procurement supply chains using a game-theoretic approach. Specifically, we compare a structure in which the host company is a large enterprise and the partner company is a small or medium-sized enterprise (SME) to a structure in [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Future and Sustainability of Financial Markets](#))

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Open Access **Article**

Crash- and Simulation-Based Safety Performance Evaluation of Freeway Rest Area

by

Hyeonsoo Kim

,

Kyeongjoo Kwon

,

Nuri Park

,

Juneyoung Park

and

Mohamed Abdel-Aty

Sustainability **2021**, *13*(9), 4963; <https://doi.org/10.3390/su13094963> - 28 Apr 2021

Viewed by 567

Abstract

The main objective of this study was to evaluate the safety effects caused by altering the lengths of deceleration and acceleration lanes at rest areas on expressways in Korea. Although general conclusions can be found through crash-based safety analysis, to examine more specific [\[...\] Read more.](#)

(This article belongs to the Special Issue [Accident Prevention and Risk Management for Safe and Sustainable Transportation](#))

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Open Access Article

Foliar Application of Magnesium at Critical Stages Improved the Productivity of Rice Crop Grown under Different Cultivation Systems

by

[Hakoomat Ali](#)

,

[Naeem Sarwar](#)

,

[Shah Muhammad](#)

,

[Omer Farooq](#)

,

[Atique-ur Rehman](#)

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[Allah Wasaya](#)

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[Tauqeer Ahmad Yasir](#)

,

[Khurram Mubeen](#)

and

Muhammad Naeem Akhtar

Sustainability **2021**, 13(9), 4962; <https://doi.org/10.3390/su13094962> - 28 Apr 2021

Viewed by 458

Abstract

Climatic variations have created many challenges for farmers, but the most important one is the change in the dynamics of nutrient uptake by plants. Nutrients that were sufficient in soil are now found deficient, an issue that needs more focus in order to [\[...\] Read more.](#)

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Open AccessArticle

Reconceptualizing STEM Education in China as *Praxis*: A Curriculum Turn

by

Ying Ma

Sustainability **2021**, 13(9), 4961; <https://doi.org/10.3390/su13094961> - 28 Apr 2021

[Cited by 4](#) | Viewed by 942

Abstract

STEM education has drawn considerable international attention in recent decades. Current practices of STEM Education in China have shown that STEM is understood primarily as a policy-driven and economic problem. This paper challenges the reduced technical frameworks of STEM education and draws on [\[...\] Read more.](#)

(This article belongs to the Collection [Towards a Sustainable Future through Innovative STEM Education](#))

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Open AccessArticle

Manufacturing of Low-Carbon Binders Using Waste Glass and Dredged Sediments: Formulation and Performance Assessment at Laboratory Scale

by

Abdelhadi Bouchikhi

,

Walid Maherzi

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Mahfoud Benzerzour

Yannick Mamindy-Pajany

Arne Peys

and

Nor-Edine Abriak

Sustainability **2021**, *13*(9), 4960; <https://doi.org/10.3390/su13094960> - 28 Apr 2021

Cited by 2 | Viewed by 905

Abstract

Few studies focus on the co-valorization of river dredging sediments (DS) and residual waste glass (RWG) in alkali-activated binders. This study investigates the use of DS as an aluminosilicate source by substituting a natural resource (metakaolin (MK)), while using RWG as an activator [\[...\] Read more.](#)

(This article belongs to the Special Issue [Innovative Construction Materials for Sustainable Development](#))

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Open Access **Article**

Value-Based Decision to Redevelop Transportation Facilities: A Case Study of an Abandoned Airport

by

Beryl Wong Xin Xian

Yani Rahmawati

Al-Hussein Mohammed Hassan Al-Aidrous

Christiono Utomo

Noor Amila Wan Abdullah Zawawi

and

Rafliis

Sustainability **2021**, 13(9), 4959; <https://doi.org/10.3390/su13094959> - 28 Apr 2021

[Cited by 2](#) | Viewed by 584

Abstract

Value-based decision making is the consideration of function and cost in the decision to select the highest possible option. Reviews to previous studies showed that there is a lack of consideration of the criteria of value in the decision-making process. Hence, this research [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Urban and Rural Development](#))

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Open AccessArticle

The Safeguarding of Intangible Cultural Heritage from the Perspective of Civic Participation: The Informal Education of Chinese Embroidery Handicrafts

by

Wen-Jie Yan

and

Shang-Chia Chiou

Sustainability **2021**, 13(9), 4958; <https://doi.org/10.3390/su13094958> - 28 Apr 2021

[Cited by 3](#) | Viewed by 1012

Abstract

Heritage education can enable social empowerment. Within the broader goal of social empowerment, a current challenge is to establish principles that promote social participation in traditional education. The practice of protecting intangible cultural heritage in China has developed its own unique working model [\[...\] Read more.](#)

(This article belongs to the Special Issue [Values of Cultural Heritage for Society. Greater Citizen Participation.](#))

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Open AccessArticle

Planning for Sustainability: An Emerging Blue Economy in Russia's Coastal Arctic?

by

[Gao Tianming](#)

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[Nikolai Bobylev](#)

,

[Sebastien Gadal](#)

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[Maria Lagutina](#)

,

[Alexander Sergunin](#)

and

[Vasilii Erokhin](#)

Sustainability **2021**, 13(9), 4957; <https://doi.org/10.3390/su13094957> - 28 Apr 2021

[Cited by 3](#) | Viewed by 899

Abstract

The main research objective of this study is to examine how coastal urban communities in the Arctic Zone of the Russian Federation (AZRF) organize the sustainable development (and emerging blue economy) strategy planning process. Along with this general objective, this study focuses on [\[...\] Read more.](#)

(This article belongs to the Special Issue [Blue Economy and Resilient Development: Natural Resources, Shipping, People, and Environment](#))

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Open Access **Article**

Sustainability Transfer as a Concept for Universities in Regional Transformation—A Case Study

by

[Uwe Demele](#)

Benjamin Nölting

Wibke Crewett

and

Georgi Georgiev

Sustainability **2021**, 13(9), 4956; <https://doi.org/10.3390/su13094956> - 28 Apr 2021

[Cited by 2](#) | Viewed by 856

Abstract

The research object of this study is the in-depth discourse on the sustainability transfer activities of higher education institutions (HEIs) and their contribution to a regional sustainable transformation. For this purpose, a heuristically-derived concept of sustainability transfer is empirically tested with a mixed-methods [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Role of Universities in Regional Transitions towards Sustainability](#))

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Open Access **Article**

Evaluation of Reinforced Adobe Techniques for Sustainable Reconstruction in Andean Seismic Zones

by

José Carlos Cárdenas-Gómez

Montserrat Bosch Gonzales

and

Carlos Arturo Damiani Lazo

Sustainability **2021**, 13(9), 4955; <https://doi.org/10.3390/su13094955> - 28 Apr 2021

[Cited by 1](#) | Viewed by 964

Abstract

This research presents a methodological process for selecting the most appropriate construction technique for the reconstruction of housing after a seismic disaster in a rural and heritage context. This process, which is applicable to a large part of the Andean region, incorporates sustainability [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability Assessment of Architecture, Construction, Refurbishment and Restoration](#))

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Open Access Article

Quality Assurance for Sustainable Higher Education: Structural Equation Modeling

by

[Herlambang Herlambang](#)

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[Amelia Dwi Fitri](#)

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[Amirul Mukminin](#)

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[Muhaimin Muhaimin](#)

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[Marzul Hidayat](#)

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[Anggelia Puspasari](#)

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Susan Tarawifa

Ahmad Abdun Salam

Mohd Faiz Mohd Yaakob

and

Akhmad Habibi

Sustainability **2021**, 13(9), 4954; <https://doi.org/10.3390/su13094954> - 28 Apr 2021

[Cited by 1](#) | Viewed by 809

Abstract

Competition to ensure sustainable conditions for graduates' knowledge, skills, and competencies (KSC) and employability for sustainable development of human resources has long been present in higher education institutions (HEIs). The purpose of this study is to examine the roles of educational processes, practical [\[...\] Read more.](#)

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Open Access **Article**

Rurality and Dropout in Virtual Higher Education Programmes in Colombia

by

Alfredo Guzmán Rincón

Sandra Barragán

and

Favio Cala Vitery

Sustainability **2021**, 13(9), 4953; <https://doi.org/10.3390/su13094953> - 28 Apr 2021

[Cited by 5](#) | Viewed by 925

Abstract

As part of the 2030 Agenda, higher education has been conceptualised as one of the ways to overcome the social disparities experienced in rural areas in Colombia. Thus, in concordance with the benefits of this level of education, the state has been designing [\[...\] Read more.](#)

(This article belongs to the Special Issue [Mobilizing Higher Education for the 2030 Agenda](#))

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Open AccessArticle

Electric Vehicle Charging Facility Planning Based on Flow Demand—A Case Study

by

Cheng Wang

,

Zhou Gao

,

Peng Yang

,

Zhenpo Wang

and

Zhiheng Li

Sustainability **2021**, *13*(9), 4952; <https://doi.org/10.3390/su13094952> - 28 Apr 2021

Viewed by 562

Abstract

The location of electric vehicle charging facilities is of great significance in promoting the use of electric vehicles. Most existing electric vehicle location models, including the flow refueling location model (FRLM) and its flexible reformulation (FRFRLM), are based on flow demand. At present, [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Transportation](#))

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Open AccessArticle

Land Cover Changes in Ghana over the Past 24 Years

by

Peter A. Y. Ampim

,

Michael Ogbe

,

Eric Obeng

,

Edwin K. Akley

and

Dilys S. MacCarthy

Sustainability **2021**, *13*(9), 4951; <https://doi.org/10.3390/su13094951> - 28 Apr 2021

Cited by 2 | Viewed by 860

Abstract

Changes in land cover (LC) can lead to environmental challenges, but few studies have investigated LC changes at a country wide scale in Ghana. Tracking LC changes at such a scale overtime is relevant for devising solutions to emerging issues. This study examined [\[...\] Read more.](#)

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[Open Access Article](#)

Lifecycle Design of Disruptive SCADA Systems for Waste-Water Treatment Installations

by

Stelian Brad

,

Mircea Murar

,

Grigore Vlad

,

Emilia Brad

and

Mariuța Popanton

Sustainability **2021**, 13(9), 4950; <https://doi.org/10.3390/su13094950> - 28 Apr 2021

[Cited by 1](#) | Viewed by 861

Abstract

Capacity to remotely monitor and control systems for waste-water treatment and to provide real time and trustworthy data of system's behavior to various stakeholders is of high relevance. SCADA systems are used to undertake this job. SCADA solutions are usually conceptualized and designed [\[...\] Read more.](#)

(This article belongs to the Special Issue [Municipal Wastewater Management](#))

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Open Access **Article**

Sustainable Valorisation of Silane-Treated Waste Glass Powder in Concrete Pavement

by

Mazen J. Al-Kheetan

,

Juliana Byzyka

and

Seyed Hamidreza Ghaffar

Sustainability **2021**, 13(9), 4949; <https://doi.org/10.3390/su13094949> - 28 Apr 2021

[Cited by 2](#) | Viewed by 910

Abstract

This research presents new insights into the utilisation of waste glass powder in concrete pavements. Two different types of glass powder were used as a partial replacement for sand: 10% neat glass powder (untreated) and 10% silane-treated glass powder. The interfacial bonding properties, [\[...\] Read more.](#)

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Open AccessArticle

Engineering Design Process of Face Masks Based on Circularity and Life Cycle Assessment in the Constraint of the COVID-19 Pandemic

by

[Núria Boix Rodríguez](#)

,

[Giovanni Formentini](#)

,

[Claudio Favi](#)

and

[Marco Marconi](#)

Sustainability **2021**, 13(9), 4948; <https://doi.org/10.3390/su13094948> - 28 Apr 2021

[Cited by 6](#) | Viewed by 1645

Abstract

Face masks are currently considered key equipment to protect people against the COVID-19 pandemic. The demand for such devices is considerable, as is the amount of plastic waste generated after their use (approximately 1.6 million tons/day since the outbreak). Even if the sanitary [\[...\] Read more.](#)

(This article belongs to the Special Issue [Product Eco-Design in the Era of Circular Economy](#))

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Open AccessArticle

Evaluation of Prospective Use of Existed CFRP-Strengthened Concrete Pipes in Forest Areas: Assessment of Their Structural Stability and Possible Re-Use

by

[Rigas Giannopoulos](#)

and

Konstantinos Katakalos

Sustainability **2021**, 13(9), 4947; <https://doi.org/10.3390/su13094947> - 28 Apr 2021

Viewed by 515

Abstract

Forest traffic networks receive considerable structural stress from supporting heavy vehicles and machinery. Usually, in forest areas, artificial waterways are constructed on the side of the road and feature open constructions, so that solid materials blocking the waterways may be easily cleared. The [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainable Built Environment](#))

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Merging Systems Thinking with Entrepreneurship: Shifting Students' Mindsets towards Crafting a More Sustainable Future

by

Matthew Lynch

,

Gunnar Andersson

and

Frode Ramstad Johansen

Sustainability **2021**, 13(9), 4946; <https://doi.org/10.3390/su13094946> - 28 Apr 2021

[Cited by 2](#) | Viewed by 1091

Abstract

The major challenges confronting humanity are systemic in nature: climate change, pollution, poverty, and inequality. Entrepreneurship fails to tackle these challenges, and 'creative destruction' is mostly just leading to the destruction of the natural world that we inhabit. The present economic, financial, and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Systems Engineering for Sustainable Development Goals](#))

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Open AccessArticle

Selecting a Contextualized Set of Urban Quality of Life Indicators: Results of a Delphi Consensus Procedure

by

Jamal Al-Qawasmi

Sustainability **2021**, *13*(9), 4945; <https://doi.org/10.3390/su13094945> - 28 Apr 2021

Cited by 3 | Viewed by 724

Abstract

Although indicators are commonly used to measure/assess urban quality of life (QOL), there is no consensus in the literature on the core indicators of urban QOL. This paper aims to identify a set of key indicators that will be used to assess/measure urban [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Health and Quality of Life in Urban Areas](#))

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Open Access **Article**

Identifying and Comparing Obstacles and Incentives for the Implementation of Energy Saving Projects in Eastern and Western European Countries: An Exploratory Study

by

Walter Leal Filho

,

Mariia Fedoruk

,

Lyudmyla Zahvoyska

and

Lucas Veiga Avila

Sustainability **2021**, *13*(9), 4944; <https://doi.org/10.3390/su13094944> - 28 Apr 2021

Cited by 1 | Viewed by 498

Abstract

This comparison study of the implementation of energy-saving projects in buildings was conducted in order to consider the diversity of experiences between Western European countries, which have experience and expertise in this area, and those countries in Eastern Europe that are in the [\[...\] Read more.](#)

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Open AccessArticle

Teaching Competencies of Language Teachers in Research Universities in Beijing: Perspectives from SoTL and Institutional Theory

by

[Yi Zhang](#)

,

[Fugui Ye](#)

and

[Xiumei Liu](#)

Sustainability **2021**, *13*(9), 4943; <https://doi.org/10.3390/su13094943> - 28 Apr 2021

Viewed by 533

Abstract

Though professional development of language teachers has received increasing attention over the past decade, there is a lack of research on development of language teachers' teaching competencies in research universities. Informed by the institutional perspective and the framework of Scholarship of Teaching, this [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability Education and Scholarship in Higher Education](#))

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Open AccessArticle

Using a Board Game to Teach about Sustainable Development

by

[Jen-Che Tsai](#)

,

[Shiang-Yao Liu](#)

,

[Chun-Yen Chang](#)

and

Shih-Yeh Chen

Sustainability **2021**, 13(9), 4942; <https://doi.org/10.3390/su13094942> - 28 Apr 2021

[Cited by 1](#) | Viewed by 1049

Abstract

Examining and developing courses of education for sustainable development (ESD) is the goal of this study. Building on the theory of game-based learning, this study develops teaching strategies that employ board games for ESD. The design context of the board game, entitled “Be [...] [Read more.](#)

(This article belongs to the Special Issue [Selected Papers from Eurasian Conference on Educational Innovation 2021](#))

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Open Access **Article**

Institutional Reforms and Their Impact on Economic Growth and Investment in Developing Countries

by

Jin Zhao

,

Ghulam Rasool Madni

,

Muhammad Awais Anwar

and

Syeda Masooma Zahra

Sustainability **2021**, 13(9), 4941; <https://doi.org/10.3390/su13094941> - 28 Apr 2021

[Cited by 1](#) | Viewed by 595

Abstract

It is widely accepted that the economic and social system may be more efficient by reforming institutions. Institutional reforms are attempts to change the rules affecting human interactions and these reforms are fundamental for development and economic prosperity. The reforms can be divided [...] [Read more.](#)

(This article belongs to the Special Issue [The Role of Economic Activities, Governance, Energy, and Environmental Economy to Achieve Sustainable Economic Growth](#))

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Open AccessArticle

The 10 Most Crucial Circular Economy Challenge Patterns in Tourism and the Effects of COVID-19

by

[Julia Martínez-Cabrera](#)

and

[Francisco López-del-Pino](#)

Sustainability 2021, 13(9), 4940; <https://doi.org/10.3390/su13094940> - 28 Apr 2021

[Cited by 1](#) | Viewed by 1511

Abstract

This paper makes a new contribution to the understanding of challenges for the transition toward the circular economy (CE) by identifying the main CE challenge patterns (CECPs) and analyzing their relevance for the tourism sector. Our work is based on a previous systematic [\[...\] Read more.](#)

(This article belongs to the Special Issue [Circular Economy in the Service Sector: Current Situation and Future Perspectives](#))

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Open AccessEditorial

Sustainable Development of Energy, Water and Environment Systems (SDEWES)

by

[Krzysztof J. Wołosz](#)

,

[Krzysztof Urbaniec](#)

and

[Neven Duić](#)

Sustainability 2021, 13(9), 4939; <https://doi.org/10.3390/su13094939> - 28 Apr 2021

[Cited by 1](#) | Viewed by 579

Abstract

Sustainable development is a highly interdisciplinary concept that involves the interaction of various systems, such as energy, water, and environment, by using waste from one, as a resource in another, and in the exact moment when it is beneficial to all [...] [Full article](#)

(This article belongs to the Special Issue [Sustainable Development of Energy, Water and Environment Systems \(SDEWES\)](#))

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Open AccessArticle

The Sustainability of Institutional Policies Starts with “Know Thyself”

by

[Runna Alghazo](#)

and

[Maura A. E. Pilotti](#)

Sustainability **2021**, *13*(9), 4938; <https://doi.org/10.3390/su13094938> - 28 Apr 2021

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Abstract

In the present research, faculty at a university in the Middle East were asked to report their attitudes towards learning and grades through the *LOGO: F* scale. At the selected university, faculty are required to apply a student-centered approach to instruction, which is [...] [Read more.](#)

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Open AccessArticle

A Study of Lacquerware Industry’s Upgrading and Sustainability Strategies from the Perspective of GVCs—Using China Fuzhou Lacquerware Industry as Example

by

[Jianping Huang](#)

,

[Chinlon Lin](#)

,

[Yang Gao](#)

and

Chun-liang Chen

Sustainability **2021**, *13*(9), 4937; <https://doi.org/10.3390/su13094937> - 28 Apr 2021

Viewed by 629

Abstract

To discover how the lacquerware industry realizes its core competency, it is important to explore its upgrading strategies in the global value chains. The purpose of this study is to discuss the upgrading strategies applied during the lacquerware industry's four economic stages and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Innovation Trends and Global Value Chains in Emerging Markets](#))

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Open Access **Article**

Development of an Agent-Based Model for Weather Forecast Information Exchange in Rural Area of Bahir Dar, Ethiopia

by

Sardorbek Musayev

,

Jonathan Mellor

,

Tara Walsh

and

Emmanouil Anagnostou

Sustainability **2021**, *13*(9), 4936; <https://doi.org/10.3390/su13094936> - 28 Apr 2021

[Cited by 1](#) | Viewed by 682

Abstract

Smallholder farmers in Ethiopia are vulnerable to climate change impacts due to their low adaptive capacity and dependence on rainfed agriculture. Thus, a successful weather forecast system may bring significant economic and social value to the community. The main objectives of this study [\[...\] Read more.](#)

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Open Access Article

Solar Thermal Processing to Disinfect Human Waste

by

[Richard P. Fisher](#)

,

[Allan Lewandowski](#)

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[Tesfayohanes W. Yacob](#)

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[Barbara J. Ward](#)

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[Lauren M. Hafford](#)

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[Ryan B. Mahoney](#)

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[Cori J. Oversby](#)

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[Dana H. Hauschulz](#)

,

[R. Scott Summers](#)

Karl G. Linden

and

Alan W. Weimer

Sustainability **2021**, 13(9), 4935; <https://doi.org/10.3390/su13094935> - 28 Apr 2021

Viewed by 555

Abstract

Almost half of the world's population is living without access to sanitation services that are safe, reliable, and minimize public health risk of human waste exposure. Modern flush-based sanitation networks are unsustainable: substantial resources, namely water and fuel, are required to bring human [\[...\] Read more.](#)

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Open AccessArticle

Integration of Sustainability Awareness in Entrepreneurship Education

by

Jane Lu Hsu

and

Maja Pivec

Sustainability **2021**, 13(9), 4934; <https://doi.org/10.3390/su13094934> - 28 Apr 2021

[Cited by 4](#) | Viewed by 716

Abstract

Compared to topics such as creativity and strategic implementation in entrepreneurship education, sustainability has not been profoundly emphasized in programs. This study seeks to fill this gap by examining cross-cultural differences between the Austrian and Taiwanese educational contexts in terms of sustainability awareness [\[...\] Read more.](#)

(This article belongs to the Special Issue [Promoting Pro-environmental Awareness and Behaviors in Campus](#))

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Open AccessArticle

Development of Land Use Regression Model for Seasonal Variation of Nitrogen Dioxide (NO₂) in Lahore, Pakistan

by

[Saimar Pervez](#)

,

[Ryuta Maruyama](#)

,

[Ayesha Riaz](#)

and

[Satoshi Nakai](#)

Sustainability **2021**, 13(9), 4933; <https://doi.org/10.3390/su13094933> - 28 Apr 2021

Viewed by 596

Abstract

Ambient air pollution and its exposure has been a worldwide issue and can increase the possibility of health risks especially in urban areas of developing countries having the mixture of different air pollution sources. With the increase in population, industrial development and economic [\[...\] Read more.](#)

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Open Access **Article**

Measuring System Competence in Education for Sustainable Development

by

[Nina Roczen](#)

,

[Frank Fischer](#)

,

[Janis Fögele](#)

,

Johannes Hartig

and

Rainer Mehren

Sustainability **2021**, 13(9), 4932; <https://doi.org/10.3390/su13094932> - 28 Apr 2021

Viewed by 680

Abstract

This paper presents the development of an instrument for the assessment of system competence in the field of Education for Sustainable Development (ESD). Based on an already existing, more complex model of system competence for the school subject geography, we have developed a [\[...\] Read more.](#)

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[Open Access](#) **Article**

Optimal Congestion Pricing with Day-to-Day Evolutionary Flow Dynamics: A Mean–Variance Optimization Approach

by

Qixiu Cheng

,

Jun Chen

,

Honggang Zhang

and

Zhiyuan Liu

Sustainability **2021**, 13(9), 4931; <https://doi.org/10.3390/su13094931> - 28 Apr 2021

[Cited by 3](#) | Viewed by 519

Abstract

This paper investigates the optimal congestion pricing problem that considers day-to-day evolutionary flow dynamics. Under the circumstance that traffic flows evolve from day to day and the system might be in a non-equilibrium state during a certain period of days after implementing (or [\[...\] Read more.](#)

(This article belongs to the Special Issue [Urban Transport Network Modeling and Sustainable Maritime Transportation](#))

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Fuel Injection Responses and Particulate Emissions of a CRDI Engine Fueled with *Cocos nucifera* Biodiesel

by

Yew Heng Teoh

,

Heoy Geok How

,

Farooq Sher

,

Thanh Danh Le

,

Huu Tho Nguyen

and

Haseeb Yaqoob

Sustainability 2021, 13(9), 4930; <https://doi.org/10.3390/su13094930> - 28 Apr 2021

[Cited by 7](#) | Viewed by 921

Abstract

The objective of this paper is to study the effect of coconut oil biodiesel (COB)-diesel blends on exhaust particulate matter (PM) emissions and fuel injection responses in an unmodified turbocharged four-stroke common-rail direct injection (CRDI) diesel engine. Characterization of COB and their blends [\[...\] Read more.](#)

(This article belongs to the Collection [Reviews, Advances and Applications in Environmental Sustainability](#))

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Open AccessArticle

An Exploratory Study of How Latecomers Transform Strategic Path in Catch-Up Cycle

by

[Xiaoli Li](#)

and

[Hongqi Wang](#)

Sustainability **2021**, *13*(9), 4929; <https://doi.org/10.3390/su13094929> - 28 Apr 2021

[Cited by 2](#) | Viewed by 583

Abstract

In catch-up cycles, the industrial leadership of an incumbent is replaced by a latecomer. Latecomers from emerging economies compress time and skip amplitude by breaking the original strategic path and form a new appropriate strategic path to catch up with the incumbents. Previous [\[...\] Read more.](#)

(This article belongs to the Special Issue [Business Performance and Sustainable Innovation Strategies](#))

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Open Access **Article**

Nitrous Oxide Emissions in Pineapple Cultivation on a Tropical Peat Soil

by

[Alicia Vanessa Jeffary](#)

,

[Osumanu Haruna Ahmed](#)

,

[Roland Kueh Jui Heng](#)

,

[Liza Nuriati Lim Kim Choo](#)

,

[Latifah Omar](#)

,

Adiza Alhassan Musah

and

Arifin Abdu

Sustainability **2021**, 13(9), 4928; <https://doi.org/10.3390/su13094928> - 28 Apr 2021

Viewed by 551

Abstract

Farming systems on peat soils are novel, considering the complexities of these organic soil. Since peat soils effectively capture greenhouse gases in their natural state, cultivating peat soils with annual or perennial crops such as pineapples necessitates the monitoring of nitrous oxide (N [\[...\] Read more.](#)

(This article belongs to the Section [Environmental Sustainability and Applications](#))

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Open Access **Article**

Access to Digital Financial Services and Green Technology Advances: Regional Evidence from China

by

Zhangsheng Liu

,

Xiaolu Zhang

,

Liuqingqing Yang

and

Yinjie Shen

Sustainability **2021**, 13(9), 4927; <https://doi.org/10.3390/su13094927> - 28 Apr 2021

[Cited by 2](#) | Viewed by 650

Abstract

Using data of 265 Chinese cities from 2010 to 2017, we studied the impact of access to digital financial services on green technology advances in the context of regional competition. We found that access to digital financial services significantly promotes green technology advances [\[...\] Read more.](#)

(This article belongs to the Special Issue [Harnessing Sustainability to Corporate Finance and Financial Institutions](#))

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Open AccessArticle

Investigating the Spatio-Temporal Variation of Soil Moisture and Agricultural Drought towards Supporting Water Resources Management in the Red River Basin of Vietnam

by

[Nguyen Duc Luong](#)

,

[Nguyen Hoang Hiep](#)

and

[Thi Hieu Bui](#)

Sustainability **2021**, *13*(9), 4926; <https://doi.org/10.3390/su13094926> - 28 Apr 2021

[Cited by 1](#) | Viewed by 808

Abstract

The increasing serious droughts recently might have significant impacts on socioeconomic development in the Red River basin (RRB). This study applied the variable infiltration capacity (VIC) model to investigate spatio-temporal dynamics of soil moisture in the northeast, northwest, and Red River Delta (RRD) [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Use and Management of Freshwater Systems](#))

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Open AccessArticle

From Pilot Projects to Transformative Infrastructures, Exploring Market Receptivity for Permeable Pavement in The Netherlands

by

[Rutger de Graaf-van Dinther](#)

Anne Leskens

Ted Veldkamp

Jeroen Kluck

and

Floris Boogaard

Sustainability 2021, 13(9), 4925; <https://doi.org/10.3390/su13094925> - 28 Apr 2021

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Abstract

Climate change and changing land use challenge the livability and flood safety of Dutch cities. One option cities have to become more climate-proof is to increase infiltration of stormwater into soil through permeable pavement and thus reduce discharge of stormwater into sewer systems. [...] [Read more.](#)

(This article belongs to the Section [Sustainable Urban and Rural Development](#))

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Open Access Article

Homesickness and Socio-Cultural Adaptation towards Perceived Stress among International Students of a Public University in Sabah: An Exploration Study for Social Sustainability

by

Balan Rathakrishnan

Soon Singh Bikar Singh

Mohammad Rahim Kamaluddin

Mohd Fahmi Ghazali

Azizi Yahaya

Noor Hassline Mohamed

and

Anath Rau Krishnan

Sustainability 2021, 13(9), 4924; <https://doi.org/10.3390/su13094924> - 28 Apr 2021

Cited by 6 | Viewed by 1123

Abstract

When adolescents go overseas to study, they have to face the challenge of adapting to local cultures, homesickness, and dealing with the stress. This study aimed to investigate the socio-cultural adaptation, homesickness, and perceived stress among international students in relation to social sustainability [\[...\] Read more.](#)

(This article belongs to the Section [Psychology of Sustainability and Sustainable Development](#))

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Open Access **Article**

Making with Shenzhen (Characteristics)—Strategy and Everyday Tactics in a City’s Creative Turn

by

Siyu Chen

and

Jian Lin

Sustainability 2021, 13(9), 4923; <https://doi.org/10.3390/su13094923> - 28 Apr 2021

Cited by 1 | Viewed by 526

Abstract

This paper investigates the government-led maker movement in Shenzhen, China by deploying Michel de Certeau’s concepts of “strategy” and “tactics”. While there is a growing body of literature surrounding the maker movement, the discrepancy between the maker movement presented in urban policies and [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Future of the Maker Movement](#))

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Open AccessArticle

Economic Sustainability of Touristic Offer Funded by Public Initiatives in Spanish Rural Areas

by

[Ángela Engelmo Moriche](#)

,

[Ana Nieto Masot](#)

and

[Julián Mora Aliseda](#)

Sustainability **2021**, *13*(9), 4922; <https://doi.org/10.3390/su13094922> - 28 Apr 2021

[Cited by 3](#) | Viewed by 588

Abstract

At the end of the 20th century, tourism was positioned as an activity capable of diversifying and reactivating the economies of European rural areas, which were experiencing problems of aging and population loss. One of the public initiatives that most promoted the development [\[...\] Read more.](#)

(This article belongs to the Section [Tourism, Culture, and Heritage](#))

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Open AccessArticle

Training Freshmen Engineers as Managers to Develop Soft Skills: A Person-Centred Approach

by

[Rosa-María Rodríguez-Jiménez](#)

,

[Pedro J. Lara-Bercial](#)

and

María-José Terrón-López

Sustainability **2021**, 13(9), 4921; <https://doi.org/10.3390/su13094921> - 28 Apr 2021

Viewed by 709

Abstract

This article describes a subject design to train engineer students in soft skills through an experiential and person-centred approach, as is usually developed in companies for managers to incorporate responsible and ethical engineering perspectives. This design is based on an experiential methodology and [\[...\] Read more.](#)

(This article belongs to the Collection [Education for Sustainable Development in Higher Education](#))

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Open Access Article

Food Festival Exhibitors' Business Motivation

by

Dorota Janiszewska

and

Luiza Ossowska

Sustainability **2021**, 13(9), 4920; <https://doi.org/10.3390/su13094920> - 28 Apr 2021

[Cited by 2](#) | Viewed by 667

Abstract

This paper aims to present the motivation of exhibitors participating in food festivals to establish and run a business. The conducted research is an attempt to fill the gap in research on exhibitors who participate in food festivals. During three different Polish culinary [\[...\] Read more.](#)

(This article belongs to the Special Issue [Entrepreneurial Ecosystems in Tourism and Events](#))

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Open Access Article

Chemical and Biological Characteristics of Organic Amendments Produced from Selected Agro-Wastes with Potential for Sustaining Soil Health: A Laboratory Assessment

by

Kevin Muyang Tawie Sulok

Osumanu Haruna Ahmed

Choy Yuen Khew

Jarroop Augustine Mercer Zehnder

Mohamadu Boyie Jalloh

Adiza Alhassan Musah

and

Arifin Abdu

Sustainability 2021, 13(9), 4919; <https://doi.org/10.3390/su13094919> - 28 Apr 2021

[Cited by 3](#) | Viewed by 964

Abstract

Sustaining soil health cannot be divorced from sustainable crop production. Organic, or natural, farming is being promoted as a good sustainable agriculture practice. One aspect of organic farming that could significantly enhance and sustain soil health, soil quality, and crop productivity is the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Waste Management through Composting: Advances and Applications](#))

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Open Access **Review**

A Review of Challenges and Opportunities for End-of-Life Vehicle Recycling in Developing Countries and Emerging Economies: A SWOT Analysis

by

Solange Ayuni Numfor

Geoffrey Barongo Omosa

Zhengyang Zhang

and

Kazuyo Matsubae

Sustainability **2021**, 13(9), 4918; <https://doi.org/10.3390/su13094918> - 27 Apr 2021

Cited by 4 | Viewed by 1579

Abstract

The importance of recycling end-of-life vehicles (ELVs) has been widely acknowledged as a means of reducing ELV waste to the environment. This reduced environmental waste contributes to achieving a number of UN SDGs, including the creation of sustainable cities. The recovery of secondary [\[...\] Read more.](#)

(This article belongs to the Special Issue [Waste Management and Application of the Principles of the Circular Economy](#))

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Open Access **Article**

Relations of Imperfect Repairs to Critical Infrastructure Maintenance Costs

by

Agnieszka Blokus

and

Przemysław Dziula

Sustainability **2021**, 13(9), 4917; <https://doi.org/10.3390/su13094917> - 27 Apr 2021

Cited by 2 | Viewed by 591

Abstract

This article presents an analysis of maintenance costs and maintenance policy of critical infrastructure systems, considering the case of imperfect repair. The maintenance costs of the systems, considering a multistate approach and imperfect repairs, are analyzed with reference to the renewal stream and [\[...\] Read more.](#)

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Open Access Article

Implementing Regional Circular Economy Policies: A Proposed Living Constellation of Stakeholders

by

[Sanja Arsova](#)

,

[Andrea Genovese](#)

,

[Panayiotis H. Ketikidis](#)

,

[Josep Pinyol Alberich](#)

and

[Adrian Solomon](#)

Sustainability 2021, 13(9), 4916; <https://doi.org/10.3390/su13094916> - 27 Apr 2021

[Cited by 3](#) | Viewed by 1221

Abstract

The transition towards the circular economy (CE) entails transformative and system-wide changes, implying involvement, alignment, and cooperation between all stakeholders at all levels. However, debate continues around how best to achieve this. Additionally, little attention has been paid to developing models for identifying [\[...\] Read more.](#)

(This article belongs to the Special Issue [Strategies toward a Green Deal and Circular Economy](#))

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Open Access Article

Perceptions of Educational Agents Regarding the Use of School Visits to Museums for the Teaching of History

by

[Ainoa Escribano-Miralles](#)

Francisca-José Serrano-Pastor

and

Pedro Miralles-Martínez

Sustainability **2021**, 13(9), 4915; <https://doi.org/10.3390/su13094915> - 27 Apr 2021

Viewed by 569

Abstract

(1) The use of heritage in fieldwork, enabling the analysis of historical sources in museums via school trips, contributes towards the development of historical thinking and the formation of active, participative and critical citizens within the field of formal education (2) The general [\[...\] Read more.](#)

(This article belongs to the Special Issue [Values of Cultural Heritage for Society. Greater Citizen Participation.](#))

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Open AccessArticle

Application of Systems Engineering and Sustainable Development Goals towards Sustainable Management of Fishing Gear Resources in Norway

by

Paritosh C. Deshpande

and

Cecilia Haskins

Sustainability **2021**, 13(9), 4914; <https://doi.org/10.3390/su13094914> - 27 Apr 2021

[Cited by 1](#) | Viewed by 848

Abstract

Commercial fishing is a critical economic sector for Norway, yet deficiency of scientific information, regulatory instruments, inadequate implementation, and lack of management infrastructure are among the significant causes of mismanagement of fishing gear (FG) resources. Mismanagement of FGs results in leakage of plastics [\[...\] Read more.](#)

(This article belongs to the Special Issue [Systems Engineering for Sustainable Development Goals](#))

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Open AccessArticle

Achieving Socioeconomic Development Fuelled by Globalization: An Analysis of 146 Countries

by

[Ajishnu Roy](#)

,

[Aman Basu](#)

and

[Xuhui Dong](#)

Sustainability **2021**, 13(9), 4913; <https://doi.org/10.3390/su13094913> - 27 Apr 2021

[Cited by 4](#) | Viewed by 1108

Abstract

Globalization is embedded in socioeconomic development at the glocal scale (local to global). Drawing up from Kate Raworth's Doughnut economics framework coupled with UN Sustainable development goals, we interrogate the relationship of globalization for socio-economic development (2000–2017). Here we have applied the Spearman [\[...\]](#)
[Read more.](#)

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Open AccessArticle

Self-Build and Custom Housebuilding Registers in England: A Transaction-Cost and Effectiveness Analysis

by

[Grace Sadler](#)

and

[Sina Shahab](#)

Sustainability **2021**, 13(9), 4912; <https://doi.org/10.3390/su13094912> - 27 Apr 2021

[Cited by 2](#) | Viewed by 671

Abstract

The development of the self and custom housebuilding sector can work towards increasing the supply of housing and alleviate some of the strain on the housing market in England. Although it is not a solution for everyone, improving self and custom housebuilding can [\[...\] Read more.](#)

(This article belongs to the Special Issue [Transaction Costs and Policy Analysis](#))

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Open AccessArticle

Research on the Chaotic Characteristics and Noise Reduction Prediction of Information System Anomalies in Equipment Manufacturing Enterprises

by

[Peng Niu](#)

,

[Yanming Sun](#)

and

[Zhuping Gong](#)

Sustainability **2021**, *13*(9), 4911; <https://doi.org/10.3390/su13094911> - 27 Apr 2021

[Cited by 2](#) | Viewed by 502

Abstract

As the process of informatization progresses in an equipment manufacturing enterprise, its information system becomes a dissipative structure due to the nonlinear interaction of many factors. The objectives of this study were to help enterprises adopt intelligent manufacturing, realize sustainable development strategies, and [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open AccessArticle

An Approach to Sustainability Management across Systemic Levels: The Capacity-Building in Sustainability and Environmental Management Model (CapSEM-Model)

by

[Annik Magerholm Fet](#)

and

Haley Knudson

Sustainability **2021**, 13(9), 4910; <https://doi.org/10.3390/su13094910> - 27 Apr 2021

[Cited by 2](#) | Viewed by 831

Abstract

A toolbox for assessing the environmental impacts of processes, products and services has been gradually developed over the last 30 years. The tools and methods place attention on a growing holistic concern to also consider stakeholders' views connected to impacts of the entire [\[...\] Read more.](#)

(This article belongs to the Special Issue [Systems Engineering for Sustainable Development Goals](#))

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Open Access **Article**

Characterization of Fresh and Durability Properties of Different Lime Mortars for Being Used as Masonry Coatings in the Restoration of Ancient Constructions

by

Fernando G. Branco

,

Maria de Lurdes Belgas

,

Cátia Mendes

,

Luís Pereira

and

José Marcos Ortega

Sustainability **2021**, 13(9), 4909; <https://doi.org/10.3390/su13094909> - 27 Apr 2021

Viewed by 505

Abstract

Coatings and plasters are an integral part of masonry cladding, having a fundamental protective and aesthetic function. They are exposed to numerous aggressive actions, which produce their degradation over time. The utilization of lime, as a binder in masonry lining mortars, plays an [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Construction and Building Materials for Environment](#))

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Open Access **Article**

Higher Education Teachers' Training in Attention to SEN Students: Testing a Mediation Model

by

[Nuria González-Castellano](#)

,

[Eulogio Cordón-Pozo](#)

,

[Silvia Pueyo-Villa](#)

and

[María Jesús Colmenero-Ruiz](#)

Sustainability **2021**, *13*(9), 4908; <https://doi.org/10.3390/su13094908> - 27 Apr 2021

[Cited by 2](#) | Viewed by 729

Abstract

There is growing interest in analyzing the evolution of inclusive education in universities, highlighting the training of teachers as the main barrier to this evolution. The purpose of this study was to analyze, through a mediation model, to what extent the accessibility and [\[...\] Read more.](#)

(This article belongs to the Collection [Education, Innovation and Training for Sustainable Development in the Context of COVID-19](#))

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Open Access **Article**

Explore the World Responsibly: The Antecedents of Ethical Tourism Behaviors in China

by

[Ying Teng](#)

Zhenzhong Ma

and

Lei Jing

Sustainability **2021**, 13(9), 4907; <https://doi.org/10.3390/su13094907> - 27 Apr 2021

[Cited by 1](#) | Viewed by 770

Abstract

While ethical tourism is becoming more important in the tourist industry, relatively little is known about ethical tourism in China and what motivates Chinese tourists to undertake ethical tourism. This study examines this issue by adopting the planned behavior theory to explore the [\[...\] Read more.](#)

(This article belongs to the Special Issue [City Branding and Sustainable Destination Management](#))

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Open Access Article

Research on the Impact of Popular Tourism Program Involvement on Rural Tourism Image, Familiarity, Motivation and Willingness

by

Min-Yuan Zheng

Chao-Chien Chen

Hsiao-Hsien Lin

Chih-Hung Tseng

and

Chin-Hsien Hsu

Sustainability **2021**, 13(9), 4906; <https://doi.org/10.3390/su13094906> - 27 Apr 2021

[Cited by 2](#) | Viewed by 797

Abstract

The purpose of this study was to investigate the influence of people's involvement in tourism programs on the imagination and familiarity of rural tourism destinations, as well as the motivation and desire to visit them. The results were validated by using SPSS 22.0 [\[...\] Read more.](#)

(This article belongs to the Special Issue [Marketing for Sustainable Tourism II](#))

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Open Access Article

Long Short-Term Memory Networks for Pattern Recognition of Synthetical Complete Earthquake Catalog

by

[Chen Cao](#)

,

[Xiangbin Wu](#)

,

[Lizhi Yang](#)

,

[Qian Zhang](#)

,

[Xianying Wang](#)

,

[David A. Yuen](#)

and

[Gang Luo](#)

Sustainability **2021**, *13*(9), 4905; <https://doi.org/10.3390/su13094905> - 27 Apr 2021

Viewed by 538

[Abstract](#)

Exploring the spatiotemporal distribution of earthquake activity, especially earthquake migration of fault systems, can greatly to understand the basic mechanics of earthquakes and the assessment of earthquake risk. By establishing a three-dimensional strike-slip fault model, to derive the stress response and fault slip [\[...\] Read more.](#)

(This article belongs to the Section [Hazards and Sustainability](#))

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Open AccessArticle

The Relationship of CSR Performance and Voluntary CSR Disclosure Extent in the German DAX Indices

by

Christian Danisch

Sustainability **2021**, 13(9), 4904; <https://doi.org/10.3390/su13094904> - 27 Apr 2021

[Cited by 1](#) | Viewed by 1076

Abstract

Empirical studies present mixed evidence on the relationship of CSR performance and CSR disclosure extent, thus spurring academic ambiguity as legitimacy- and voluntary disclosure theory provide competing explanations. By applying content analysis to 144 voluntary GRI reports of listed firms in Germany from [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability Accounting and Reporting](#))

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Open AccessArticle

Intelligent Urban Planning and Ecological Urbanscape-Solutions for Sustainable Urban Development. Case Study of Wolfsburg

by

Joanna Dudek-Klimiuk

and

Barbara Warzecha

Sustainability **2021**, 13(9), 4903; <https://doi.org/10.3390/su13094903> - 27 Apr 2021

[Cited by 1](#) | Viewed by 926

Abstract

Intelligent urban planning and ecological urbanism can be recognized as two of the key solutions to act against urban sprawl. This process is associated with suburbanization, blurring boundaries between the city and suburbs, and the undefined role of open and green spaces within [\[...\] Read more.](#)

(This article belongs to the Special Issue [Natural Environment and Cultural Heritage in the City, A Sustainability Perspective](#))

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Open Access Article

Towards the Development of Sustainable Tourism in Pakistan: A Study of the Role of Tour Operators

by

[Zia Ullah](#)

,

[Rana Tahir Naveed](#)

,

[Atta Ur Rehman](#)

,

[Naveed Ahmad](#)

,

[Miklas Scholz](#)

,

[Mohammad Adnan](#)

and

[Heesup Han](#)

Sustainability **2021**, *13*(9), 4902; <https://doi.org/10.3390/su13094902> - 27 Apr 2021

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[Abstract](#)

The literature on sustainable tourism is scant, particularly in the least developed countries. Very few studies touch upon the concept and no holistic theoretical or conceptual frameworks around the idea of sustainable tourism have been formulated. This study aims at exploring the role [\[...\] Read more.](#)

(This article belongs to the Special Issue [Trends in Sustainable Tourism](#))

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Open AccessArticle

Twitch as a Techno-Pedagogical Resource to Complement the Flipped Learning Methodology in a Time of Academic Uncertainty

by

[Santiago Pozo-Sánchez](#)

,

[Jesús López-Belmonte](#)

,

[Arturo Fuentes-Cabrera](#)

and

[Juan-Antonio López-Núñez](#)

Sustainability **2021**, 13(9), 4901; <https://doi.org/10.3390/su13094901> - 27 Apr 2021

[Cited by 3](#) | Viewed by 925

Abstract

Flipped learning methodology has the potential to be combined with a multitude of didactic actions and techno-pedagogical resources that are adapted to the needs of the student. Access to resources and training outside the classroom can be carried out from various platforms. Following [\[...\] Read more.](#)

(This article belongs to the Special Issue [Innovative Training Sustainability in an Uncertain Information and Knowledge Society](#))

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Open AccessArticle

Do We Need a New Florence Charter? The Importance of Authenticity for the Maintenance of Historic Gardens and Other Historic Greenery Layouts in the Context of

Source Research (Past) and Taking into Account the Implementation of the Sustainable Development Idea (Future)

by

Marzanna Jagiełło

Sustainability **2021**, 13(9), 4900; <https://doi.org/10.3390/su13094900> - 27 Apr 2021

Cited by 2 | Viewed by 641

Abstract

This year, 40 years have passed since the adoption of the basic document for the protection of historic gardens, i.e., the Florence Charter. During this time, its recommendations have been verified by both conservation and researchers' actions, who in various environments discussed its [\[...\] Read more.](#)

(This article belongs to the Special Issue [Natural Environment and Cultural Heritage in the City, A Sustainability Perspective](#))

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Open Access **Article**

Strengthening the Role of Academic Institutions and Innovation Brokers in Agri-Food Innovation: Towards Hybridisation in Cross-Border Cooperation

by

Marina Knickel

,

Sabine Neuberger

,

Laurens Klerkx

,

Karlheinz Knickel

,

Gianluca Brunori

and

Helmut Saatkamp

Sustainability **2021**, 13(9), 4899; <https://doi.org/10.3390/su13094899> - 27 Apr 2021

[Cited by 4](#) | Viewed by 1607

Abstract

Existing research suggests that regions can develop their long-term competitive advantage through well-functioning interregional innovation cooperation. In this article, we use the example of innovation in small and medium-sized agri-food enterprises (SMEs) to scrutinise and compare regional innovation approaches on each side of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Cross-Border Cooperation: Common Planning, Policies, Strategies, Methods and Activities](#))

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Open AccessArticle

Collective or Individual? What Types of Tourism Reduce Economic Inequality in Peripheral Regions?

by

Andrzej Tucki

and

Korneliusz Pylak

Sustainability **2021**, 13(9), 4898; <https://doi.org/10.3390/su13094898> - 27 Apr 2021

Viewed by 578

Abstract

Regional inequalities are a major concern for governments and policymakers. There is no doubt that tourism impacts the reduction of inequalities, but this impact is not entirely clear. We consider this ambiguity to be related to both the level of study and type [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Development from the Management and Social Science Perspective](#))

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Open AccessArticle

Simulation of Indoor Fire Dynamics of Residential Buildings with Full-Scale Fire Test

by

Min-Ho Moon

Hyung-Jun Kim

Su-Gyeong Min

Sung-Chan Kim

and

Won-Jun Park

Sustainability **2021**, 13(9), 4897; <https://doi.org/10.3390/su13094897> - 27 Apr 2021

Viewed by 661

Abstract

Along with simulated firefighting training, the development of virtual training systems and associated content has recently drawn attention as an alternative method for advanced firefighting training. In particular, to develop virtual training content, it is important to understand the combustion characteristics of indoor [\[...\] Read more.](#)

(This article belongs to the Special Issue [Fire Safety Technology and Human Behavioural Science for Building Sustainability](#))

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Open Access **Article**

Carbon Price Forecasting Based on Improved CEEMDAN and Extreme Learning Machine Optimized by Sparrow Search Algorithm

by

Jianguo Zhou

and

Dongfeng Chen

Sustainability **2021**, 13(9), 4896; <https://doi.org/10.3390/su13094896> - 27 Apr 2021

[Cited by 7](#) | Viewed by 934

Abstract

Effective carbon pricing policies have become an effective tool for many countries to encourage emission reduction. An accurate carbon price prediction model is helpful for the implementation of energy conservation and emission reduction policies and the decision-making of governments and investors. However, it [\[...\] Read more.](#)

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Open AccessArticle

The Experimental Timber–UHPC Composite Bridge

by

Milan Holý

,

David Čítek

,

Petr Tej

and

Lukáš Vráblík

Sustainability **2021**, *13*(9), 4895; <https://doi.org/10.3390/su13094895> - 27 Apr 2021

[Cited by 2](#) | Viewed by 560

Abstract

This paper describes the development of an innovative timber–concrete composite bridge system and especially focuses on the evaluation of the load tests of an experimental bridge structure. The load-bearing structure was designed as glue-laminated timber beams connected with only 60-mm-thick precast bridge deck [\[...\] Read more.](#)

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Open AccessArticle

A Review of Technological Solutions to Prevent or Reduce Marine Plastic Litter in Developing Countries

by

Andrea Winterstetter

Marie Grodent

Venkatesh Kini

Kim Ragaert

and

Karl C. Vrancken

Sustainability 2021, 13(9), 4894; <https://doi.org/10.3390/su13094894> - 27 Apr 2021

[Cited by 4](#) | Viewed by 1774

Abstract

Growing global plastic production combined with poor waste collection has led to increasing amounts of plastic debris being found in oceans, rivers and on shores. The goal of this study is to provide an overview on currently available technological solutions to tackle marine [\[...\] Read more.](#)

(This article belongs to the Special Issue [Recycling and Sustainability of Plastics](#))

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Open Access **Article**

Impact Assessments of Typhoon Lekima on Forest Damages in Subtropical China Using Machine Learning Methods and Landsat 8 OLI Imagery

by

Xu Zhang

Guangsheng Chen

Lingxiao Cai

Hongbo Jiao

Jianwen Hua

Xifang Luo

and

Xinliang Wei

Sustainability **2021**, 13(9), 4893; <https://doi.org/10.3390/su13094893> - 27 Apr 2021

[Cited by 1](#) | Viewed by 650

Abstract

Wind damage is one of the major factors affecting forest ecosystem sustainability, especially in the coastal region. Typhoon Lekima is among the top five most devastating typhoons in China and caused economic losses totaling over USD 8 billion in Zhejiang Province alone during [\[...\] Read more.](#)

(This article belongs to the Special Issue [Remote Sensing Applied to the Environment and Sustainability](#))

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Open Access **Article**

Digitalisation of Teaching and Learning as a Tool for Increasing Students' Satisfaction and Educational Efficiency: Using Smart Platforms in EFL

by

Sandra Stefanovic

and

Elena Klochkova

Sustainability **2021**, 13(9), 4892; <https://doi.org/10.3390/su13094892> - 27 Apr 2021

[Cited by 4](#) | Viewed by 831

Abstract

This manuscript aims to present possibilities for developing mobile and smart platforms and systems in teaching and learning the English language for engineering professionals in different engineering study programs. Foreign language teaching and learning processes are based on traditional methods, while in engineering [\[...\] Read more.](#)

(This article belongs to the Collection [The Impact of Digitalization on the Quality of Life](#))

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Open AccessArticle

The Barriers to Corporate Social Responsibility in the Nordic Energy Sector

by

[Mauricio Latapí](#)

,

[Lára Jóhannsdóttir](#)

,

[Brynhildur Davíðsdóttir](#)

and

[Mette Morsing](#)

Sustainability 2021, 13(9), 4891; <https://doi.org/10.3390/su13094891> - 27 Apr 2021

[Cited by 3](#) | Viewed by 751

Abstract

Nordic companies have been at the top of sustainable business rankings since the early 2010s. Some of them are energy companies that have adopted Corporate Social Responsibility to have a positive social impact and become carbon neutral. However, limited literature has analyzed the [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open AccessArticle

Application of Full Factorial Design Method for Optimization of Heavy Metal Release from Lead Smelting Slag

by

Elif Hatice Gürkan

,

Yusuf Tibet

and

Semra Çoruh

Sustainability **2021**, 13(9), 4890; <https://doi.org/10.3390/su13094890> - 27 Apr 2021

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Abstract

Lead-acid batteries are commonly used as power sources for critical operations in the world. They find application in air-traffic control towers, uninterruptible power supplies (UPS), railroad crossings, military installations, hospitals, and weapons systems. Lead-acid batteries are also known as automotive batteries and industrial [\[...\] Read more.](#)

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Open Access **Article**

Sustainable Building Legislation and Incentives in Korea: A Case-Study-Based Comparison of Building New and Renovation

by

Fabrizio M. Amoruso

,

Min-Hee Sonn

,

Soyeon Chu

and

Thorsten Schuetze

Sustainability **2021**, 13(9), 4889; <https://doi.org/10.3390/su13094889> - 27 Apr 2021

[Cited by 3](#) | Viewed by 871

Abstract

More than one quarter of buildings in the Republic of Korea (RoK) are aged, approaching the end of their projected lifetimes, and require renovation. Aged buildings in the RoK are generally demolished, and new buildings with higher gross floor areas are realized on [\[...\] Read more.](#)

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Open AccessArticle

A Simulation Model for Forecasting COVID-19 Pandemic Spread: Analytical Results Based on the Current Saudi COVID-19 Data

by

[Ahmad B. Hassanat](#)

,

[Sami Mnasri](#)

,

[Mohammed A. Aseeri](#)

,

[Khaled Alhazmi](#)

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[Omar Cheikhrouhou](#)

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[Ghada Altarawneh](#)

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[Malek Alrashidi](#)

,

[Ahmad S. Tarawneh](#)

,

[Khalid S. Almohammadi](#)

and

Hani Almoamari

Sustainability **2021**, 13(9), 4888; <https://doi.org/10.3390/su13094888> - 27 Apr 2021

Cited by 4 | Viewed by 851

Abstract

The coronavirus pandemic (COVID-19) spreads worldwide during the first half of 2020. As is the case for all countries, the Kingdom of Saudi Arabia (KSA), where the number of reported cases reached more than 392 K in the first week of April 2021, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Machine Learning, Data Mining, and IoT Applications in Smart and Sustainable Networks](#))

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Open Access **Article**

Comprehensive Life Cycle Environmental Assessment of Preventive Maintenance Techniques for Asphalt Pavement

by

Mulian Zheng

,

Wang Chen

,

Xiaoyan Ding

,

Wenwu Zhang

and

Sixin Yu

Sustainability **2021**, 13(9), 4887; <https://doi.org/10.3390/su13094887> - 27 Apr 2021

Cited by 3 | Viewed by 687

Abstract

Preventive maintenance (PM) is regarded as the most economical maintenance strategy for asphalt pavement, but the life cycle environmental impacts (LCEI) of different PM techniques have not yet been comprehensively assessed and compared, thus hindering sustainable PM planning. This study aims to comprehensively [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability of Transport Infrastructures](#))

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Open Access **Editor's Choice** Article

Environmental Sustainability of Building Retrofit through Vertical Greening Systems: A Life-Cycle Approach

by

[Katia Perini](#)

,

[Fabio Magrassi](#)

,

[Andrea Giachetta](#)

,

[Luca Moreschi](#)

,

[Michela Gallo](#)

and

[Adriana Del Borghi](#)

Sustainability **2021**, *13*(9), 4886; <https://doi.org/10.3390/su13094886> - 27 Apr 2021

[Cited by 2](#) | Viewed by 876

Abstract

Urban greening provides a wide range of ecosystem services to address the main challenges of urban areas, e.g., carbon sequestration, evapotranspiration and shade, thermal insulation, and pollution control. This study evaluates the environmental sustainability of a vertical greening system (VGS) built in 2014 [\[...\] Read more.](#)

(This article belongs to the Special Issue [Climate Adaptation and Mitigation through Sustainable Energy Solutions](#))

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Open AccessArticle

Can Reflective Diary-Writing Increase Sufficiency-Oriented Consumption? A Longitudinal Intervention Addressing the Role of Basic Psychological Needs, Subjective Well-Being, and Time Affluence

by

[Josephine Tröger](#)

,

[Marlis C. Wullenkord](#)

,

[Clara Barthels](#)

and

[Rubina Steller](#)

Sustainability **2021**, 13(9), 4885; <https://doi.org/10.3390/su13094885> - 27 Apr 2021

[Cited by 4](#) | Viewed by 823

Abstract

Sufficiency is a sustainability strategy aiming for (1) a decrease in absolute resource consumption on individual and societal levels, and (2) for socio-ecological justice and the fair distribution of costs and benefits of resource use to meet every human's basic needs. This study [\[...\] Read more.](#)

(This article belongs to the Special Issue [Changing Pro-environmental Behavior: Evidence from \(Un\)Successful Intervention Studies](#))

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Open AccessArticle

The Effect of Port Gate Location and Gate Procedures on the Port-City Relation

by

[Marina Zanne](#)

,

Elen Twrdy

and

Bojan Bešković

Sustainability **2021**, *13*(9), 4884; <https://doi.org/10.3390/su13094884> - 27 Apr 2021

Viewed by 593

Abstract

Ports are important hubs that have positive impacts on the regions they serve, but they also pose some challenges that need to be addressed. Many ports around the world have aligned their development strategies with the concept of green growth; however, the green [\[...\] Read more.](#)

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Open Access **Review**

Current Progress and Future Prospects of Agriculture Technology: Gateway to Sustainable Agriculture

by

Nawab Khan

,

Ram L. Ray

,

Ghulam Raza Sargani

,

Muhammad Ihtisham

,

Muhammad Khayyam

and

Sohaib Ismail

Sustainability **2021**, *13*(9), 4883; <https://doi.org/10.3390/su13094883> - 27 Apr 2021

[Cited by 8](#) | Viewed by 2401

Abstract

The agricultural industry is getting more data-centric and requires precise, more advanced data and technologies than before, despite being familiar with agricultural processes. The agriculture industry is being advanced by various information and advanced communication technologies, such as the Internet of Things (IoT). [\[...\] Read more.](#)

(This article belongs to the Collection [Smart Farming and Sustainability](#))

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Open AccessArticle

Business Analytics for Managing Performance of Microfinance Institutions: A Flexible Management of the Implementation Process

by

[Isabelle Piot-Lepetit](#)

and

[Joseph Nzongang](#)

Sustainability **2021**, 13(9), 4882; <https://doi.org/10.3390/su13094882> - 27 Apr 2021

[Cited by 1](#) | Viewed by 672

Abstract

Microfinance institutions are social enterprises that focus on the provision of financial services to poor populations excluded from the conventional banking system. These organizations face a double-bottom line, dealing simultaneously with a financial and social objective. The challenge of putting it into action [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Mediating Role of Environmental, Social, and Governance \(ESG\) Orientation in Finance and Investments](#))

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Open AccessArticle

Co-Combustion of Blends of Coal and Underutilised Biomass Residues for Environmental Friendly Electrical Energy Production

by

[Fariha Kanwal](#)

Ashfaq Ahmed

,

Farrukh Jamil

,

Sikander Rafiq

,

H. M. Uzair Ayub

,

Moinuddin Ghauri

,

M. Shahzad Khurram

,

Shahid Munir

,

Abrar Inayat

,

Muhammad S. Abu Bakar

,

Surendar Moogi

,

Su Shiung Lam

and

Young-Kwon Park

[Cited by 4](#) | Viewed by 893

Abstract

This study investigated the co-combustion of the blends of coal and biomass residues from poplar sawdust, rice husk, pine nut shells, and sunflower residues for ecofriendly energy production. Proximate and ultimate analyses and calorific values of the coal and biomass residues were also [\[...\] Read more.](#)

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Open AccessArticle

Extension Agents' Perceptions of the Role of Extension Services in Organic Agriculture: A Case Study from Saudi Arabia

by

[Bader Alhafi Alotaibi](#)

,

[Edgar Yoder](#)

and

[Hazem S. Kassem](#)

Sustainability **2021**, *13*(9), 4880; <https://doi.org/10.3390/su13094880> - 27 Apr 2021

[Cited by 1](#) | Viewed by 667

Abstract

Extension services (ES) play a crucial role in addressing the various needs of organic farmers and little is known about the extension agents' (EA's) perceptions of organic agriculture and the role of ES in organic agriculture. This study investigated EA's perceptions of the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability and Agricultural Economics](#))

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Open AccessArticle

Life Cycle Assessment of Protected Strawberry Productions in Central Italy

by

[Alessio Ilari](#)

Giuseppe Toscano

Kofi Armah Boakye-Yiadom

Daniele Duca

and

Ester Foppa Pedretti

Sustainability 2021, 13(9), 4879; <https://doi.org/10.3390/su13094879> - 27 Apr 2021

[Cited by 3](#) | Viewed by 753

Abstract

Agricultural activities in Europe cover half of the total area of the continent and are simultaneously a cause of environmental impact and victims of the same impact. Horticultural or fruit crops are considered highly intensive and often employ many crop inputs such as [\[...\] Read more.](#)

(This article belongs to the Special Issue [Agricultural Engineering for Sustainable Agriculture](#))

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Open Access Article

Biochar Tablets with and without Embedded Fertilizer on the Soil Chemical Characteristics and Nutrient Use Efficiency of *Zea mays*

by

Yit Leng Lee

Osumanu Haruna Ahmed

Samsuri Abdul Wahid

and

Zakry Fitri AB Aziz

Sustainability **2021**, 13(9), 4878; <https://doi.org/10.3390/su13094878> - 27 Apr 2021

[Cited by 2](#) | Viewed by 642

Abstract

Densification of ashy biochar into tablet can enhance the handling and conveyance efficiencies of biochar. It was hypothesized that fertilizer-embedded biochar tablets can slowly release embedded nutrients in synchrony with optimum nutrient uptake by crops. The objectives of this research were to determine [\[...\] Read more.](#)

(This article belongs to the Section [Resources and Sustainable Utilization](#))

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Open Access **Article**

Port Governance and Cruise Tourism

by

Alejandro Vega-Muñoz

,

Guido Salazar-Sepúlveda

,

Nicolás Contreras-Barraza

and

Lorena Araya-Silva

Sustainability **2021**, 13(9), 4877; <https://doi.org/10.3390/su13094877> - 27 Apr 2021

[Cited by 1](#) | Viewed by 877

Abstract

Cruise activities, until 2020, have presented a significant increase in revenue, as well as number of cruises and passengers transported, and it has become a challenge for ports to respond to this demand for services. In response to this, the world's ports have [\[...\] Read more.](#)

(This article belongs to the Special Issue [Port Governance](#))

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Open AccessArticle

Green Innovation Strategy and Ambidextrous Green Innovation: The Mediating Effects of Green Supply Chain Integration

by

Yongbo Sun

and

Hui Sun

Sustainability 2021, 13(9), 4876; <https://doi.org/10.3390/su13094876> - 27 Apr 2021

Cited by 6 | Viewed by 1186

Abstract

Although the importance of green innovation strategy has been recognized, in the existing literature the relationship between green innovation strategy and corporate competitive advantage, as well as the relationship between green innovation strategy and green innovation are still unclear. Based on the resource [\[...\] Read more.](#)

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Open AccessReview

State of the Art in Open Platforms for Collaborative Urban Design and Sharing of Resources in Districts and Cities

by

Barry Hayes

,

Dorota Kamrowska-Zaluska

,

Aleksandar Petrovski

and

Cristina Jiménez-Pulido

Sustainability 2021, 13(9), 4875; <https://doi.org/10.3390/su13094875> - 27 Apr 2021

Cited by 3 | Viewed by 974

Abstract

This work discusses recent developments in sharing economy concepts and collaborative co-design technology platforms applied in districts and cities. These developments are being driven both by new technological advances and by increased environmental awareness. The paper begins by outlining the state of the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Regenerative Buildings and Beyond: Scale Jumping Sustainable and Net-Zero Designs to Regenerative Neighbourhoods, Districts, Communities, and Cities](#))

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Open Access **Article**

Process Optimization of Waste Activated Sludge in Anaerobic Digestion and Biogas Production by Electrochemical Pre-Treatment Using Ruthenium Oxide Coated Titanium Electrodes

by

[Gan Chin Heng](#)

,

[Mohamed Hasnain Isa](#)

,

[Serene Sow Mun Lock](#)

and

[Choon Aun Ng](#)

Sustainability **2021**, *13*(9), 4874; <https://doi.org/10.3390/su13094874> - 27 Apr 2021

[Cited by 2](#) | Viewed by 610

Abstract

Anaerobic digestion (AD) appears to be a popular unit operation in wastewater treatment plant to treat waste activated sludge (WAS) and the produced methane gas can be harvested as renewable energy. However, WAS could inhibit hydrolysis stage during AD and hence pre-treatment is [\[...\] Read more.](#)

(This article belongs to the Section [Energy Sustainability](#))

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Open Access Editor's Choice Article

Local and Application-Specific Geodemographics for Data-Led Urban Decision Making

by

[Amanda Otley](#)

,

[Michelle Morris](#)

,

[Andy Newing](#)

and

[Mark Birkin](#)

Sustainability **2021**, *13*(9), 4873; <https://doi.org/10.3390/su13094873> - 26 Apr 2021

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Abstract

This work seeks to introduce improvements to the traditional variable selection procedures employed in the development of geodemographic classifications. It presents a proposal for shifting from a traditional approach for generating general-purpose one-size-fits-all geodemographic classifications to application-specific classifications. This proposal addresses the recent [\[...\] Read more.](#)

(This article belongs to the Special Issue [Advanced Modelling Tools to Support Urban and Regional Planning](#))

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Open Access Article

Life Cycle Assessment of Electric Vehicles and Hydrogen Fuel Cell Vehicles Using the GREET Model—A Comparative Study

by

[Eugene Yin Cheung Wong](#)

,

[Danny Chi Kuen Ho](#)

,

Stuart So

Chi-Wing Tsang

and

Eve Man Hin Chan

Sustainability **2021**, 13(9), 4872; <https://doi.org/10.3390/su13094872> - 26 Apr 2021

[Cited by 3](#) | Viewed by 2260

Abstract

Facing global warming and recent bans on the use of diesel in vehicles, there is a growing need to develop vehicles powered by renewable energy sources to mitigate greenhouse gas and pollutant emissions. Among the various forms of non-fossil energy for vehicles, hydrogen [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Solutions toward Climate Change Impacts on Renewable Energy](#))

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Open Access **Article**

Activity Scheduling Behavior of the Visitors to an Outdoor Recreational Facility Using GPS Data

by

Ken Hidaka

and

Toshiyuki Yamamoto

Sustainability **2021**, 13(9), 4871; <https://doi.org/10.3390/su13094871> - 26 Apr 2021

[Cited by 1](#) | Viewed by 804

Abstract

Understanding the decision-making behavior of pedestrians is essential for urban designers and developers in enhancing the commercial and aesthetic value of streets and other urban spaces. However, limited research has been conducted on the activity scheduling behavior of pedestrians. The majority of the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Smart and Sustainable Streets](#))

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Open AccessArticle

The Commodity Life Cycle Costing Indicator. An Economic Measure of Natural Resource Use in the Life Cycle

by

Giulio Mela

,

Maria Leonor Carvalho

,

Andrea Temporelli

and

Pierpaolo Girardi

Sustainability **2021**, 13(9), 4870; <https://doi.org/10.3390/su13094870> - 26 Apr 2021

Cited by 1 | Viewed by 696

Abstract

This study defines a methodology for the development of an economic indicator of natural resource use to be applied in the framework of the Life Cycle Assessment (LCA) methodology to integrate the assessment of the environmental performances of products or processes during their [\[...\] Read more.](#)

(This article belongs to the Section [Resources and Sustainable Utilization](#))

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Open AccessArticle

An Application of the Walkability Index for Elderly Health—WIEH. The Case of the UNESCO Historic Centre of Porto, Portugal

by

Fernando Alves

,

[Sara Cruz](#)

,

[Sophia Rother](#)

and

[Tino Strunk](#)

Sustainability **2021**, 13(9), 4869; <https://doi.org/10.3390/su13094869> - 26 Apr 2021

[Cited by 3](#) | Viewed by 687

Abstract

This work provides a follow-up to the article Walkability Index for Elderly Health: A Proposal, published in 2020. Previous research linked the quality of public spaces, walkability characteristics relevant to older people, and the direct health benefits of walking for the same target [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable and Healthy Public Spaces: Towards a More Inclusive City](#))

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Open Access **Article**

Model Based Analysis of Innovation in Sustainable Supply Chains

by

[Jesús Morcillo-Bellido](#)

,

[Luis Isasi-Sanchez](#)

,

[Isabel Garcia-Gutierrez](#)

and

[Alfonso Duran-Heras](#)

Sustainability **2021**, 13(9), 4868; <https://doi.org/10.3390/su13094868> - 26 Apr 2021

[Cited by 2](#) | Viewed by 657

Abstract

Innovation supports the development of Sustainable Supply Chains (SSCs) through Sustainability-Oriented Innovation (SOI) practices. This study aims to validate and further develop, through its practical application, a baseline SOI practices framework, which can be used as a benchmark model. While applying and validating [\[...\]](#) [Read more.](#)

(This article belongs to the Special Issue [Supply Chain Strategy and Sustainable Business Organization](#))

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Open AccessArticle

Diagnosis of the Maturity Level of Implementing Industry 4.0 Solutions in Selected Functional Areas of Management of Automotive Companies in Poland

by

[Ewa Stawiarska](#)

,

[Danuta Sz wajca](#)

,

[Mirosław Matusek](#)

and

[Radosław Wolniak](#)

Sustainability 2021, 13(9), 4867; <https://doi.org/10.3390/su13094867> - 26 Apr 2021

[Cited by 2](#) | Viewed by 1081

Abstract

The automotive sector is one of the key branches of the global economy. The automotive industry is also a very important sector of the Polish economy, as it generates over 8% of GDP and accounts for over 20% of the annual export value. [\[...\]](#) [Read more.](#)

(This article belongs to the Special Issue [Cooperative Challenges for Sustainable Development of Enterprises in the Era of the Fourth Industrial Revolution](#))

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Open AccessArticle

Contrasting Considerations among Agricultural Stakeholders in Japan on Sustainable Nitrogen Management

by

[Athanasios Ragkos](#)

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[Kentaro Hayashi](#)

,

[João Serra](#)

,

[Hideaki Shibata](#)

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[Efstratios Michalis](#)

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[Sadao Eguchi](#)

,

[Azusa Oita](#)

and

[Claudia Marques-dos-Santos Cordovil](#)

Sustainability **2021**, *13*(9), 4866; <https://doi.org/10.3390/su13094866> - 26 Apr 2021

Viewed by 909

Abstract

Sustainable nitrogen (N) management in agriculture is one of the most important issues affecting the environmental performance of modern agriculture. It is actually well perceived that coordinated efforts and holistic approaches are required to regulate N use by farmers. The purpose of this [\[...\] Read more.](#)

(This article belongs to the Special Issue [Nitrogen: Too Much of a Vital Resource](#))

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[Open Access Article](#)

Shaping a Circular Economy in the Digital TV Industry: Focusing on Ecopreneurship through the Lens of Dynamic Capability

by

Seungyeon Moon

and

Heesang Lee

Sustainability **2021**, 13(9), 4865; <https://doi.org/10.3390/su13094865> - 26 Apr 2021

Cited by 2 | Viewed by 953

Abstract

In this study, we investigate how companies can contribute to achieving a circular economy (CE) in the electronics industry viewed through the lens of dynamic capability. In particular, we examine how companies can contribute through idiosyncratic ecopreneurship according to dynamic capabilities with three [\[...\] Read more.](#)

(This article belongs to the Special Issue [Circular Economy, Innovation and Quality Infrastructure](#))

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Open Access **Article**

Investigating the Negative Effects of Emojis in Facebook Sponsored Ads for Establishing Sustainable Marketing in Social Media

by

Jungwoo Lee

,

Cheong Kim

and

Kun Chang Lee

Sustainability **2021**, 13(9), 4864; <https://doi.org/10.3390/su13094864> - 26 Apr 2021

Cited by 1 | Viewed by 1206

Abstract

Emojis are prevalent in modern social media advertising. Despite this fact, little research can be found on its effects on consumer purchase intentions. This study seeks to examine purchase intentions in the context of Sponsored Ads on Facebook News Feeds, their perceived intrusiveness, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Marketing and Management as Engines for Success in a Framework of Environmental and Social Sustainability](#))

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Open AccessArticle

The Effects of Soil Moisture on Harvesting Operations in *Populus* spp. Plantations: Specific Focus on Costs, Energy Balance and GHG Emissions

by

Farzam Tavankar

,

Mehrdad Nikooy

,

Francesco Latterini

,

Rachele Venanzi

,

Leonardo Bianchini

and

Rodolfo Picchio

Sustainability **2021**, *13*(9), 4863; <https://doi.org/10.3390/su13094863> - 26 Apr 2021

[Cited by 6](#) | Viewed by 584

Abstract

Background: Poplar tree plantations for wood production are part of a worldwide growing trend, especially in moist soil sites. Harvesting operations in moist sites such as poplar plantations require more study for detailed and increased knowledge on environmental and economic aspects and issues. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Technologies, Applications and Assessments for Proper Sustainable Forest Operations \(SFO\)](#))

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Open AccessArticle

Impact of Environmental Regulation Intensity on Green Technology Innovation: From the Perspective of Political and Business Connections

by

Yu-Hong Ai

,

Di-Yun Peng

and

Huan-Huan Xiong

Sustainability **2021**, 13(9), 4862; <https://doi.org/10.3390/su13094862> - 26 Apr 2021

Cited by 4 | Viewed by 902

Abstract

With heavy air pollution and the highest CO₂ emissions in the world, China is in urgent need of technology innovation to improve the energy efficiency and control the pollution emission. This study empirically investigates the impact of environmental regulation intensity, political connections, [\[...\] Read more.](#)

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Open Access **Article**

Employment Diversification as a Determinant of Economic Resilience and Sustainability in Provincial Cities

by

Marcin Bogdański

Sustainability **2021**, 13(9), 4861; <https://doi.org/10.3390/su13094861> - 26 Apr 2021

Cited by 2 | Viewed by 620

Abstract

Differentiated response of selected economies to the global economic crisis caused by the collapse of the real estate market in the United States has drawn the attention of economists to the concept of economic resilience. At the same time, once again, it showed [\[...\] Read more.](#)

(This article belongs to the Special Issue [Micro and Macroeconomic Determinants of Productivity Growth and Long-Term Sustainable Development in Central European Economies](#))

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Open Access Article

Integrating Ecosystem Function and Structure to Assess Landscape Ecological Risk in Traditional Village Clustering Areas

by

Sheng Liu

,

Ming Bai

and

Min Yao

Sustainability **2021**, 13(9), 4860; <https://doi.org/10.3390/su13094860> - 26 Apr 2021

[Cited by 1](#) | Viewed by 674

Abstract

Land use in traditional village clustering areas often exhibits slight dynamic changes; however, significant hidden ecological hazards may be present in local settlements. There is still a lack of dynamic ecological risk assessments for the corresponding classification-based prevention strategies and landscape ecosystem attributes' [\[...\] Read more.](#)

(This article belongs to the Special Issue [Local- to Global-Scale Environmental Issues](#))

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Open Access Review

A Topic-Based Bibliometric Review of Computers in Human Behavior: Contributors, Collaborations, and Research Topics

by

Xieling Chen

,

Di Zou

,

Haoran Xie

and

Gary Cheng

Sustainability **2021**, 13(9), 4859; <https://doi.org/10.3390/su13094859> - 26 Apr 2021

[Cited by 1](#) | Viewed by 928

Abstract

Computers in Human Behavior (CHB) is a well-established source with a wide range of audiences in the field of human interactions with computers and has been one of the most widely acknowledged and leading venues with significant scientific impact for more [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Education Technologies in Big Data and Artificial Intelligence Era](#))

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Open Access **Article**

Development of BIM-Based Bridge Maintenance System Considering Maintenance Data Schema and Information System

by

Namju Byun

,

Whi Seok Han

,

Young Woong Kwon

and

Young Jong Kang

Sustainability **2021**, 13(9), 4858; <https://doi.org/10.3390/su13094858> - 26 Apr 2021

[Cited by 3](#) | Viewed by 774

Abstract

Due to the significant increase in the age of infrastructure globally, maintenance of existing structures has been prioritized over the construction of new structures, which are very costly. However, many infrastructure facilities have not been managed efficiently due to a lack of well-trained [\[...\] Read more.](#)

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Open AccessArticle

Optimal Operation of Floodwater Resources Utilization of Lakes in South-to-North Water Transfer Eastern Route Project

by

[Zitong Yang](#)

,

[Xianfeng Huang](#)

,

[Jiao Liu](#)

and

[Guohua Fang](#)

Sustainability 2021, 13(9), 4857; <https://doi.org/10.3390/su13094857> - 26 Apr 2021

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Abstract

In order to meet the demand of emergency water supply in the northern region without affecting normal water transfer, considering the use of the existing South-to-North Water Transfer eastern route project to explore the potential of floodwater resource utilization in the flood season [\[...\] Read more.](#)

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Open AccessArticle

Examining Energy Consumption and Carbon Emissions of Microbial Induced Carbonate Precipitation Using the Life Cycle Assessment Method

by

[Xuejie Deng](#)

,

[Yu Li](#)

Hao Liu

Yile Zhao

Yinchao Yang

Xichen Xu

Xiaohui Cheng

and

Benjamin de Wit

Sustainability **2021**, 13(9), 4856; <https://doi.org/10.3390/su13094856> - 26 Apr 2021

[Cited by 5](#) | Viewed by 836

Abstract

Microbial induced carbonate precipitation (MICP) is a new geotechnical engineering technology used to strengthen soils and other materials. Although it is considered to be environmentally friendly, there is a lack of quantitative data and objective evaluation to support conclusions about its environmental impact. [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainability in Geotechnics: The Use of Environmentally Friendly Materials](#))

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Open Access **Article**

Analysis on Stability of Roadside Parking System in a Rail-Integrated Transport Hub

by

Junheng Yang

[Xiaodong Zang](#)

[Qiang Luo](#)

and

[Liming Shao](#)

Sustainability **2021**, 13(9), 4855; <https://doi.org/10.3390/su13094855> - 26 Apr 2021

Viewed by 536

Abstract

Roadside parking systems plays an important role in the planning and design of parking spaces, parking management and operation, and ensuring the safety of passengers. Firstly, we proposed a traffic wave theory and an avoidance logic algorithm to analyze the interaction mechanism of [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainable Traffic Variation, Development and Analysis under COVID-19 Influence](#))

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Open Access **Article**

What Matters for Job Security? Exploring the Relationships among Symbolic, Instrumental Images, and Attractiveness for Corporations in South Korea

by

[Juyeon Oh](#)

and

[Seunghwan Myeong](#)

Sustainability **2021**, 13(9), 4854; <https://doi.org/10.3390/su13094854> - 26 Apr 2021

Viewed by 685

Abstract

This study examines the extent to which the symbolic and instrumental images and attractiveness toward an organization are related. This study further focuses on global human resource management and reports findings from two studies: Study 1 uses the data from undergraduate students, and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Employees, Internal Social Responsibility, and Corporate Sustainability](#))

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Open AccessArticle

Integrating Water Sensitive Design in the Architectural Design Studio in China: Challenges and Outcomes

by

Maycon Sedrez

,

Jing Xie

and

Ali Cheshmehzangi

Sustainability **2021**, *13*(9), 4853; <https://doi.org/10.3390/su13094853> - 26 Apr 2021

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Abstract

Urban areas around the world are increasingly facing environmental challenges such as water scarcity, water pollution, and water-related disasters, which demands sustainable design solutions for cities. Efforts to introduce sustainable methods in architectural education are noteworthy since the early 1990s. However, Water Sensitive [\[...\]](#)
[Read more.](#)

(This article belongs to the Special Issue [Sustainability in Architectural Education: Legacy and Experimentation](#))

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Open AccessArticle

Influences of Spectral Power Distribution on Circadian Energy, Visual Comfort and Work Performance

by

Jack Ngarambe

,

Inhan Kim

and

Geun Young Yun

Sustainability **2021**, 13(9), 4852; <https://doi.org/10.3390/su13094852> - 26 Apr 2021

[Cited by 2](#) | Viewed by 723

Abstract

Spectral power distribution (SPD) is an essential element that has considerable implications on circadian energy and the perception of lit environments. The present study assessed the potential influences of SPD on energy consumption (i.e., considering circadian energy), visual comfort, work performance and mood. [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Future of Interior Lighting is here](#))

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Open Access **Feature Paper** **Article**

Using Enterprise Architecture to Integrate Lean Manufacturing, Digitalization, and Sustainability: A Lean Enterprise Case Study in the Chemical Industry

by

Ming-Hui Liao

and

Chi-Tai Wang

Sustainability **2021**, 13(9), 4851; <https://doi.org/10.3390/su13094851> - 26 Apr 2021

[Cited by 2](#) | Viewed by 1446

Abstract

The chemical industry has sustained the development of global economies by providing an astonishing variety of products and services, while also consuming massive amounts of raw materials and energy. Chemical firms are currently under tremendous pressure to become lean enterprises capable of executing [\[...\] Read more.](#)

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Open Access **Article**

Teaching during the Pandemic: A Comparison in Psychological Wellbeing among Smart Working Professions

by

Emanuela Mari

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Giulia Lausi

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Angelo Frascchetti

'
Alessandra Pizzo

'
Michela Baldi

'
Alessandro Quagliari

'
Jessica Burrai

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Benedetta Barchielli

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Francesco Avallone

and

Anna Maria Giannini

Sustainability **2021**, 13(9), 4850; <https://doi.org/10.3390/su13094850> - 26 Apr 2021

[Cited by 7](#) | Viewed by 1778

Abstract

Background: As a result of the COVID-19 pandemic, since March 2020, the Italian population was forced into lockdown to prevent the spread of the virus. The restrictive measures imposed forced many organizations and workers to work through online platforms and no longer in-person. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Working during the COVID-19 Global Pandemic](#))

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Open Access Article

Marketing Investments and Corporate Social Responsibility

by

Yura Kim

,

Taeyeon Kim

and

Hye-Jeong Nam

Sustainability **2021**, 13(9), 4849; <https://doi.org/10.3390/su13094849> - 26 Apr 2021

[Cited by 2](#) | Viewed by 846

Abstract

Although the short-term effects of marketing efforts that promote immediate consumer responses have been extensively investigated, the long-term impacts of marketing activities have received little attention. Marketing effects can be carried over time as consumers experience an emotional attachment to products and build [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open Access Article

Changes in Paleovegetation and Paleoclimate in China since the Late Middle Pleistocene: A Case Study of the Dajiuhu Basin

by

Liwei Wu

,

Xinling Li

,

Qinghai Xu

,

Manyue Li

Qiufeng Zheng

Maoheng Zhang

Dandan Wang

and

Zhiguo He

Sustainability **2021**, *13*(9), 4848; <https://doi.org/10.3390/su13094848> - 26 Apr 2021

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Abstract

The East Asian monsoon system is an important part of global atmospheric circulation; however, records of the East Asian monsoon from different regions exhibit different evolutionary rhythms. Here, we show a high-resolution record of grain size and pollen data from a lacustrine sediment [\[...\] Read more.](#)

(This article belongs to the Section [Air, Climate Change and Sustainability](#))

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Open Access **Article**

Linking Demographic Factors, Land Use, Ecosystem Services, and Human Well-Being: Insights from an Sandy Landscape, Uxin in Inner Mongolia, China

by

Jing Zhang

Xueming Li

Tongliga Bao

Zhenghai Li

Chong Liu

and

Yuan Xu

Sustainability 2021, 13(9), 4847; <https://doi.org/10.3390/su13094847> - 26 Apr 2021

[Cited by 2](#) | Viewed by 603

Abstract

Ecosystem services are fundamental in supporting human well-being which is a core component of sustainability. Understanding the relationship between ecosystem services (ESs) and human well-being (HWB) in a changing landscape is important to implement appropriate ecosystem management and policy development. Combining with demographic, [\[...\] Read more.](#)

(This article belongs to the Section [Geography and Sustainability](#))

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Open Access **Article**

A Causal Network-Based Risk Matrix Model Applicable to Shield TBM Tunneling Projects

by

Heeyoung Chung

Jeongjun Park

Byung-Kyu Kim

Kibeom Kwon

[In-Mo Lee](#)

and

[Hangseok Choi](#)

Sustainability **2021**, 13(9), 4846; <https://doi.org/10.3390/su13094846> - 26 Apr 2021

Viewed by 718

Abstract

The present study compares and analyzes three risk analysis models that are applicable to shield tunnel boring machine (TBM) tunneling, and thus proposes an improved risk matrix model based on the causal networks applicable to sustainable tunnel projects. The advantages and disadvantages of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Geotechnical Engineering towards Sustainability](#))

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Open Access Article

Evaluation Analysis of Forest Ecological Security in 11 Provinces (Cities) of the Yangtze River Economic Belt

by

[Yiran Wang](#)

[Dahong Zhang](#)

and

[Yahui Wang](#)

Sustainability **2021**, 13(9), 4845; <https://doi.org/10.3390/su13094845> - 26 Apr 2021

[Cited by 4](#) | Viewed by 521

Abstract

The forest ecological security of the Yangtze River Economic Belt has an important influence on improving the regional environment and promoting the sustainable development of the social economy. Therefore, the aim of this paper is to provide countermeasures and suggestions for improving the [\[...\] Read more.](#)

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Open Access Article

Interrelationships of Chemical, Physical and Biological Soil Health Indicators in Beef-Pastures of Southern Piedmont, Georgia

by

Subash Dahal

,

Dorcas H. Franklin

,

Anish Subedi

,

Miguel L. Cabrera

,

Laura Ney

,

Brendan Fatzinger

and

Kishan Mahmud

Sustainability **2021**, *13*(9), 4844; <https://doi.org/10.3390/su13094844> - 26 Apr 2021

Cited by 1 | Viewed by 587

Abstract

The study of interrelationships among soil health indicators is important for (i) achieving better understanding of nutrient cycling, (ii) making soil health assessment cost-effective by eliminating redundant indicators, and (iii) improving nitrogen (N) fertilizer recommendation models. The objectives of this study were to [\[...\] Read more.](#)

(This article belongs to the Special Issue [Agroecological Approaches for Soil Health and Water Management](#))

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Open AccessArticle

Urban Vegetation Leveraging Actions

by

Francisco J. Tapiador

,

Andrés Navarro

,

Josu Mezo

,

Sergio de la Llave

and

Jesús Muñoz

Sustainability **2021**, 13(9), 4843; <https://doi.org/10.3390/su13094843> - 26 Apr 2021

Cited by 1 | Viewed by 668

Abstract

Sustainable Development Goals (SDGs) include a subset of targets that can be advanced through standard urban management activities. In particular, routine urban vegetation management comprises a number of activities with potential impact on Goal #4 (quality education), #11 (sustainable cities and communities), #13 [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Urban and Rural Development](#))

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Open AccessArticle

Determinants of Success of Businesses of Female Entrepreneurs in Taiwan

by

Lisa-Marie Schröder

,

Vito Bobek

and

Tatjana Horvat

Sustainability **2021**, 13(9), 4842; <https://doi.org/10.3390/su13094842> - 26 Apr 2021

Cited by 3 | Viewed by 815

Abstract

This paper deals with the topic area “female entrepreneurship,” and the research focuses on the determinants of female entrepreneurs’ business success and sustainability, together with their impact on Taiwan’s economic development. According to the Morgan Stanley Capital International (MSCI) and the Financial Times [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Consumption and Production](#))

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Open AccessArticle

Environmental Assessment of the Recycled Paper Production: The Effects of Energy Supply Source

by

Carmen Ferrara

and

Giovanni De Feo

Sustainability **2021**, 13(9), 4841; <https://doi.org/10.3390/su13094841> - 26 Apr 2021

Viewed by 906

Abstract

The main aim of the study was to assess the environmental performance, through the application of the life cycle assessment, of a recycled paper production process focusing on the energy aspect. The production process occurred in a paper mill that produces packaging paper [\[...\] Read more.](#)

(This article belongs to the Special Issue [Resources Policy and Sustainable Development](#))

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Open AccessArticle

The Physico-Chemical and Mineralogical Characterization of Mg-Rich Synthetic Gypsum Produced in a Rare Earth Refining Plant

by

Fatai Arolu Ayanda

,

Mohd Firdaus Mohd Anuar

,

Syahrudin Zaibon

and

Shamshuddin Jusop

Sustainability 2021, 13(9), 4840; <https://doi.org/10.3390/su13094840> - 26 Apr 2021

[Cited by 1](#) | Viewed by 525

Abstract

The physical, chemical and mineralogical characterization of the constituents of magnesium-rich synthetic gypsum produced in a rare earth-refining plant located in Gebeng, Pahang, Malaysia was conducted through elemental chemical analysis, scanning electron microscopy with Energy Dispersive X-ray (EDX)-analyzer, thermal analysis, X-ray fluorescence and [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Agriculture](#))

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[Open Access Article](#)

Characteristics and Classification of Technology Sector Companies in Digital Health for Diabetes

by

Satoru Kikuchi

,

Kota Kadama

and

Shintaro Sengoku

Sustainability **2021**, 13(9), 4839; <https://doi.org/10.3390/su13094839> - 26 Apr 2021

[Cited by 2](#) | Viewed by 1003

Abstract

In recent years, technological progress in smart devices and artificial intelligence has also led to advancements in digital health. Digital health tools are especially prevalent in diabetes treatment and improving lifestyle. In digital health's innovation ecosystem, new alliance networks are formed not only [\[...\] Read more.](#)

(This article belongs to the Special Issue [Digital Technology in Healthcare: Opportunities Offered by a Sustainable Relational Ecosystem](#))

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Open Access **Article**

Using Stated Preference Valuation to Support Sustainable Marine Fishery Management

by

Tzu-Ming Liu

,

I-Jean Chen

and

Ho-Ching Jenny Yuan

Sustainability **2021**, 13(9), 4838; <https://doi.org/10.3390/su13094838> - 26 Apr 2021

[Cited by 1](#) | Viewed by 600

Abstract

This study uses a random parameters logit (RPL) model to estimate the Taiwanese preference for northern shrimp (NS) products (NSP) with the Marine Stewardship Council (MSC) label. The estimated results show that, ceteris paribus, the marginal willingness to pay (MWTP) of Taiwanese consumers [\[...\] Read more.](#)

(This article belongs to the Section [Resources and Sustainable Utilization](#))

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Open Access **Article**

Charging Behavior Analysis of New Energy Vehicles

by

Zhongfu Tan

,

Ye Yang

,

Pinxi Wang

and

Yilun Li

Sustainability **2021**, 13(9), 4837; <https://doi.org/10.3390/su13094837> - 26 Apr 2021

[Cited by 2](#) | Viewed by 906

Abstract

In recent years, new energy vehicles in Beijing have developed rapidly. This creates a huge demand for charging. It is a difficult problem to accurately identify the charging behavior of new energy vehicles and evaluate the use effect of social charging piles (CART [\[...\] Read more.](#)

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Open Access **Article**

WASH Financial and Social Investment Dynamics in a Conflict-Arid District of Jariban in Somalia

by

Wonder Mafuta

,

Jethro Zuwarimwe

and

Marizvikuru Mwale

Sustainability **2021**, 13(9), 4836; <https://doi.org/10.3390/su13094836> - 26 Apr 2021

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Abstract

The paper investigated the social and financial resources' interface in WASH programmes for vulnerable communities. Nineteen villages were randomly selected from the Jariban district in Somalia using the random number generator based on the village list. Data was collected in a sequential methodology [...] [Read more.](#)

(This article belongs to the Section [Geography and Sustainability](#))

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Open AccessArticle

A Proposed Theoretical Approach for the Estimation of Seismic Structural Vulnerability of Wastewater Treatment Plants

by

[Ploutarchos N. Kerpelis](#)

,

[Spyridon K. Golfopoulos](#)

and

[Dimitrios E. Alexakis](#)

Sustainability **2021**, 13(9), 4835; <https://doi.org/10.3390/su13094835> - 25 Apr 2021

[Cited by 1](#) | Viewed by 648

Abstract

The assessment of seismic vulnerability is critical for lifelines such as wastewater treatment plants (WTPs) because failures may result in environmental degradation, deterioration of water quality and human diseases development. The main scope of this research is the testing and application of a [...] [Read more.](#)

(This article belongs to the Special Issue [Natural and Technological Hazards in Urban Areas: Assessment, Planning and Solutions](#))

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Open AccessArticle

Ureolytic MICP-Based Self-Healing Mortar under Artificial Seawater Incubation

by

[Xichen Sun](#)

Jie Chen

Siyi Lu

Miaomiao Liu

Siyu Chen

Yifei Nan

Yang Wang

and

Jun Feng

Sustainability **2021**, *13*(9), 4834; <https://doi.org/10.3390/su13094834> - 25 Apr 2021

Cited by 2 | Viewed by 964

Abstract

Ureolytic microbial-induced calcium carbonate precipitation (MICP) is a promising green technique for addressing sustainable building concerns by promoting self-healing mortar development. This paper deals with bacteria-based self-healing mortar under artificial seawater incubation for the sake of fast crack sealing with sufficient calcium resource [\[...\] Read more.](#)

(This article belongs to the Special Issue [Biomimetic Infrastructure Materials: Towards a Greener Future](#))

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Open Access **Review**

An Overview of Climate Change Induced Hydrological Variations in Canada for Irrigation Strategies

by

[Ahmad Zeeshan Bhatti](#)

,

[Aitazaz Ahsan Farooque](#)

,

[Nicholas Krouglicof](#)

,

[Qing Li](#)

,

[Wayne Peters](#)

,

[Farhat Abbas](#)

and

[Bishnu Acharya](#)

Sustainability **2021**, 13(9), 4833; <https://doi.org/10.3390/su13094833> - 25 Apr 2021

[Cited by 3](#) | Viewed by 823

Abstract

Climate change is impacting different parts of Canada in a diverse manner. Impacts on temperature, precipitation, and stream flows have been reviewed and discussed region and province-wise. The average warming in Canada was 1.6 °C during the 20th century, which is 0.6 °C [\[...\] Read more.](#)

(This article belongs to the Special Issue [Precision Irrigation Strategies for Sustainable Water Budgeting](#))

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Open Access **Article**

Increasing Energy and Material Consumption Efficiency by Application of Material and Energy Flow Cost Accounting System (Case Study: Turbine Blade Production)

by

[Asghar Hakimi](#)

Zahra Abedi

and

Fatemeh Dadashian

Sustainability **2021**, 13(9), 4832; <https://doi.org/10.3390/su13094832> - 25 Apr 2021

Viewed by 662

Abstract

It is often difficult to extract data on material and energy wastes and related costs in the value chain of manufacturing products. Many organizations are not fully aware of the actual costs of material and energy wastes. For this purpose, advanced costing methods [\[...\] Read more.](#)

(This article belongs to the Section [Environmental Sustainability and Applications](#))

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Open Access Article

Study on Compressibility and Settlement of a Landfill with Aged Municipal Solid Waste: A Case Study in Taizhou

by

Haijie He

Tao Wu

Xiaogang Wang

Zhanhong Qiu

and

Jiwu Lan

Sustainability **2021**, 13(9), 4831; <https://doi.org/10.3390/su13094831> - 25 Apr 2021

[Cited by 2](#) | Viewed by 694

Abstract

Capacity expansion of existing landfills is one of the most economical methods of relieving the stress caused by the disposal of local municipal solid waste (MSW) in developing countries. In this paper, the compression characteristics and settlement of the aged MSW in Xiawan [\[...\] Read more.](#)

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Open Access **Article**

Landslide Geo-Hazard Risk Mapping Using Logistic Regression Modeling in Guixi, Jiangxi, China

by

Wenchao Huangfu

,

Weicheng Wu

,

Xiaoting Zhou

,

Ziyu Lin

,

Guiliang Zhang

,

Renxiang Chen

,

Yong Song

,

Tao Lang

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Yaozu Qin

,

Penghui Ou

,

Yang Zhang

,

Lifeng Xie

,

Xiaolan Huang

,

Xiao Fu

,

Jie Li

,

Jingheng Jiang

,

Ming Zhang

,

Yixuan Liu

,

Shanling Peng

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Chongjian Shao

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[Cited by 5](#) | Viewed by 1456

Abstract

Reliable prediction of landslide occurrence is important for hazard risk reduction and prevention. Taking Guixi in northeast Jiangxi as an example, this research aimed to conduct such a landslide risk assessment using a multiple logistic regression (MLR) algorithm. Field-investigated landslides and non-landslide sites [\[...\] Read more.](#)

(This article belongs to the Special Issue [Geo-Hazards and Risk Reduction Approaches](#))

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Open Access Article

Does Gamifying Homework Influence Performance and Perceived Gameful Experience?

by

[Ahmed Hosny Saleh Metwally](#)

,

[Maiga Chang](#)

,

[Yining Wang](#)

and

[Ahmed Mohamed Fahmy Yousef](#)

[Cited by 3](#) | Viewed by 1375

Abstract

There is a growing body of literature that recognizes the importance of applying gamification in educational settings. This research developed an application to gamify students' homework to address the concern of the students' inability to complete their homework. This research aims to investigate [\[...\] Read more.](#)

(This article belongs to the Special Issue [Games and Learning: Actions for Quality Education as a Sustainable Development Goal](#))

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Open Access Article

Social Trust and Green Technology Innovation: Evidence from Listed Firms in China

by

Yaru Yang

,

Desheng Liu

,

Luxiu Zhang

and

Yingkai Yin

Sustainability **2021**, 13(9), 4828; <https://doi.org/10.3390/su13094828> - 25 Apr 2021

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Abstract

Green Technology innovation intends to enable the advancement of technologies toward the goals of human health, natural resource sustainability and social equity. Green technology innovation has become an important driving force for the sustainable growth of the global economy. In this study, building [\[...\] Read more.](#)

(This article belongs to the Special Issue [Harnessing Sustainability to Corporate Finance and Financial Institutions](#))

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Open Access **Article**

Extraction of Essential Oil from River Tea Tree (*Melaleuca bracteata* F. Muell.): Antioxidant and Antimicrobial Properties

by

Mursleen Yasin

,

Adnan Younis

,

Fahad Ramzan

,

Talha Javed

Rubab Shabbir

Hamza Armghan Nousahi

Milan Skalicky

Peter Ondrisik

Marian Brestic

Sabry Hassan

and

Ayman EL Sabagh

Sustainability 2021, 13(9), 4827; <https://doi.org/10.3390/su13094827> - 25 Apr 2021

[Cited by 2](#) | Viewed by 1039

Abstract

Tea tree oil (TTO) from the genus *Melaleuca* L. has antimicrobial, antibacterial, antifungal, and antioxidant properties and is used by the cosmetic, pharmaceutical, and horticultural industries. In Pakistan, *Melaleuca bracteata* can be exploited for essential oil purposes, as this species is well adapted [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Multifaceted Nature of Food and Nutrition Insecurity around the World and Foodservice Business](#))

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Open Access **Article**

Integrated Evaluation of Changing Water Resources in an Active Ecotourism Area: The Case of Puerto Princesa City, Palawan, Philippines

by

Mark Ace Dela Cruz

,

Shinichiro Nakamura

,

Naota Hanasaki

and

Julien Boulange

Sustainability 2021, 13(9), 4826; <https://doi.org/10.3390/su13094826> - 25 Apr 2021

Viewed by 1595

Abstract

Rapid urbanization, tourism, and climate change (CC) threaten water resource management in developing countries. Conventional water-planning tools cannot account for the changing effects of water disparity, climate risks, and environmental flow (EF) requirements. This paper proposes an alternative approach that applies stylized water-demand [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Water Resources Management in the Changing Environment](#))

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[Open Access Article](#)

Putting It All Together: Combining Learning Analytics Methods and Data Sources to Understand Students' Approaches to Learning Programming

by

Sonsoles López-Pernas

,

Mohammed Saqr

and

Olga Viberg

Sustainability **2021**, 13(9), 4825; <https://doi.org/10.3390/su13094825> - 25 Apr 2021

Cited by 6 | Viewed by 895

Abstract

Learning programming is a complex and challenging task for many students. It involves both understanding theoretical concepts and acquiring practical skills. Hence, analyzing learners' data from online learning environments alone fails to capture the full breadth of students' actions if part of their [\[...\] Read more.](#)

(This article belongs to the Special Issue [Technology-Enhanced Learning and Innovative Practices in Engineering Education](#))

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Open AccessArticle

Sustainable Careers of Athletes: Themes and Concepts Regarding Transition Theories Involving Athletes

by

Jeongwon Choi

and

Hyun-Duck Kim

Sustainability **2021**, 13(9), 4824; <https://doi.org/10.3390/su13094824> - 25 Apr 2021

Viewed by 667

Abstract

Athletes' transition has been one of the crucial social issues for athletes, their families, and significant others. This study aimed to provide a thematic analysis of research on athletes' transition, considering the widely adopted transition theories. That is, this study is designed to [\[...\] Read more.](#)

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Open AccessArticle

Teleworking as an Eco-Innovation for Sustainable Development: Assessing Collective Perceptions during COVID-19

by

Francesca Loia

and

Paola Adinolfi

Sustainability **2021**, 13(9), 4823; <https://doi.org/10.3390/su13094823> - 25 Apr 2021

Cited by 8 | Viewed by 1782

Abstract

Due to the spread of COVID-19, new challenges and opportunities for business innovation have emerged, including the way work is organized and designed. In particular, pandemic created the conditions for the most extensive mass teleworking experiment in history. While there is a wide [\[...\] Read more.](#)

(This article belongs to the Special Issue [Business Innovation and Sustainable Development](#))

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Open Access **Article**

Associations between Work Resources and Work Ability among Forestry Professionals

by

Hannu Pursio

,

Anna Siukola

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Minna Savinainen

,

Hanna Kosonen

,

Heini Huhtala

and

Clas-Håkan Nygård

Sustainability **2021**, 13(9), 4822; <https://doi.org/10.3390/su13094822> - 25 Apr 2021

[Cited by 1](#) | Viewed by 587

Abstract

Globalization and structural changes in forestry have changed the content and operating practices of timber harvesting. Furthermore, digitization and new forms of work organization have changed work characteristics, requirements and resources. The importance of knowledge and competence, and the management of new technology, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Healthy Working Life for All Ages—Work Environment, Age Management and Employability](#))

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Open Access Article

Formation of Formaldehyde and Other Byproducts by TiO₂ Photocatalyst Materials

by

[Weijia Yu](#)

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[Marten in 't Veld](#)

,

[Rossana Bossi](#)

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[Mohamed Ateia](#)

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[Dominique Tobler](#)

,

[Anders Feilberg](#)

,

[Nicolas Bovet](#)

and

Matthew S. Johnson

Sustainability **2021**, 13(9), 4821; <https://doi.org/10.3390/su13094821> - 25 Apr 2021

[Cited by 2](#) | Viewed by 919

Abstract

Photocatalysts promised to control pollution in an environmentally benign manner, inexpensively, and with a low or cheap energy input. However, the limited chemical activity of photocatalysts has prevented their widespread use. This limitation has two important consequences; in addition to limited removal efficiency [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Building and Sustainable Indoor Environment](#))

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Open Access **Article**

The Impact of High-Speed Railway on China's Regional Economic Growth Based on the Perspective of Regional Heterogeneity of Quality of Place

by

Shanlang Lin

,

Prithvi Raj Dhakal

and

Zhaowei Wu

Sustainability **2021**, 13(9), 4820; <https://doi.org/10.3390/su13094820> - 25 Apr 2021

[Cited by 5](#) | Viewed by 805

Abstract

Transport enables trade between people, which is essential for the development of civilizations. Transport is a crucial necessity for specialization, allowing production and consumption of products to occur at different locations. High-speed rail (HSR) allows the flow of people between regions, cities, countries. [\[...\] Read more.](#)

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Open Access **Article**

The "Island Formation" within the Hinterland of a Port System: The Case of the Padan Plain in Italy

by

[Marino Lupi](#)

,

[Antonio Pratelli](#)

,

[Federico Campi](#)

,

[Andrea Ceccotti](#)

and

[Alessandro Farina](#)

Sustainability **2021**, *13*(9), 4819; <https://doi.org/10.3390/su13094819> - 25 Apr 2021

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Abstract

An “island formation” is a region within the hinterland of a port which is served by another port. Some regions of southern Europe, although located within the hinterland of some Mediterranean ports, are “island formations” of northern range ports (namely, northern European ports [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Maritime Policy and Management](#))

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Open Access **Article**

Spillover Effect of FDI on Food Exports: Based on Firm-Level Analysis in China

by

[Yue Jin](#)

,

[Chen Chen](#)

and

[Zhanyi Shi](#)

Viewed by 630

Abstract

This paper examines the spillover effect of foreign direct investment (FDI) on Chinese domestic food exports under firm heterogeneity. By using a rich firm-level panel data of China's food firms, the empirical analyses rely on the first-order difference generalized method of moments (GMM) [\[...\] Read more.](#)

(This article belongs to the Special Issue [Resilience and Sustainability in Agricultural and Food Systems](#))

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Open Access **Article**

Evaluation of Daily Behaviors Related to Health Risks of the Ger Residents in Ulaanbaatar, Mongolia

by

[Enkhchimeg Battsengel](#)

,

[Takehiko Murayama](#)

,

[Shigeo Nishikizawa](#)

and

[Sonomdagva Chonokhuu](#)

[Cited by 1](#) | Viewed by 914

Abstract

The capital city in Mongolia comprises two types of dwellings: apartments and Gers. The Ger is a traditional Mongolian house. Residents of Ger districts in Ulaanbaatar use coal as a source of fuel for daily activities such as heating and cooking in winter [\[...\] Read more.](#)

(This article belongs to the Special Issue [Human Lifestyles and Behaviors. Sustainable Environments for Better Health, Quality of Life and Wellbeing](#))

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Open Access **Article**

Corporate Governance and Cash Holding: New Insights from Concentrated and Competitive Industries

by

Idrees Ali Shah

,

Syed Zulfiqar Ali Shah

,

Muhammad Nouman

,

Farman Ullah Khan

,

Daniel Badulescu

and

Laura-Mariana Cismas

Sustainability 2021, 13(9), 4816; <https://doi.org/10.3390/su13094816> - 25 Apr 2021

[Cited by 2](#) | Viewed by 881

Abstract

The present study empirically investigates the effect of corporate governance on the value of cash holding, usage of excess cash, and firm performance in concentrated and competitive industries in the context of less developed countries. The empirical analysis was conducted in the panel [\[...\] Read more.](#)

(This article belongs to the Special Issue [Corporate Governance and Sustainability Performance](#))

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Open Access **Article**

The Reduction of Crude Protein with the Supplementation of Amino Acids in the Diet Reduces the Environmental Impact of Growing Pigs Production Evaluated through Life Cycle Assessment

by

Lucas A. C. Esteves

Alessandra N. T. R. Monteiro

Natália Y. Sitanaka

Paula C. Oliveira

Leandro D. Castilha

Vinicius R. C. Paula

and

Paulo C. Pozza

Sustainability **2021**, *13*(9), 4815; <https://doi.org/10.3390/su13094815> - 25 Apr 2021

[Cited by 2](#) | Viewed by 658

Abstract

Two experiments were performed to determine the digestibility of diets with crude protein (CP) reduction supplemented with amino acids (18.15; 17.15; 16.15 and 15.15%) to growing pigs (30–50 kg), to assess the use of nutrients and account for the manure excretion, and to [\[...\] Read more.](#)

(This article belongs to the Special Issue [From Farm to Fork: Balancing the Needs for Sustainable Food Production and Food for Health Promotion](#))

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Open Access **Article**

Earthquake Damage Assessment Based on User Generated Data in Social Networks

by

[Sajjad Ahadzadeh](#)

and

Mohammad Reza Malek

Sustainability **2021**, *13*(9), 4814; <https://doi.org/10.3390/su13094814> - 25 Apr 2021

[Cited by 4](#) | Viewed by 614

Abstract

Natural disasters have always been one of the threats to human societies. As a result of such crises, many people will be affected, injured, and many financial losses will incur. Large earthquakes often occur suddenly; consequently, crisis management is difficult. Quick identification of [\[...\] Read more.](#)

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Open Access **Article**

Impacts of Urban Land Use Changes on Ecosystem Services in Dianchi Lake Basin, China

by

[Ruibo Wang](#)

,

[Xiaojun Xu](#)

,

[Yang Bai](#)

,

[Juha M. Alatalo](#)

,

[Zongbao Yang](#)

,

[Wei Yang](#)

and

[Zhangqian Yang](#)

Sustainability **2021**, *13*(9), 4813; <https://doi.org/10.3390/su13094813> - 25 Apr 2021

[Cited by 4](#) | Viewed by 777

Abstract

Land use change is widely regarded as a key factor altering the structure and function of ecosystems. Urbanization is a particular driver and influence in land use change and is expanding globally, especially in developing countries like China. The InVEST model was employed [\[...\] Read more.](#)

(This article belongs to the Special Issue [Landscape Planning for Sustainability](#))

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Open Access **Article**

A Participatory Approach for “Circular” Adaptive Reuse of Cultural Heritage. Building a Heritage Community in Salerno, Italy

by

Antonia Gravagnuolo

,

Serena Micheletti

and

Martina Bosone

Sustainability **2021**, *13*(9), 4812; <https://doi.org/10.3390/su13094812> - 25 Apr 2021

[Cited by 7](#) | Viewed by 1086

Abstract

Cultural heritage is recognized as a key element for local sustainable development, contributing to the identity of territories and cultural diversity of local communities. The concept of “heritage community”, as expressed by the Faro Convention, can be enhanced in decision-making processes for the [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Valorization of the Cultural Heritage and Landscape as the Entrance Point for the Circular City Strategy](#))

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Open Access **Systematic Review**

A Systematic Review of the Deployment of Indigenous Knowledge Systems towards Climate Change Adaptation in Developing World Contexts: Implications for Climate Change Education

by

Marcellus Mbah

,

Sandra Ajaps

and

Petra Molthan-Hill

Sustainability **2021**, *13*(9), 4811; <https://doi.org/10.3390/su13094811> - 25 Apr 2021

Cited by 6 | Viewed by 1463

Abstract

Countries in the developing world are increasingly vulnerable to climate change effects and have a lesser capacity to adapt. Consideration can be given to their indigenous knowledge systems for an integrated approach to education, one which is more holistic and applicable to their [\[...\] Read more.](#)

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Open Access **Article**

Driving Innovation through Energy Efficiency: A Russian Regional Analysis

by

Alexander Melnik

,

Irina Naoumova

,

Kirill Ermolaev

and

Jerome Katrichis

Sustainability **2021**, *13*(9), 4810; <https://doi.org/10.3390/su13094810> - 25 Apr 2021

Viewed by 488

Abstract

Recent literature on energy efficiency focuses on the issues of energy security and options for reducing energy consumption. Measuring energy efficiency properly and forecasting future needs is critical to the energy policies of any country, especially given the importance of sustainability in their [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Innovation Trends and Global Value Chains in Emerging Markets](#))

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Open Access **Article**

Inheritance and Development: Study on the Overall Management and Control Strategies of the North–South Extension of Central Axis of Beijing

by

Jing Zhang

,

Yuchen Shang

,

Qiang Li

,

Shiwen Zhang

,

Jinsong Xiao

and

Min Li

Sustainability **2021**, *13*(9), 4809; <https://doi.org/10.3390/su13094809> - 25 Apr 2021

Viewed by 732

Abstract

The Central Axis of Beijing represents the epitome of this typical feature of ancient Chinese capitals. In 2020, the Beijing government decided to extend it southward and northward, ushering in new opportunities for its protection and development. Based on the “Historical Urban Landscape” [\[...\] Read more.](#)

(This article belongs to the Section [Tourism, Culture, and Heritage](#))

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Open AccessArticle

Air Pollution Control: An Analysis of China's Industrial Off-Peak Production Policy through the Quasi-Natural Experiment Method

by

[Xindi Xu](#)

,

[Qinyun Wang](#)

,

[Haichao Hu](#)

and

[Xinjun Wang](#)

Sustainability **2021**, *13*(9), 4808; <https://doi.org/10.3390/su13094808> - 25 Apr 2021

[Cited by 3](#) | Viewed by 607

Abstract

To reduce frequent heavy air pollution, the Chinese government suspends clinker production during the heating season in most areas of the North, which is known as the Clinker Off-peak Production Policy. The questions regarding such a repressive production policy for environmental purposes are [\[...\] Read more.](#)

(This article belongs to the Section [Environmental Sustainability and Applications](#))

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Open AccessArticle

Socio-Emotional Skills as Predictors of Performance of Students: Differences by Gender

by

[Iago Portela-Pino](#)

,

Myriam Alvariñas-Villaverde

and

Margarita Pino-Juste

Sustainability 2021, 13(9), 4807; <https://doi.org/10.3390/su13094807> - 25 Apr 2021

Cited by 1 | Viewed by 805

Abstract

Socio-emotional skills seem to have an important influence on the academic performance of students. This performance is usually higher in girls than in boys. Our aim was to determine which socio-emotional skills influence academic performance and whether gender is a variable that can [\[...\] Read more.](#)

(This article belongs to the Collection [Education, Innovation and Training for Sustainable Development in the Context of COVID-19](#))

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Open Access **Article**

External Carbon Source Facilitates Indirect Cr (VI) Bioreduction Process by Anaerobic Sludge Produced from Kitchen Waste

by

Hui Han

,

Jinju Hou

,

Dalei Zhang

,

Yuanning Zhong

,

Chao Chen

and

Qiuzhuo Zhang

Sustainability **2021**, 13(9), 4806; <https://doi.org/10.3390/su13094806> - 25 Apr 2021

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Abstract

This study presented the investigation on indirect Cr (VI) bioreduction process by anaerobic sludge produced from kitchen waste (ASKW) using an external source of glucose and sulfate to favor the reducing environment. These compounds were added at the beginning of the experiment along [\[...\] Read more.](#)

(This article belongs to the Special Issue [Conversion and Utilization of Biomass Waste](#))

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Open Access **Article**

Tourism Economic Network Structural Characteristics of National Parks in the Central Region of China

by

Kai Wang

,

Menghan Wang

,

Chang Gan

,

Qinchang Chen

and

Mihai Voda

Sustainability **2021**, 13(9), 4805; <https://doi.org/10.3390/su13094805> - 25 Apr 2021

[Cited by 2](#) | Viewed by 804

Abstract

The social network analysis has been actively applied in various tourist destinations, with a few studies on the tourism economic network structure of national parks. Taking the national parks in the Central Region of China as research objects, this study applies the modified [\[...\] Read more.](#)

(This article belongs to the Special Issue [Contemporary Issues and Phenomenon in the Hospitality and Tourism](#))

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Open AccessArticle

Recycling Carbon Tax under Different Energy Efficiency Improvements: A CGE Analysis of China

by

[Weijiang Liu](#)

,

[Tingting Liu](#)

,

[Yangyang Li](#)

and

[Min Liu](#)

Sustainability **2021**, *13*(9), 4804; <https://doi.org/10.3390/su13094804> - 25 Apr 2021

[Cited by 3](#) | Viewed by 812

Abstract

Carbon emission reductions and sustainable development have become hot issues in international conferences. As the most direct instrument for carbon emission reductions, the carbon tax has not been favored by policymakers because of its negative effect on the economy. To achieve low-carbon sustainable [\[...\] Read more.](#)

(This article belongs to the Special Issue [Environmental Management Approaches and Tools to Boost Circular Economy](#))

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Open AccessArticle

System Dynamics Approach to TALC Modeling

by

[Marko Hell](#)

and

Lidija Petrić

Sustainability **2021**, 13(9), 4803; <https://doi.org/10.3390/su13094803> - 25 Apr 2021

[Cited by 1](#) | Viewed by 756

Abstract

The system dynamics applied in this research on modeling a tourist destination (area) life cycle (TALC) contributes to understanding its behavior and the way that information feedback governs the use of feedback loops, delays and stocks and flows. On this basis, a system [\[...\] Read more.](#)

(This article belongs to the Special Issue [A European Perspective on Cultural Heritage as a Driver for Sustainable Development and Regional Resilience](#))

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Open Access **Article**

Understanding Motivations and Segmentation in Ecotourism Destinations. Application to Natural Parks in Spanish Mediterranean Area

by

Conrado Carrascosa-López

,

Mauricio Carvache-Franco

,

José Mondéjar-Jiménez

and

Wilmer Carvache-Franco

Sustainability **2021**, 13(9), 4802; <https://doi.org/10.3390/su13094802> - 25 Apr 2021

[Cited by 4](#) | Viewed by 856

Abstract

Ecotourism is one of the tourism variants with more annual growth. Motivation has become a fundamental criterion for travel behavior. Segmentation is used to identify the market niches of different tourism products and services. This study collects these three elements and is designed [\[...\] Read more.](#)

(This article belongs to the Special Issue [Accessible Tourism in Protected Natural Areas \(PNAs\)](#))

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Open AccessArticle

Human Resource Practice Management for Knowledge Intensive Team: IMPACT on Team Innovation Performance and Substitution Effect of Empowerment Leadership

by

[Zhen Han](#)

,

[Hao Ren](#)

,

[Shiyu Yang](#)

and

[Yuhang Han](#)

Sustainability 2021, 13(9), 4801; <https://doi.org/10.3390/su13094801> - 25 Apr 2021

Viewed by 790

Abstract

As an important factor in society development, human resource management is crucial to enhance the effectiveness of an organization. In this paper, the research focuses on the human resource management practice in knowledge-intensive teams, and studies the relationship between knowledge sharing and team [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open AccessEditorial

Towards an Arctic Sustainability Monitoring Framework

by

[Andrey N. Petrov](#)

and

[Tatiana Vlasova](#)

[Cited by 3](#) | Viewed by 691

Abstract

It is becoming more evident that in the twenty-first century we are living in the new era of Anthropocene, where humans attained the ability to alter planetary processes, bringing new urgency to the systematic understanding of current and future social and environmental changes [\[...\] Read more.](#)

(This article belongs to the Special Issue [Monitoring Arctic Sustainability: Methods, Indicators, Monitoring Systems and Experiences](#))

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Open Access **Article**

Evaluation of Fourteen Bread Wheat (*Triticum aestivum* L.) Genotypes by Observing Gas Exchange Parameters, Relative Water and Chlorophyll Content, and Yield Attributes under Drought Stress

by

[Allah Wasaya](#)

,

[Sobia Manzoor](#)

,

[Tauqeer Ahmad Yasir](#)

,

[Naeem Sarwar](#)

,

[Khuram Mubeen](#)

,

[Ismail A. Ismail](#)

,

[Ali Raza](#)

,

Abdul Rehman

Akbar Hossain

and

Ayman EL Sabagh

Sustainability 2021, 13(9), 4799; <https://doi.org/10.3390/su13094799> - 25 Apr 2021

[Cited by 8](#) | Viewed by 1011

Abstract

Water scarceness is a major threat to wheat productivity under changing climate scenarios, especially in arid and semi-arid regions. However, growing drought-tolerant wheat genotypes could be a sustainable option to enhance wheat productivity under drought stress conditions. The aim of this study was [\[...\] Read more.](#)

(This article belongs to the Special Issue [Plant Biotic and Abiotic Stress Tolerance: Physiological and Molecular Approaches for Sustainable Agricultural Production](#))

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Open Access **Article**

Using Fine-Grained Sediment and Wave Attenuation as a New Measure for Evaluating the Efficacy of Offshore Breakwaters in Stabilizing an Eroded Muddy Coast: Insights from Ca Mau, the Mekong Delta of Vietnam

by

Thai Thanh Luom

Nguyen Tan Phong

Nguyen Tuan Anh

Nguyen Thanh Tung

Le Xuan Tu

and

Tran Anh Duong

Sustainability **2021**, 13(9), 4798; <https://doi.org/10.3390/su13094798> - 25 Apr 2021

Viewed by 648

Abstract

Offshore breakwaters can be effective in reducing the energy of incident waves through dissipation, refraction or reflection. Breakwaters are increasingly constructed to stabilize eroded muddy coasts, particularly in developing countries. Accumulation of fine-grained sediment and wave attenuation are two attributes of a stable [\[...\] Read more.](#)

(This article belongs to the Section [Energy Sustainability](#))

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Open Access **Article**

Evaluation of Changes in the Permeability Characteristics of a Geotextile–Polynorborene Liner for the Prevention of Pollutant Diffusion in Oil-Contaminated Soils

by

Jeongjun Park

Sustainability **2021**, 13(9), 4797; <https://doi.org/10.3390/su13094797> - 24 Apr 2021

[Cited by 1](#) | Viewed by 669

Abstract

In this study, changes in the permeability characteristics of a geotextile–polynorborene liner at different oil pollutant contact times were evaluated. Experiments and numerical analyses were performed, and ASTM D5887 and ASTM D6766 were applied as test methods. The test results show that, when [\[...\] Read more.](#)

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Open Access **Article**

Cyclic Weighted k -means Method with Application to Time-of-Day Interval Partition

by

Gaizhen Wang

,

Wei Qin

and

Yunhao Wang

Sustainability **2021**, 13(9), 4796; <https://doi.org/10.3390/su13094796> - 24 Apr 2021

Viewed by 617

Abstract

Time-of-day interval partition (TIP) at a signalized intersection is of great importance in traffic control. There are two shortcomings of the traditional clustering algorithms based on traditional distance definitions (such as Euclidean distance) of traffic flows. First, some continuous time intervals are usually [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainability in Urban Transportation Planning](#))

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Open Access **Article**

Establishment of a Sustainability Assessment System for Bridges

by

Tai-Yi Liu

,

Guan-Ting Liu

,

Po-Han Chen

,

Nelson N. S. Chou

and

Shih-Ping Ho

Sustainability **2021**, 13(9), 4795; <https://doi.org/10.3390/su13094795> - 24 Apr 2021

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Abstract

In this paper, with the motivation of “green” and “sustainability” for bridge projects, ten key indicators were selected to establish a reliable and applicable sustainability assessment system. It is also expecting the civil infrastructure to be developed more ecologically, environmentally, and friendly by [\[...\] Read more.](#)

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Open AccessArticle

Performance Measurement System: Implementation Process in SMEs

by

[Zuzana Papulová](#)

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[Andrea Gažová](#)

,

[Maroš Šlenker](#)

and

[Jan Papula](#)

Sustainability 2021, 13(9), 4794; <https://doi.org/10.3390/su13094794> - 24 Apr 2021

[Cited by 4](#) | Viewed by 1120

Abstract

There is still a considerable interest in the topic of business performance, both in scientific community as well as in managerial praxis. Especially, the area of performance measurement system (PMS) and its implementation is forming a considerable scope for improvement. However, the research [\[...\] Read more.](#)

(This article belongs to the Special Issue [Firm Size and Sustainable Innovation Management II](#))

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Open AccessArticle

The Impact of Sex and Personality Traits on Social Media Use during the COVID-19 Pandemic in Poland

by

[Dariusz Zdonek](#)

and

[Karol Król](#)

Sustainability **2021**, 13(9), 4793; <https://doi.org/10.3390/su13094793> - 24 Apr 2021

[Cited by 2](#) | Viewed by 1148

Abstract

The COVID-19 pandemic has affected the way people use social media in a particular manner. The paper aims to investigate the impact of the pandemic on the use of social media, taking into account the sex and personality types of users in Poland. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Brand-Consumer Interaction on Social Media During and After the COVID-19 Global Pandemic](#))

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Open Access **Article**

Identifying Research Topics and Trends in Asset Management for Sustainable Use: A Topic Modeling Approach

by

[Hosang Jung](#)

and

[Boram Kim](#)

Sustainability **2021**, 13(9), 4792; <https://doi.org/10.3390/su13094792> - 24 Apr 2021

Viewed by 686

Abstract

Asset management is not new, and research has been conducted in private and public sectors on how to systematically maintain infrastructure or facilities for sustainable use and achieve the level of service desired by users or customers at the lowest life cycle costs. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Design, Manufacturing, Logistics, and Maintenance Using Big Data Analytics and Artificial Intelligence](#))

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Open AccessArticle

Impacts of Composition and Canopy Characteristics of Plant Communities on Microclimate and Airborne Particles in Beijing, China

by

Shuxin Fan

,

Mengyuan Zhang

,

Yilun Li

,

Kun Li

and

Li Dong

Sustainability 2021, 13(9), 4791; <https://doi.org/10.3390/su13094791> - 24 Apr 2021

Cited by 3 | Viewed by 622

Abstract

As the basic component of urban green-spaces, plant communities regulate both the microclimate and air particle levels. Understanding the regulatory mechanism of plant communities represents the theoretical basis for using green spaces to improve the urban climate and mitigate air particle pollution. Based [\[...\] Read more.](#)

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Open AccessArticle

An Evaluation of the Formative Experiences of Students Enrolled in Postgraduate Studies in Education: Case Study in Northern Mexico

by

Brenda Imelda Boroel Cervantes

,

José Alfonso Jiménez Moreno

,

Salvador Ponce Ceballos

and

José Sánchez Santamaría

Sustainability **2021**, 13(9), 4790; <https://doi.org/10.3390/su13094790> - 24 Apr 2021

[Cited by 1](#) | Viewed by 650

Abstract

The educational journey in postgraduate programs is linked to the actors, processes and results, setting the tone for different approaches from the perspective of characterization, development and evaluation. It is summarized in a sequential manner in four stages: entry to the program, progress [\[...\] Read more.](#)

(This article belongs to the Special Issue [Motivation and Evaluation in Education from the Sustainability Perspective](#))

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Open Access **Article**

The Impact of Residents' Participation on Their Support for Tourism Development at a Community Level Destination

by

Songyi Kim

,

Youngeun Kang

,

Jin-Han Park

and

Sung-Eun Kang

Sustainability **2021**, 13(9), 4789; <https://doi.org/10.3390/su13094789> - 24 Apr 2021

[Cited by 1](#) | Viewed by 952

Abstract

Resident participation is crucial to the success of tourism development at community-level destinations. This study examines the effect of residents' participation on their support for tourism development at the community level through a case study of Gamcheon Culture Village, South Korea. Using the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Residents and Stakeholders in Mass Tourism Destination and New Scenarios](#))

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Open AccessArticle

Applying Interactive Teaching Experience and Technology Action Puzzles in Disaster Prevention Education

by

[Wen-Jye Shyr](#)

,

[I-Min Chen](#)

,

[Jing-Chuan Lee](#)

and

[Te-Jen Su](#)

Sustainability **2021**, *13*(9), 4788; <https://doi.org/10.3390/su13094788> - 24 Apr 2021

[Cited by 1](#) | Viewed by 809

Abstract

This study incorporated technology action puzzle and obstacle challenge activities in the course design. Using the 921 Earthquake in Taiwan as the theme, this study integrated the content of various subjects and course modules and applied information technology to present the humanistic care [\[...\] Read more.](#)

(This article belongs to the Special Issue [Technology-Enhanced Learning and Teaching: Sustainable Education](#))

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Open AccessArticle

Sustainable Solutions for Mass-Housing Design in Africa: Energy and Cost Assessment for the Somali Context

by

[Claudio Del Pero](#)

,

[Oscar Eugenio Bellini](#)

,

[Maricla Martire](#)

and

[Davide di Summa](#)

Sustainability **2021**, 13(9), 4787; <https://doi.org/10.3390/su13094787> - 24 Apr 2021

[Cited by 2](#) | Viewed by 894

Abstract

Today, the main issue of providing adequate and affordable housing is to go beyond the mere offer of basic shelters, intending to create sustainable and durable settlements. Due to the fragile and uncertain nature of its social, political and economic context, characterized by [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Buildings in Developing Countries](#))

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Open Access **Article**

School Students' Perception and Challenges towards Online Classes during COVID-19 Pandemic in India: An Econometric Analysis

by

[Mohammed Arshad Khan](#)

,

[Tuba Kamal](#)

,

[Asheref Illiyan](#)

and

Mohd Asif

Sustainability **2021**, 13(9), 4786; <https://doi.org/10.3390/su13094786> - 24 Apr 2021

[Cited by 2](#) | Viewed by 3385

Abstract

Due to the COVID-19 pandemic, the worldwide education system has been severely affected, following the shutdown of schools and colleges/universities since March 2020 in order to prevent the spread of the virus. Conventional classrooms shifted to online classrooms which profoundly impacted teachers' and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Post-COVID-19 Education for a Sustainable Future: Challenges, Emerging Technologies and Trends](#))

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Open Access **Article**

Comprehensive Evaluation of Green Development in Dongliao River Basin from the Integration System of “Multi-Dimensions”

by

Aoyang Wang

,

Zhijun Tong

,

Walian Du

,

Jiquan Zhang

,

Xingpeng Liu

and

Zhiyi Yang

Sustainability **2021**, 13(9), 4785; <https://doi.org/10.3390/su13094785> - 24 Apr 2021

[Cited by 3](#) | Viewed by 553

Abstract

The bottlenecks in enhancing regional green development are resource shortages, environmental pollution, and ecological degradation. Taking the Dongliao River Basin (DRB) of Jilin Province as an example, this study explored green development from a multidimensional perspective. Based on the dimension evaluation results of [\[...\] Read more.](#)

(This article belongs to the Section [Social Ecology and Sustainability](#))

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Open AccessArticle

The Sustainability of Regenerative Cafes Utilizing Idle Industrial Facilities in South Korea

by

[Jun-Sik Eom](#)

,

[Sung-Hoon Yoon](#)

and

[Dai-Whan An](#)

Sustainability 2021, 13(9), 4784; <https://doi.org/10.3390/su13094784> - 24 Apr 2021

Viewed by 674

Abstract

This study investigates the sustainable values of cafes established using idle industrial facilities that are a part of the cultural heritage of South Korea in terms of the characteristics of the architectural space and consumers' space utilization. Twenty regenerative cafes in five regions [\[...\] Read more.](#)

(This article belongs to the Special Issue [Adaptive Reuse Processes: Bridging the Gap between Memory and New Values](#))

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Open AccessArticle

Why Socially Responsible? Determinant Factors of Organizational Performance: Case of Dangote Cement Factory in Ethiopia

by

Anna Dunay

,

Abebe Ayalew

and

Gemechu Abdissa

Sustainability **2021**, 13(9), 4783; <https://doi.org/10.3390/su13094783> - 24 Apr 2021

[Cited by 2](#) | Viewed by 1042

Abstract

The main purpose of this study is to examine the effect of corporate social responsibility on the organizational performance of the Dangote cement factory in Ethiopia. In order to achieve the research objectives, the authors adopted both a descriptive and explanatory research design. [\[...\] Read more.](#)

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Open Access **Review**

A Systematic Review of the Existing Literature for the Evaluation of Sustainable Urban Projects

by

Pierluigi Morano

,

Francesco Tajani

,

Maria Rosaria Guarini

and

Francesco Sica

Sustainability **2021**, 13(9), 4782; <https://doi.org/10.3390/su13094782> - 24 Apr 2021

Viewed by 805

Abstract

From the 21st century to the present(2021), a worldwide awareness that cities' development must be based on projects for socio-economic growth and environmental protection is increasing. World governmental agencies and the European Union have suggested action strategies for the construction of «prototype cities» [\[...\] Read more.](#)

(This article belongs to the Collection [Reviews, Advances and Applications in Environmental Sustainability](#))

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Open AccessArticle

Crop Yield and Physicochemical Properties of Wheat Grains as Affected by Tillage Systems

by

[Majid Yousefian](#)

,

[Feizollah Shahbazi](#)

and

[Kianoosh Hamidian](#)

Sustainability **2021**, 13(9), 4781; <https://doi.org/10.3390/su13094781> - 24 Apr 2021

[Cited by 1](#) | Viewed by 569

Abstract

In this study, we aimed to determine the effects of tillage systems (TS) on wheat grain yield, yield components, and physicochemical properties under rain-fed conditions over 2 years (2018–2019) in the Kuhdasht region in southwestern Iran. The tillage treatments were a combination of [\[...\] Read more.](#)

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Open AccessArticle

Soil Respiration Characteristics and Influencing Factors for Apple Orchards in Different Regions on the Loess Plateau of Shaanxi Province

by

[Tingting Hou](#)

,

[Yanping Wang](#)

,

[Fuxing Guo](#)

,

[Qiong Jia](#)

,

[Xinnan Wu](#)

,

[Enguang Wang](#)

and

[Jingbo Hong](#)

Sustainability **2021**, *13*(9), 4780; <https://doi.org/10.3390/su13094780> - 24 Apr 2021

Viewed by 505

Abstract

To explore the characteristics of the spatial and temporal variation in soil respiration (SR) in orchard ecosystems in different regions of the Loess Plateau of Shaanxi Province and to distinguish the controlling factors, representative orchards were studied from April to October 2019. We [\[...\] Read more.](#)

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[Open Access Article](#)

The Contribution of Up-Cycled Food Waste to a Balanced Diet of Low-Income Households

by

[Anne Nogueira](#)

,

[Fátima Alves](#)

and

Paula Vaz-Fernandes

Sustainability **2021**, 13(9), 4779; <https://doi.org/10.3390/su13094779> - 24 Apr 2021

[Cited by 1](#) | Viewed by 1185

Abstract

This paper focuses on the contribution of an upcycling food organization to a balanced diet, which rescues and redistributes fresh or freshly cooked food to low-income households. To determine the nutritional balance of food hampers provided by our case study organization, according to [\[...\] Read more.](#)

(This article belongs to the Special Issue [Applied Sustainability for SDG Implementation](#))

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Open Access **Article**

Planning for Railway Station Network Sustainability Based on Node–Place Analysis of Local Stations

by

Joon-Seok Kim

and

Nina Shin

Sustainability **2021**, 13(9), 4778; <https://doi.org/10.3390/su13094778> - 24 Apr 2021

Viewed by 611

Abstract

We principally focus on evaluating the local and entire network performance of railway stations for sustainable logistics management in South Korea. Specifically, we aim to address the issue of dealing with vulnerability in logistics dependent on the degree of connectivity. To resolve this [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable and Trustworthy Operation and Maintenance of Railway Systems](#))

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Open Access **Article**

Operating Principles, Performance and Technology Readiness Level of Reversible Solid Oxide Cells

by

Fiammetta Rita Bianchi

and

Barbara Bosio

Sustainability **2021**, 13(9), 4777; <https://doi.org/10.3390/su13094777> - 24 Apr 2021

[Cited by 3](#) | Viewed by 826

Abstract

The continuous increase of energy demand with the subsequent huge fossil fuel consumption is provoking dramatic environmental consequences. The main challenge of this century is to develop and promote alternative, more eco-friendly energy production routes. In this framework, Solid Oxide Cells (SOCs) are [\[...\] Read more.](#)

(This article belongs to the Special Issue [Climate Adaptation and Mitigation through Sustainable Energy Solutions](#))

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Open Access **Article**

Uncertainty and Emerging Tensions in Organizational Change: A Grounded Theory Study on the Orchestrating Role of the Change Leader

by

Francesco Virili

and

Cristiano Ghiringhelli

Sustainability **2021**, 13(9), 4776; <https://doi.org/10.3390/su13094776> - 24 Apr 2021

Viewed by 757

Abstract

We draw on the grounded theory methodology to analyze an automation project in a global parcel delivery company, as implemented in three parcel sorting hubs in two countries, seeking to identify key factors in successful change and the role of the change leader. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable and Resilient Supply Chains](#))

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Open Access Article

Beside and Behind the Wheel: Factors that Influence Driving Stress and Driving Behavior

by

Víctor Corcoba Magaña

,

Xabiel García Pañeda

,

Roberto Garcia

,

Sara Paiva

and

Laura Pozueco

Sustainability **2021**, *13*(9), 4775; <https://doi.org/10.3390/su13094775> - 24 Apr 2021

[Cited by 1](#) | Viewed by 739

Abstract

A large percentage of traffic accidents are due to human errors. Driving behavior and driving stress influence the probability of making these mistakes. Both are influenced by multiple factors, among which might be elements such as age, gender, sleeping hours, or working hours. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Driving Behavior and Road Safety](#))

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Open Access Article

I Believe I Can Fly—Conceptual Foundations for Behavioral Rebound Effects Related to Voluntary Carbon Offsetting of Air Travel

by

Christoph Kerner

and

Thomas Brudermann

Viewed by 1068

Abstract

Voluntary carbon offsets (VCO) have been introduced as a means of compensating personal carbon emissions related to travelling. Purchases of VCO have remained low in the past, but might increase in the future due to rising awareness about climate change. VCO have been [\[...\] Read more.](#)

(This article belongs to the Special Issue [Promoting Behavior Change toward Sustainable Transport](#))

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Open Access Article

An Integrated Method for Landscape Assessment: Application to Santiago de Cuba Bay, Cuba

by

[Seweryn Zielinski](#)

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[Celene B. Milanés](#)

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[Elena Cambon](#)

,

[Ofelia Perez Montero](#)

,

[Lourdes Rizo](#)

,

[Andres Suarez](#)

,

[Benjamin Cuker](#)

and

Giorgio Anfuso

Sustainability **2021**, 13(9), 4773; <https://doi.org/10.3390/su13094773> - 24 Apr 2021

[Cited by 1](#) | Viewed by 1029

Abstract

Human activities often drive landscape degradation and the associated loss of value. This paper describes a method that, by integrating multiple factors, characterize landscape value to establish relevant and effective management practices. The new integrated method for landscape assessment (IMLA) is a four-step [\[...\] Read more.](#)

(This article belongs to the Special Issue [Exclusive Papers of Outstanding Scientists in section Environmental Sustainability and Applications](#))

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Open Access **Article**

Characteristics of Models of Farms in the European Union

by

Hanna Klikocka

,

Aneta Zakrzewska

and

Piotr Chojnacki

Sustainability **2021**, 13(9), 4772; <https://doi.org/10.3390/su13094772> - 24 Apr 2021

[Cited by 1](#) | Viewed by 576

Abstract

The article describes and sets the definition of different farm models under the categories of being family, small, and large-scale commercial farms. The distinction was based on the structure of the workforce and the relationship between agricultural income and the minimum wage. Family [\[...\] Read more.](#)

(This article belongs to the Collection [Contemporary Challenges to the Sustainable Development of Agriculture and Rural Areas](#))

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Open Access **Article**

Development and Structural Changes of Carbon Footprint in EU28

by

[Josef Slaboch](#)

,

[Pavína Hálová](#)

and

[Adriana Laputková](#)

Sustainability **2021**, 13(9), 4771; <https://doi.org/10.3390/su13094771> - 24 Apr 2021

[Cited by 1](#) | Viewed by 670

Abstract

This paper examines the development of CO₂ emissions in individual countries of the European Union (EU28) for the period between 2000 and 2017. Carbon footprint is monitored in four basic economic sectors of the EU28 countries—energy, other industries, agriculture, and waste management. [\[...\] Read more.](#)

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Open Access **Article**

The Theoretical-Conceptual Model of Churning in Human Resources: The Importance of Its Operationalization

by

[Olga Alexandra Chinita Pirrolas](#)

and

[Pedro Miguel Alves Ribeiro Correia](#)

Sustainability **2021**, 13(9), 4770; <https://doi.org/10.3390/su13094770> - 23 Apr 2021

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Abstract

Given the current socio-economic context in which the labor market is set in, if we were to consider both employment opportunities in specific economic periods and the individual expectations workers have regarding one's working conditions, it should be a matter of one's individual [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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subject

Open Access Article

Who Is Willing to Share Their AV? Insights about Gender Differences among Seven Countries

by

Amalia Polydoropoulou

,

Ioannis Tsouros

,

Nikolas Thomopoulos

,

Cristina Pronello

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Arnór Elvarsson

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Haraldur Sigþórsson

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Nima Dadashzadeh

,

Kristina Stojmenova

,

Jaka Sodnik

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Stelios Neophytou

,

Domokos Esztergár-Kiss

,

Jamil Hamadneh

,

Graham Parkhurst

,

Shelly Etzioni

,

Yoram Shiftan

and

Floriea Di Ciommo

Sustainability **2021**, 13(9), 4769; <https://doi.org/10.3390/su13094769> - 23 Apr 2021

Cited by 9 | Viewed by 1306

Abstract

The introduction of shared autonomous vehicles into the transport system is suggested to bring significant impacts on traffic conditions, road safety and emissions, as well as overall reshaping travel behaviour. Compared with a private autonomous vehicle, a shared automated vehicle (SAV) is associated [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability of Automated and Connected Transport - The User Perspective](#))

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Open Access **Feature Paper** **Article**

VAT Efficiency—A Discussion on the VAT System in the European Union

by

Anna Kowal

and

Grzegorz Przekota

[Cited by 4](#) | Viewed by 1144

Abstract

The effectiveness of the tax system can be analysed in various ways. According to the authors one of manifestations of such effectiveness is resistance to tax evasion. This phenomenon is influenced by multiple factors, with few being the level of VAT rates and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Determinants of Functioning and Sustainable Growth of Small and Medium-Sized Enterprises from the Regional and International Perspectives](#))

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Open Access **Article**

Mapping Generation Y Tourists' E-Loyalty: A Sustainable Framework through Hierarchical Structure and Fuzzy Set Theory

by

[Yeneneh Tamirat Negash](#)

,

[Massoud Moslehpour](#)

,

[Pei-Kuan Lin](#)

,

[Shao-Chun Chiu](#)

and

[Yung-Yen Liu](#)

Viewed by 602

Abstract

Generation Y (Gen Y) travel spending is set to soar and has enormous implications for hospitality firms' economic sustainability. However, previous studies have failed to examine the hierarchical interrelationship between e-loyalty attributes in the presence of a hierarchical structure and linguistic preferences. Consequently, [\[...\] Read more.](#)

(This article belongs to the Section [Tourism, Culture, and Heritage](#))

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Open AccessArticle

The Teacher's Perspective on Inclusion in Education: An Analysis of Curriculum Design

by

Pedro Jurado-de-los-Santos

,

María Jesús Colmenero-Ruiz

,

Rosa Eva Valle-Flórez

,

Macarena Castellary-López

and

Victoria Figueredo-Canosa

Sustainability **2021**, 13(9), 4766; <https://doi.org/10.3390/su13094766> - 23 Apr 2021

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Abstract

The study we present is based on the responses given to students with specific educational support needs in compulsory education stages. Focused from the perspective of teachers within the framework of educational inclusion. To this end, the role of teachers and their influence [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Education: The Educational Response to Students with Disabilities](#))

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Open AccessArticle

Integration Versus Fragmentation, the Role of Minor Rural Networks in Rural Cultural Landscapes. A Study-Case in Spain

by

Julio Plaza Tabasco

and

Héctor S. Martínez Sánchez-Mateos

Sustainability **2021**, 13(9), 4765; <https://doi.org/10.3390/su13094765> - 23 Apr 2021

[Cited by 1](#) | Viewed by 657

Abstract

This work deals with the dichotomy between integration and fragmentation caused by artificial elements in the cultural landscapes, especially minor rural roads. In Europe, the rural matrix dominates the configuration of landscapes, and the agents of fragmentation can be analysed from different perspectives. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Landscape Fragmentation and Sustainable Environmental Assessment](#))

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Open Access **Article**

Emotional Cartography of Everyday Heritage via Photography

by

Belén Castro-Fernández

and

Ramón López-Facal

Sustainability **2021**, 13(9), 4764; <https://doi.org/10.3390/su13094764> - 23 Apr 2021

Viewed by 749

Abstract

This paper presented the results of a heritage education intervention in a non-formal context via a collective photographic exhibition organised by a cultural association. In accordance with the Faro Convention on the value of cultural heritage for society, people's role in the construction [\[...\] Read more.](#)

(This article belongs to the Special Issue [Values of Cultural Heritage for Society. Greater Citizen Participation.](#))

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Open Access **Article**

Sustainable Development and Consumer Behavior in Rural Tourism—The Importance of Image and Loyalty for Host Communities

by

[José María López-Sanz](#)

[Azucena Penelas-Leguía](#)

[Pablo Gutiérrez-Rodríguez](#)

and

[Pedro Cuesta-Valiño](#)

Sustainability **2021**, *13*(9), 4763; <https://doi.org/10.3390/su13094763> - 23 Apr 2021

[Cited by 8](#) | Viewed by 1162

Abstract

In recent years, rural tourism has experienced a major boom; it was once a secondary type of tourism but has now become a significant alternative option within the Spanish economy. This type of tourism facilitates the sustainable development of the host communities and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Consumer Behaviour and Sustainable Development Goals](#))

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Open Access **Article**

No Anxious Student Is Left Behind: Statistics Anxiety, Personality Traits, and Academic Dishonesty—Lessons from COVID-19

by

[Pnina Steinberger](#)

[Yovav Eshet](#)

and

[Keren Grinautsky](#)

Sustainability **2021**, *13*(9), 4762; <https://doi.org/10.3390/su13094762> - 23 Apr 2021

[Cited by 4](#) | Viewed by 1768

Abstract

Scholarly studies have revealed that exposure to statistics courses affect students' anxiety levels and that this has been associated with unethical misconduct. Thus, the present research's main objective is to comprehend the mediating role Statistics Anxiety plays on the relationship comprising students' personality [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Futures of Education in the Global Context: Sustainable Distance Education](#))

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Open AccessArticle

Different Strategies for Resilience to Wildfires: The Experience of Collective Land Ownership in Galicia (Northwest Spain)

by

[Manuel Marey-Perez](#)

,

[Xurxo Loureiro](#)

,

[Eduardo José Corbelle-Rico](#)

and

[Cristina Fernández-Filgueira](#)

Sustainability **2021**, *13*(9), 4761; <https://doi.org/10.3390/su13094761> - 23 Apr 2021

[Cited by 1](#) | Viewed by 984

Abstract

Resilience is not a particularly novel concept, but it has recently become frequently used as a measurement indicator of adaptation capacity under different approaches depending on the field of study. Ideally, for example, forest ecosystems would be resilient to wildfires, one of the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Building Wildfire Disaster Resilience and Climate Change Adaptation](#))

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Open AccessArticle

Sustainable Mobility Driven Prioritization of New Vehicle Technologies, Based on a New Decision-Aiding Methodology

by

Konstantina Anastasiadou

Sustainability **2021**, 13(9), 4760; <https://doi.org/10.3390/su13094760> - 23 Apr 2021

[Cited by 3](#) | Viewed by 885

Abstract

In an era of environmental and socio-economic crisis, sustainable transport planning is vital as ever, especially given that the transport sector is responsible for the greatest part of total air pollution and greenhouse gas emissions. New vehicle technologies, such as autonomous and electric [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Transport Planning and Decision-making](#))

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Open Access **Article**

Indicators for Ex-Post Evaluation of Cultural Heritage Adaptive Reuse Impacts in the Perspective of the Circular Economy

by

Martina Bosone

,

Pasquale De Toro

,

Luigi Fusco Girard

,

Antonia Gravagnuolo

and

Silvia Iodice

Sustainability **2021**, 13(9), 4759; <https://doi.org/10.3390/su13094759> - 23 Apr 2021

[Cited by 3](#) | Viewed by 1065

Abstract

Cultural heritage (CH) is considered a key element of cities and regions' identity and uniqueness, contributing to people's wellbeing and health, as well as jobs creation, environmental regeneration and place attractiveness. The adaptive reuse of abandoned and underused CH can be a sustainable strategy for heritage [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Valorization of the Cultural Heritage and Landscape as the Entrance Point for the Circular City Strategy](#))

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Open Access Article

Unfreezing the Discursive Hegemonies Underpinning Current Versions of “Social Sustainability” in ECE Policies in Anglo–Celtic, Nordic and Continental Contexts

by

[Alicja R. Sadownik](#)

,

[Yvonne Bakken](#)

,

[Josephine Gabi](#)

,

[Adrijana Višnjić-Jevtić](#)

and

[Jennifer Koutoulas](#)

Sustainability 2021, 13(9), 4758; <https://doi.org/10.3390/su13094758> - 23 Apr 2021

Viewed by 779

Abstract

Social sustainability is linked to finding new ways of living together and strengthening social capital and participation, as well as to social justice and equity in societies, and it is becoming increasingly important for diverse multicultural societies. In this article, we trace understandings [\[...\] Read more.](#)

(This article belongs to the Special Issue [Reimagining Early Childhood Education for Social Sustainability in a Future We Want](#))

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Open Access Article

Study of Alternatives for the Design of Sustainable Low-Income Housing in Brazil

by

Pollyanna Fernandes Bianchi

,

Víctor Yepes

,

Paulo Cezar Vitorio, Jr.

and

Moacir Kripka

Sustainability **2021**, 13(9), 4757; <https://doi.org/10.3390/su13094757> - 23 Apr 2021

[Cited by 1](#) | Viewed by 1032

Abstract

Despite insufficient housing facilities, particularly in developing countries, construction systems are generally selected intuitively or based on conventional solutions sanctioned by practice. The present study aims to evaluate different options for the design of low-income housing in Brazil by integrating the life cycle [\[...\] Read more.](#)

(This article belongs to the Special Issue [Multi-Criteria Analysis to Support Sustainable Decision-Making in the Built Environment](#))

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Open Access **Article**

Electro-Decontamination of Spent Ion Exchange Resins Contaminated with Iron Oxide Deposits under Dynamic Conditions

by

Eduard Tokar

,

Anna Matskevich

and

Andrei Egorin

Viewed by 462

Abstract

A method for the electro-decontamination of spent ion exchange resin contaminated with hematite under dynamic conditions using sulfuric acid solutions has been suggested. It has been shown that decontamination under dynamic conditions excludes the secondary adsorption of radionuclides on ion-exchanger sites. The efficiency [\[...\] Read more.](#)

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Open Access **Article**

Technological Platforms for Inclusive Practice at University: A Qualitative Analysis from the Perspective of Spanish Faculty Members

by

Víctor H. Perera

,

Anabel Moriña

,

Nieves Sánchez-Díaz

and

Yolanda Spinola-Elias

[Cited by 1](#) | Viewed by 698

Abstract

Currently, the development of new virtual environments as a complementary tool to face-to-face teaching and the increased presence of students with disabilities at university classrooms are changing the landscape of university teaching. This article analyses the actions of faculty members who carry out [\[...\] Read more.](#)

(This article belongs to the Collection [Ensuring Quality Education and Good Learning Environments for Students](#))

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Open Access **Article**

Evaluating the Role of Geofoam Properties in Reducing Lateral Loads on Retaining Walls: A Numerical Study

by

Muhammad Imran Khan

and

Mohamed A. Meguid

Sustainability **2021**, 13(9), 4754; <https://doi.org/10.3390/su13094754> - 23 Apr 2021

[Cited by 2](#) | Viewed by 635

Abstract

Expanded polystyrene (EPS) geofoam is a lightweight compressible material that has been widely used in various civil engineering projects. One interesting application of EPS in geotechnical engineering is to reduce the lateral earth pressure on rigid non-yielding retaining walls. The compressible nature of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Structural Engineering and Sustainable Civil Construction](#))

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Open Access **Article**

Investigating the Linkage between Economic Growth and Environmental Sustainability in India: Do Agriculture and Trade Openness Matter?

by

Ayhan Orhan

,

Tomiwa Sunday Adebayo

,

Sema Yılmaz Genç

and

Dervis Kirikkaleli

Sustainability **2021**, 13(9), 4753; <https://doi.org/10.3390/su13094753> - 23 Apr 2021

[Cited by 29](#) | Viewed by 1156

Abstract

This paper assesses the linkage between CO₂ emissions and economic growth while taking into account the role of energy consumption, agriculture, and trade openness in India. Using data covering the period between 1965 and 2019, the Bayer and Hanck cointegration and Gradual [\[...\] Read more.](#)

(This article belongs to the Section [Environmental Sustainability and Applications](#))

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Open AccessArticle

Spatial and Temporal Distribution of Elderly Public Transport Mode Preference

by

[Kaniz Fatima](#)

,

[Sara Moridpour](#)

and

[Tayebeh Saghapour](#)

Sustainability 2021, 13(9), 4752; <https://doi.org/10.3390/su13094752> - 23 Apr 2021

[Cited by 1](#) | Viewed by 649

Abstract

The elderly population is increasing rapidly. Understanding travel behaviour for this group of commuters (in terms of the trip purpose and travel time) is necessary for future transport planning. Many researchers are working on travel's spatial and temporal analysis to provide operational decision [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainable Transport Economics, Behaviour and Policy](#))

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Open AccessArticle

Models for Administration to Ensure the Successful Transition to Distance Learning during the Pandemic

by

[Vacius Jusas](#)

,

Rita Butkiene

Algimantas Venčkauskas

Renata Burbaite

Daina Gudoniene

Šarūnas Grigaliūnas

and

Diana Andone

Sustainability **2021**, *13*(9), 4751; <https://doi.org/10.3390/su13094751> - 23 Apr 2021

[Cited by 2](#) | Viewed by 925

Abstract

Lack of guidelines for implementing distance learning, lack of infrastructure, lack of competencies, and security-related problems were the challenges met during the pandemic. These challenges firstly fall on the administration of a higher education institution. To assist in solving the challenges of the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Technology and Innovation Management in Education](#))

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[Open Access](#) [Review](#)

Mapping Social Impact Assessment Models: A Literature Overview for a Future Research Agenda

by

Luigi Corvo

Lavinia Pastore

Arianna Manti

and

Daniel Iannaci

Sustainability **2021**, *13*(9), 4750; <https://doi.org/10.3390/su13094750> - 23 Apr 2021

Cited by 4 | Viewed by 940

Abstract

The social impact assessment (SIA) process is widely utilised and is receiving increasing interest from both scholars and practitioners. A systematic approach was applied in this study to search for articles about SIA models. In the first step, we analysed six main SIA [\[...\] Read more.](#)

(This article belongs to the Special Issue [Role of Impact Assessment in Sustainable Development](#))

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Open Access **Article**

Community Preferences for Urban Systems Transformation in Australia

by

Milo Costanza-van den Belt

,

Tayanah O'Donnell

,

Robert Webb

,

Eleanor Robson

,

Robert Costanza

,

Jiaqian Ling

Sarah Crowe

and

Hao Han

Sustainability 2021, 13(9), 4749; <https://doi.org/10.3390/su13094749> - 23 Apr 2021

Viewed by 930

Abstract

Civil society engagement is important for enabling urban systems transformations that meet community needs. The development of Future Earth Australia's *Sustainable Cities and Regions: A 10-Year Strategy for Urban Systems* was underpinned by cross-sectoral workshops in 7 Australian urban areas and interviews with [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Urban and Rural Development](#))

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Open Access **Article**

Contribution to the Sustainability of Agricultural Production in Greenhouses Built on Slope Soils: A Numerical Study of the Microclimatic Behavior of a Typical Colombian Structure

by

Edwin Villagran

Carlos Bojacá

and

Mohammad Akrami

Sustainability 2021, 13(9), 4748; <https://doi.org/10.3390/su13094748> - 23 Apr 2021

[Cited by 4](#) | Viewed by 1081

Abstract

The use of covered structures is an alternative increasingly used by farmers to increase crop yields per unit area compared to open field production. In Latin American countries such as Colombia, productive areas are located in with predominantly hillside soil conditions. In the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Greenhouse Production Strategies to Mitigate Product Carbon Footprint](#))

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Open AccessArticle

Recommendations for Sustainable Brand Personalities: An Empirical Study

by

Friederike Paetz

Sustainability **2021**, 13(9), 4747; <https://doi.org/10.3390/su13094747> - 23 Apr 2021

[Cited by 4](#) | Viewed by 812

Abstract

Sustainability marketing has emerged as an important trend both in practice and academic literature. The relevant literature has heavily focused on determinations of sustainable consumer behavior, and practitioners have used these results to derive short-term marketing decisions, e.g., adequate pricing of sustainable products. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Business, Social Responsibility, Ethics and Consumer Behaviour Research](#))

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Open AccessArticle

BIM Application for Sustainable Teaching Environment and Solutions in the Context of COVID-19

by

Iñigo Leon

,

Maialen Sagarna

,

Fernando Mora

and

Juan Pedro Otaduy

Sustainability **2021**, 13(9), 4746; <https://doi.org/10.3390/su13094746> - 23 Apr 2021

[Cited by 6](#) | Viewed by 965

Abstract

COVID-19 had a major impact on the 2030 Agenda for Sustainable Development, and it produced a crisis in Goal 4, which is aimed at ensuring quality education, among others. In this work, a university experience that aims to solve the challenges in this [\[...\] Read more.](#)

(This article belongs to the Collection [Education, Innovation and Training for Sustainable Development in the Context of COVID-19](#))

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Open AccessArticle

Battery Electric Bus Network: Efficient Design and Cost Comparison of Different Powertrains

by

[Orlando Barraza](#)

and

[Miquel Estrada](#)

Sustainability **2021**, 13(9), 4745; <https://doi.org/10.3390/su13094745> - 23 Apr 2021

[Cited by 5](#) | Viewed by 722

Abstract

Recent advances in the electromobility of bus fleets improve transit service sustainability but require the development of vehicle recharging facilities. The paper defines a methodology to design an efficient transit network operated by battery electric buses in cities with grid-shaped road network, based [\[...\] Read more.](#)

(This article belongs to the Special Issue [E-transportation for Future Sustainability](#))

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Open AccessArticle

The Effect of Ethnocentrism on Product Evaluation and Purchase Intention: The Case of Extra Virgin Olive Oil (EVOO)

by

[Juan Jose Blazquez-Resino](#)

Santiago Gutierrez-Broncano

Pedro Jimenez-Estevez

and

Israel Roberto Perez-Jimenez

Sustainability 2021, 13(9), 4744; <https://doi.org/10.3390/su13094744> - 23 Apr 2021

[Cited by 3](#) | Viewed by 804

Abstract

This study is framed within the concept of sustainability of local foods such as extra virgin olive oil (EVOO) and considers the effects of country of origin (COO) and ethnocentrism as relevant factors in decision making about product choice. Our work contributes to [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Food Management and Marketing](#))

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Open Access **Article**

Assessment of the Suitability of Wintering Anatidae Habitats before and after Impoundment in the Three Gorges Reservoir Region

by

Xiuming Li

Ruimei Cheng

Wenfa Xiao

Ge Sun

Tian Ma

Fuguo Liu

Xiaoyun Liu

Fawen Qian

and

Kaijun Pan

Sustainability **2021**, *13*(9), 4743; <https://doi.org/10.3390/su13094743> - 23 Apr 2021

[Cited by 1](#) | Viewed by 585

Abstract

In this study, we aimed to understand the distribution of and changes in the habitats suitable for Anatidae wintering in the Three Gorges Reservoir Region (TGRR), China, and to explore the impact of the impoundment during different impoundment periods. Based on species occurrence [\[...\] Read more.](#)

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Open Access **Article**

Evaluation of Protein and Antioxidant Content in Apricot Kernels as a Sustainable Additional Source of Nutrition

by

Eliška Rampáčková

Martina Göttingerová

Pavel Gála

Tomáš Kiss

Sezai Ercişi

and

Tomáš Nečas

Sustainability **2021**, 13(9), 4742; <https://doi.org/10.3390/su13094742> - 23 Apr 2021

[Cited by 6](#) | Viewed by 683

Abstract

Apricot fruits are a favorite for consumption; however, their kernels are a rich source of nutritionally interesting substances, too. Nevertheless, in processing of apricots, the kernels remain often unused. In this study, 32 cultivars of different origin were analyzed for their protein content [\[...\] Read more.](#)

(This article belongs to the Special Issue [Promising Technologies and Methods to Ensure Sustainable Crop Production](#))

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Open Access **Article**

Heavy Metal Concentrations in Orchard Soils with Different Cultivation Durations and Their Potential Ecological Risks in Shaanxi Province, Northwest China

by

Hongmei Dong

Jingbo Zhao

and

Mengping Xie

Sustainability **2021**, 13(9), 4741; <https://doi.org/10.3390/su13094741> - 23 Apr 2021

[Cited by 1](#) | Viewed by 620

Abstract

The heavy metal pollution of soils, resulting from long-term fertilizing activity, is becoming serious in many countries, endangering ecological safety and human health. This study employed inductively coupled plasma-mass spectrometry (ICP-MS) to investigate concentrations of eight heavy metal elements (Cd, Hg, As, Pb, [\[...\] Read more.](#)

(This article belongs to the Collection [Risk Assessment and Management](#))

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Open AccessArticle

A Sustainable Facility Management Outsourcing Relationships System: Artificial Neural Networks

by

[Ka Leung Lok](#)

,

[Albert So](#)

,

[Alex Opoku](#)

and

[Charles Chen](#)

Sustainability 2021, 13(9), 4740; <https://doi.org/10.3390/su13094740> - 23 Apr 2021

Viewed by 775

Abstract

The Contingency Outsourcing Relationship (CORE) model originated from the Four Outsourcing Relationship Types (FORT) model; the CORE model is used in the globalized Facility Management (FM) industry, while the FORT model is originally used in the global information technology industry. The purpose of [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Future of Facilities Management and Sustainable Development](#))

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Open AccessArticle

Representing the Under-Represented: Labor Unions as Urbanists

by

[Aseem Inam](#)

Sustainability 2021, 13(9), 4739; <https://doi.org/10.3390/su13094739> - 23 Apr 2021

Viewed by 713

Abstract

Persistent precarity is a fundamental, yet usually hidden and often overlooked condition of urbanism, particularly for those who represent the human labor that produces and reproduces the capitalist city. The question, then, is how do those who represent this under-represented human labor, unions, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Creating a More Equitable City: Alternative Narratives of Spatial Production](#))

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Open AccessArticle

Indoor Distance Measurement System COPS (COVID-19 Prevention System)

by

Minchan Shin

and

Nammee Moon

Sustainability **2021**, 13(9), 4738; <https://doi.org/10.3390/su13094738> - 23 Apr 2021

[Cited by 1](#) | Viewed by 713

Abstract

With the rapid spread of coronavirus disease 2019 (COVID-19), measures are needed to detect social distancing and prevent further infection. In this paper, we propose a system that detects social distancing in indoor environments and identifies the movement path and contact objects according [\[...\] Read more.](#)

(This article belongs to the Collection [Advanced IT based Future Sustainable Computing](#))

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Open AccessArticle

Passenger Preferences in Rail Transport in Poland as Regards Travelling Time and Cost

by

Grażyna Rosa

Sustainability **2021**, 13(9), 4737; <https://doi.org/10.3390/su13094737> - 23 Apr 2021

Viewed by 521

Abstract

The paper includes an analysis of passengers' preferences in the context of selected marketing activities conducted by leading railway companies operating in the passenger transport sector in Poland. Operators' offers are highly varied, which may make it difficult to find the benefits expected [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Public Transportation](#))

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Open Access **Review**

Direct-Hydrocarbon Proton-Conducting Solid Oxide Fuel Cells

by

Fan Liu

and

Chuancheng Duan

Sustainability **2021**, *13*(9), 4736; <https://doi.org/10.3390/su13094736> - 23 Apr 2021

[Cited by 4](#) | Viewed by 902

Abstract

Solid oxide fuel cells (SOFCs) are promising and rugged solid-state power sources that can directly and electrochemically convert the chemical energy into electric power. Direct-hydrocarbon SOFCs eliminate the external reformers; thus, the system is significantly simplified and the capital cost is reduced. SOFCs [\[...\] Read more.](#)

(This article belongs to the Special Issue [Advances in Direct Use of Hydrocarbons for Fuel Cell Applications](#))

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Open Access **Article**

Investigation of Informal Settlement Indicators in a Densely Populated Area Using Very High Spatial Resolution Satellite Imagery

by

Naledzani Mudau

and

Paidamwoyo Mhangara

Sustainability **2021**, *13*(9), 4735; <https://doi.org/10.3390/su13094735> - 23 Apr 2021

Viewed by 556

Abstract

Automation of informal settlements detection using satellite imagery remains a challenging task in urban remote sensing. This is due to the fact that informal settlements vary in shape, size and spatial arrangement from one region to the other in some cases within a [\[...\] Read more.](#)

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Open AccessArticle

The Green Image in the Spanish Hotel Sector: Analysis of Its Consequences from a Relational Perspective

by

[José Ramón Sarmiento-Guede](#)

,

[Arta Antonovica](#)

and

[Rebeca Antolín-Prieto](#)

Sustainability **2021**, *13*(9), 4734; <https://doi.org/10.3390/su13094734> - 23 Apr 2021

[Cited by 1](#) | Viewed by 763

Abstract

The main objective of this research is to propose a hierarchy of effects model to study three antecedents of green brand image, such as trust, satisfaction and loyalty, and to examine the relationships between these variables. In this context, we investigated how these [\[...\] Read more.](#)

(This article belongs to the Section [Tourism, Culture, and Heritage](#))

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Open AccessArticle

The Mechanism of Driving Green Growth and Decreasing Energy Security Risks by Innovation in China

by

[Feng Wang](#)

and

Ruiqi Wang

Sustainability **2021**, 13(9), 4733; <https://doi.org/10.3390/su13094733> - 23 Apr 2021

Viewed by 477

Abstract

The role of innovation for economic growth has been proved by studies. However, whether innovation can decrease environmental cost and energy security risks remains to be studied. To explore the theoretical mechanism of driving green economic growth by innovation, we constructed a four-sector [\[...\] Read more.](#)

(This article belongs to the Special Issue [Energy Security and Sustainable Development](#))

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Open Access Article

Disclosure Dynamics and Non-Financial Reporting Analysis. The Case of Romanian Listed Companies

by

Mărioara Beleneși

,

Victoria Bogdan

and

Dorina Nicoleta Popa

Sustainability **2021**, 13(9), 4732; <https://doi.org/10.3390/su13094732> - 23 Apr 2021

[Cited by 2](#) | Viewed by 781

Abstract

New challenges and perspectives to improve non-financial reporting and the disclosure of environmental, social, and governance indicators have been launched towards the development horizon of Romanian public interest entities, implementing the provisions of Directive 2014/95/EU in the local regulatory framework. In this context, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Social Responsibility and Sustainability Accounting: Key Corporate Performance Drivers and Measures](#))

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Open Access Article

Outdoors Evacuation Routes Algorithm Using Cellular Automata and Graph Theory for Uphills and Downhills

by

Washington Velasquez

and

Manuel S. Alvarez-Alvarado

Sustainability 2021, 13(9), 4731; <https://doi.org/10.3390/su13094731> - 23 Apr 2021

Cited by 2 | Viewed by 877

Abstract

This paper proposes an innovative algorithm for the determination of the optimal outdoor evacuation routes in hills. The algorithm uses web services to obtain the Google Image Tile (a portion of the area to evaluate) and each area's geographic information. Then, the routes [\[...\] Read more.](#)

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Open Access Article

Do Foldable Containers Enhance Efficient Empty Container Repositioning under Demand Fluctuation?—Case of the Pacific Region

by

Zirui Liang

,

Ryuichi Shibasaki

and

Yuji Hoshino

Sustainability 2021, 13(9), 4730; <https://doi.org/10.3390/su13094730> - 23 Apr 2021

Viewed by 811

Abstract

This study considers the empty container repositioning problem of shipping companies that use standard and 3-in-1 foldable containers with more advanced designs. A mathematical model is developed to compare the total management costs of container repositioning of various patterns in different cargo shipping [\[...\] Read more.](#)

(This article belongs to the Special Issue [Global and International Logistics](#))

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Open AccessArticle

Photocatalytic Degradation of Methylene Blue Using Zinc Oxide Nanorods Grown on Activated Carbon Fibers

by

[Borhan Albiss](#)

and

[Muna Abu-Dalo](#)

Sustainability **2021**, *13*(9), 4729; <https://doi.org/10.3390/su13094729> - 23 Apr 2021

[Cited by 8](#) | Viewed by 848

Abstract

In this work, the synthesis, characterization, and photocatalytic performance of zinc oxide/activated carbon fiber nanocomposites prepared by hydrothermal method were investigated. Zinc oxide nanoparticles (ZnO-NP) were deposited as seeds on porous activated carbon fiber (ACF) substrates. Then, zinc oxide nanorods (ZnO-NR) were successfully [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Application of Nanomaterials for the Removal of Emerging Pollutants from Water](#))

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Open AccessArticle

Delineating Smallholder Maize Farms from Sentinel-1 Coupled with Sentinel-2 Data Using Machine Learning

by

[Zinhle Mashaba-Munghemezulu](#)

,

[George Johannes Chirima](#)

and

Cilence Munghemezulu

Sustainability **2021**, 13(9), 4728; <https://doi.org/10.3390/su13094728> - 23 Apr 2021

[Cited by 3](#) | Viewed by 585

Abstract

Rural communities rely on smallholder maize farms for subsistence agriculture, the main driver of local economic activity and food security. However, their planted area estimates are unknown in most developing countries. This study explores the use of Sentinel-1 and Sentinel-2 data to map [\[...\] Read more.](#)

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Open AccessArticle

Key Approaches, Risks, and Product Performance in Managing the Development Process of Complex Products Sustainably

by

Salah Ahmed Mohamed Almoslehy

and

Mohammed Saad Alkahtani

Sustainability **2021**, 13(9), 4727; <https://doi.org/10.3390/su13094727> - 23 Apr 2021

[Cited by 2](#) | Viewed by 602

Abstract

In the Industry 4.0 environment, being sustainably competitive is essential in global markets. In an endeavor to optimize the added value in the design process of complex products such as robots, managing the development process of such products is studied. The present study [\[...\] Read more.](#)

(This article belongs to the Special Issue [Lean Manufacturing Strategies and Energy Management for Industry 4.0](#))

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Open AccessArticle

Does Circular Reuse of Chickpea Cooking Water to Produce Vegan Mayonnaise Reduce Environmental Impact Compared with Egg Mayonnaise?

by

Sophie Saget

Marcela Costa

David Styles

and

Mike Williams

Sustainability **2021**, 13(9), 4726; <https://doi.org/10.3390/su13094726> - 23 Apr 2021

[Cited by 2](#) | Viewed by 1525

Abstract

Consumers are increasingly asking for foods that are healthier, more humane, and environmentally sustainable. Recently, chickpea cooking water—aquafaba—has gained popularity as a potential egg substitute that complies with these criteria. However, research on the environmental impact of this ingredient is lacking. We performed [\[...\] Read more.](#)

(This article belongs to the Special Issue [Addressing the Food–Health–Environmental Nexus for Agri-Food System Sustainability](#))

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Open Access **Article**

Using Simulation-Based Modeling to Evaluate Light Trespass in the Design Stage of Sports Facilities

by

Kwang-Hoon Kim

and

Gon Kim

Sustainability **2021**, 13(9), 4725; <https://doi.org/10.3390/su13094725> - 23 Apr 2021

[Cited by 2](#) | Viewed by 554

Abstract

Artificial light is a pollutant with broad implications for society. Consequently, laws and regulations aimed at curbing the improper use of artificial lighting (i.e., light pollution) are becoming common. For such laws to become effective, light pollution must first be evaluated and quantified. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Design of Architectural Sustainable Lighting](#))

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Open AccessArticle

The Organic Mindset: Insights from a Mixed Methods Grounded Theory (MM-GT) Study into Organic Food Systems

by

[Sebastian Kretschmer](#)

,

[Bettina Langfeldt](#)

,

[Christian Herzig](#)

and

[Thomas Krikser](#)

Sustainability **2021**, *13*(9), 4724; <https://doi.org/10.3390/su13094724> - 23 Apr 2021

[Cited by 2](#) | Viewed by 939

Abstract

A broad understanding of food systems includes a complex web of activities, outcomes and drivers, encompassing not only the food and agriculture sectors, but also the social norms and cultures in which those activities are embedded. The organic food and farming movement has [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Agri-Food Systems: Environment, Economy, Society and Policy](#))

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Open AccessArticle

The Beautiful Risk of Collaborative and Interdisciplinary Research. A Challenging Collaborative and Critical Approach toward Sustainable Learning Processes in Academic Profession

by

[Jonas Christensen](#)

,

[Nils Ekelund](#)

,

[Margareta Melin](#)

and

[Pär Widén](#)

Sustainability **2021**, 13(9), 4723; <https://doi.org/10.3390/su13094723> - 23 Apr 2021

[Cited by 4](#) | Viewed by 928

Abstract

In this article, we aim to identify and explore possibilities and challenges of academic interdisciplinary capacities and ethos. The objective is that this knowledge could be used both in future interdisciplinary research projects and in educational settings. We achieve this through self-reflective learning [\[...\] Read more.](#)

(This article belongs to the Special Issue [Responding to Global Changes through Science Promotion and Ecological Education](#))

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Open Access **Article**

Information and Communication Technologies as a Source of Customer Value in the Context of Balancing the Positions of Younger and Older Consumers

by

[Ewa Frąckiewicz](#)

Sustainability **2021**, 13(9), 4722; <https://doi.org/10.3390/su13094722> - 23 Apr 2021

[Cited by 2](#) | Viewed by 561

Abstract

Information and communication technologies (ICT, new technologies) have revolutionized every aspect of consumers' lives and become an important value creation tool for them. It is commonly believed that this process concerns young and adult persons (younger than 60, 60–) to a much greater [\[...\] Read more.](#)

(This article belongs to the Special Issue [New Technologies in Customer Value Management in the Perspective of Sustainable Development](#))

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Open Access **Review**

Sustainability in City-Regionalism as Emergent Practice: The Case of the BRICS

by

Philip Harrison

Sustainability 2021, 13(9), 4721; <https://doi.org/10.3390/su13094721> - 23 Apr 2021

Viewed by 535

Abstract

Sustainability concerns transgress jurisdictional boundaries compelling multi-scalar and inter-jurisdictional responses. The city-region is one of the scales at which governance actors may mobilise for sustainability and this is now recognised in literatures on integrated food systems, for example. However, within the mainstream debates [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Planning of Urban Regions](#))

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Open Access **Article**

A Methodological Workflow for Deriving the Association of Tourist Destinations Based on Online Travel Reviews: A Case Study of Yunnan Province, China

by

Tao Liu

,

Ying Zhang

,

Huan Zhang

and

Xiping Yang

Sustainability **2021**, 13(9), 4720; <https://doi.org/10.3390/su13094720> - 23 Apr 2021

[Cited by 1](#) | Viewed by 639

Abstract

Insights into the association rules of destinations can help to understand the possibility of tourists visiting a destination after having traveled from another. These insights are crucial for tourism industries to exploit strategies and travel products and offer improved services. Recently, tourism-related, user-generated [\[...\] Read more.](#)

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Open Access **Article**

Job Design to Extend Working Time: Work Characteristics to Enable Sustainable Employment of Older Employees in Different Job Types

by

Hiske den Boer

,

Tinka van Vuuren

and

Jeroen de Jong

Sustainability **2021**, 13(9), 4719; <https://doi.org/10.3390/su13094719> - 23 Apr 2021

Viewed by 1116

Abstract

Due to an aging workforce and an increasing structural labor shortage across Western economies, it is important to design jobs for older workers that support their continued employability. The aim of this qualitative study was to investigate how job type (operational, professional and [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Factor Time in Research on Sustainable Employability? Results of Theory-Based Organizational Research](#))

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Open Access **Article**

Multi-Actor Governance for a Circular Economy in the Agri-Food Sector: Bio-Districts

by

[Stefano Poponi](#)

,

[Gabriella Arcese](#)

,

[Enrico Maria Mosconi](#)

,

[Francesco Pacchera](#)

,

[Olimpia Martucci](#)

and

[Grazia Chiara Elmo](#)

Sustainability **2021**, 13(9), 4718; <https://doi.org/10.3390/su13094718> - 23 Apr 2021

[Cited by 5](#) | Viewed by 1127

Abstract

The transition of the European agri-food sector towards a sustainable production and consumption model is a key element of the Green Deal. The new European “Farm to Fork” strategy aims to make the food system fair, healthy, and environmentally friendly. The consolidation and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Circular Economy: Innovative Approaches to Circularity Toward Green Transformation and Blue Growth](#))

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Open Access **Article**

Immersive Robotic Telepresence for Remote Educational Scenarios

by

[Jean Botev](#)

and

Francisco J. Rodríguez Lera

Sustainability **2021**, 13(9), 4717; <https://doi.org/10.3390/su13094717> - 23 Apr 2021

Viewed by 969

Abstract

Social robots have an enormous potential for educational applications and allow for cognitive outcomes that are similar to those with human involvement. Remotely controlling a social robot to interact with students and peers in an immersive fashion opens up new possibilities for instructors [\[...\] Read more.](#)

(This article belongs to the Special Issue [Visual Technologies for Sustainable Digital Environments](#))

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Open Access **Article**

Sustainable Virtual Reality Patient Rehabilitation Systems with IoT Sensors Using Virtual Smart Cities

by

Moustafa M. Nasralla

Sustainability **2021**, 13(9), 4716; <https://doi.org/10.3390/su13094716> - 23 Apr 2021

[Cited by 3](#) | Viewed by 643

Abstract

To develop sustainable rehabilitation systems, these should consider common problems on IoT devices such as low battery, connection issues and hardware damages. These should be able to rapidly detect any kind of problem incorporating the capacity of warning users about failures without interrupting [\[...\] Read more.](#)

(This article belongs to the Special Issue [Optimising E-health System for Sustainable Healthcare](#))

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Open Access **Review**

Factors that Impact Farmers' Organic Conversion Decisions

by

Philippou Karipidis

and

Sotiria Karypidou

Sustainability 2021, 13(9), 4715; <https://doi.org/10.3390/su13094715> - 23 Apr 2021

[Cited by 4](#) | Viewed by 1032

Abstract

This article helps to answer the question of how the diffusion of organic farming could be accelerated by analyzing farmers' decisions. Given the fragmentation of the research findings, the determinants of farmers' organic conversion decisions were integrated into a framework that enables a [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Agriculture Guided by the Environmentally Responsible Consumption](#))

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Open Access **Article**

(Re)imagining Entangled Sustainability: A Human and Nonhuman Theorisation of Belonging to Safeguard Sustainability's Holism

by

Alicja R. Sadownik

and

Josephine Gabi

Sustainability 2021, 13(9), 4714; <https://doi.org/10.3390/su13094714> - 23 Apr 2021

[Cited by 3](#) | Viewed by 873

Abstract

After years of research and theorisation connected to education for sustainable development, the holistic core of sustainability seems to have disappeared within the frames of the social, environmental and economic pillars. This article suggests a post-humanism inspired understanding of a sense of belonging. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Reimagining Early Childhood Education for Social Sustainability in a Future We Want](#))

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Open Access **Article**

Benefits of Circular Agriculture for Cropping Systems and Soil Fertility in Oases

by

Mustapha El Janati

,

Nouraya Akkal-Corfini

,

Ahmed Bouaziz

,

Abdallah Oukarroum

,

Paul Robin

,

Ahmed Sabri

,

Mohamed Chikhaoui

and

Zahra Thomas

Sustainability **2021**, *13*(9), 4713; <https://doi.org/10.3390/su13094713> - 23 Apr 2021

Viewed by 1042

Abstract

Circular agriculture is an effective approach for the management of soil organic inputs that improves soil fertility and cropping system sustainability. We developed a cropping system typology and assessed effects of crop rotation, organic fertilization, and crop residue management on soil fertility properties. [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainability: Agricultural Production, Food Insecurity, and the Environment](#))

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Open Access **Article**

Impact of Board Gender Diversity on Corporate Social Responsibility and Irresponsibility: Empirical Evidence from France

by

Sonia Boukattaya

and

Abdelwahed Omri

Sustainability **2021**, 13(9), 4712; <https://doi.org/10.3390/su13094712> - 22 Apr 2021

Cited by 6 | Viewed by 1109

Abstract

While prior studies have investigated the impact of corporate governance mechanisms on corporate social responsibility (CSR) commitment, researchers have scantily studied the potentially important relationship between board gender diversity and corporate social responsibility and irresponsibility separately. Drawing on the social role theory and feminist [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Finance: New Trends, Environment and Social Changes](#))

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Open Access **Article**

Users' Evaluation of a New Web Browser Payment Interface for Facilitating the Use of Multiple Payment Systems

by

Oussama Tounekti

,

Antonio Ruiz-Martínez

and

Antonio F. Skarmeta-Gómez

Sustainability **2021**, 13(9), 4711; <https://doi.org/10.3390/su13094711> - 22 Apr 2021

Cited by 2 | Viewed by 674

Abstract

The availability of multiple (mobile) electronic payment systems ((M)EPS) has led to the development of web browser payment interfaces that support various payment systems, facilitate the transaction, the choice of the payment system, and perform the payment. However, so far, no in-depth study [\[...\] Read more.](#)

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Open AccessArticle

Damage Assessment of Historical Masonry Churches Subjected to Moderate Intensity Seismic Shaking

by

Nicola Ruggieri

Sustainability 2021, 13(9), 4710; <https://doi.org/10.3390/su13094710> - 22 Apr 2021

[Cited by 1](#) | Viewed by 550

Abstract

An earthquake of magnitude 4.3 MW struck Cosenza (Calabria region, South Italy) and its immediate area on 24 February 2020. Although no damage was reported to ordinary masonry buildings, the ancient masonry churches suffered widespread damage. The herein article presents an analysis of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Civil Engineering: Seismic Performance Analysis of Structures](#))

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Open AccessArticle

A Techno-Economic Feasibility Analysis of Mono-Si and Poly-Si Photovoltaic Systems in the Rooftop Area of Commercial Building under the Feed-In Tariff Scheme

by

Ke Shi

,

Chuangyi Li

and

Choongwan Koo

Sustainability 2021, 13(9), 4709; <https://doi.org/10.3390/su13094709> - 22 Apr 2021

[Cited by 2](#) | Viewed by 755

Abstract

Hong Kong's government has recently introduced the feed-in tariff scheme to promote the photovoltaic (PV) system as a promising way to address global warming. The feed-in tariff scheme depends on the type of the PV system and its installed capacity. This study aimed [\[...\] Read more.](#)

(This article belongs to the Special Issue [Building Integrated Photovoltaic/Thermal Systems for Net Zero Energy/plus Buildings](#))

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Open Access Article

Optimal Design of an Isolated Hybrid Microgrid for Enhanced Deployment of Renewable Energy Sources in Saudi Arabia

by

[Mohammed Kharrich](#)

,

[Salah Kamel](#)

,

[Ali S. Alghamdi](#)

,

[Ahmad Eid](#)

,

[Mohamed I. Mosaad](#)

,

[Mohammed Akherraz](#)

and

[Mamdouh Abdel-Akher](#)

Sustainability **2021**, *13*(9), 4708; <https://doi.org/10.3390/su13094708> - 22 Apr 2021

[Cited by 8](#) | Viewed by 942

[Abstract](#)

Hybrid microgrids are presented as a solution to many electrical energetic problems. These microgrids contain some renewable energy sources such as photovoltaic (PV), wind and biomass, or a hybrid of these sources, in addition to storage systems. Using these microgrids in electric power [\[...\] Read more.](#)

(This article belongs to the Special Issue [Optimization Application to Power Systems with the High Penetration Rate of Renewable Energy](#))

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Open Access **Review**

Transport Poverty in Chinese Cities: A Systematic Literature Review

by

[Weichang Kong](#)

,

[Dorina Pojani](#)

,

[Neil Sipe](#)

and

[Dominic Stead](#)

Sustainability **2021**, *13*(9), 4707; <https://doi.org/10.3390/su13094707> - 22 Apr 2021

[Cited by 1](#) | Viewed by 924

Abstract

The widening income gap in post-reform China has given rise to social inequality. Among those, transport poverty and inequality have significantly affected the daily life of low-income groups. While important, this is an under-researched topic in China. This gap in the academic literature [\[...\] Read more.](#)

(This article belongs to the Collection [Transport Inequalities, Transport Poverty and Sustainability](#))

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Open Access **Article**

Lagrangian Relaxation Based on Improved Proximal Bundle Method for Short-Term Hydrothermal Scheduling

by

Zhiyu Yan

Shengli Liao

Chuntian Cheng

Josué Medellín-Azuara

and

Benxi Liu

Sustainability **2021**, *13*(9), 4706; <https://doi.org/10.3390/su13094706> - 22 Apr 2021

[Cited by 1](#) | Viewed by 569

Abstract

Short-term hydrothermal scheduling (STHS) can improve water use efficiency, reduce carbon emissions, and increase economic benefits by optimizing the commitment and dispatch of hydro and thermal generating units together. However, limited by the large system scale and complex hydraulic and electrical constraints, STHS [\[...\]](#)
[Read more.](#)

(This article belongs to the Special Issue [Multi-Utility Energy System Optimization](#))

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Open Access **Article**

The Relationship between Responsible Leadership and Organizational Citizenship Behavior in the Hospitality Industry

by

Carla Freire

and

Joana Gonçalves

Sustainability **2021**, *13*(9), 4705; <https://doi.org/10.3390/su13094705> - 22 Apr 2021

[Cited by 4](#) | Viewed by 1060

Abstract

The purpose of this study is to explore the mediating role of the perception of social responsibility, and organizational identification, in the relationship between responsible leadership and organizational citizenship behavior in the hospitality industry. A questionnaire was answered by 214 frontline employees of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Human Resource Management and Marketing Studies in the Service Industry](#))

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Open Access Article

Synthesis and Feature Selection-Supported Validation of Multidimensional Driving Cycles

by

[Jakov Topić](#)

,

[Branimir Škugor](#)

and

[Joško Deur](#)

Sustainability **2021**, *13*(9), 4704; <https://doi.org/10.3390/su13094704> - 22 Apr 2021

[Cited by 2](#) | Viewed by 597

Abstract

This paper presents the synthesis and validation of multidimensional driving cycles represented by vehicle velocity, vehicle acceleration, and road slope profiles. For this purpose, a rich set of city bus driving cycles has been recorded. First, a Markov chain model is established based [\[...\] Read more.](#)

(This article belongs to the Special Issue [Road Traffic Engineering and Sustainable Transportation](#))

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Open Access Article

Counting Bees: Learning Outcomes from Participation in the Dutch National Bee Survey

by

[Wessel Ganzevoort](#)

and

Riyan J. G. van den Born

Sustainability **2021**, 13(9), 4703; <https://doi.org/10.3390/su13094703> - 22 Apr 2021

[Cited by 2](#) | Viewed by 1039

Abstract

Citizen science approaches to data collection are growing in popularity, in part because of their potential for achieving both scientific and educational objectives. Evaluating the impacts of participation on citizen scientists is important, yet such evaluations are still relatively rare. In addition, recent [\[...\] Read more.](#)

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Open Access **Article**

Resource-Efficient Characterisation of Pit Latrine Sludge for Use in Agriculture

by

Khumbo Kalulu

,

Bernard Thole

,

Theresa Mkandawire

and

Grant Kululanga

Sustainability **2021**, 13(9), 4702; <https://doi.org/10.3390/su13094702> - 22 Apr 2021

[Cited by 1](#) | Viewed by 540

Abstract

Resource recovery through reuse of by-products of the sanitation chain presents a great potential towards ensuring universal access to safely managed sanitation. Many developing countries are faced with uncertainty over public and environmental health concerns associated with use of faecal sludge in agriculture. [\[...\] Read more.](#)

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Open AccessArticle

Smart Green Prefabrication: Sustainability Performances of Industrialized Building Technologies

by

Paola Gallo

,

Rosa Romano

and

Elisa Belardi

Sustainability 2021, 13(9), 4701; <https://doi.org/10.3390/su13094701> - 22 Apr 2021

[Cited by 3](#) | Viewed by 1100

Abstract

There is an urgent need to increase the environmental, economic, and social sustainability of buildings. Indeed, construction has one of the lowest rates of sustainability among productive sectors, associated with high energy demand and pollutant emissions, frequent cost increase and time delays, and [\[...\] Read more.](#)

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Open AccessArticle

The Relationship of Corporate Social Responsibility on Digital Platforms, Electronic Word-of-Mouth, and Consumer-Company Identification: An Application of Social Identity Theory

by

Rui Ma

,

Jacob Cherian

,

Wen-Hsien Tsai

,

Muhammad Safdar Sial

,

Li Hou

and

Susana Álvarez-Otero

Sustainability **2021**, 13(9), 4700; <https://doi.org/10.3390/su13094700> - 22 Apr 2021

[Cited by 2](#) | Viewed by 1412

Abstract

The concept of corporate social responsibility (CSR) is an ever-evolving concept in the field of business management. Even in 2021, its boundaries are evolving and researchers are linking the concept of CSR to different variables to achieve different outcomes. However, the concept of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Corporate Social Responsibility \(CSR\) and CSR Implementation](#))

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Open Access **Article**

Living Heritage in the Urban Landscape. Case Study of the Budapest World Heritage Site Andrassy Avenue

by

Kinga Szilágyi

,

Chaima Lahmar

,

Camila Andressa Pereira Rosa

and

Krisztina Szabó

Sustainability **2021**, 13(9), 4699; <https://doi.org/10.3390/su13094699> - 22 Apr 2021

[Cited by 1](#) | Viewed by 881

Abstract

Historic allées and urban avenues reflect a far-sighted and forward-thinking design attitude. These compositions are the living witnesses of olden times, suggesting permanence. However, the 20th century's urban development severely damaged the environment, therefore hundred-year-old mature trees are relatively rare among city avenues' [\[...\] Read more.](#)

(This article belongs to the Special Issue [Natural Environment and Cultural Heritage in the City, A Sustainability Perspective](#))

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Open AccessArticle

Change from Within: Exploring Transformative Literacy in Public Administrations to Foster Sustainability Transitions

by

[Klaus Jacob](#)

,

[Caroline Paulick-Thiel](#)

,

[Julia Teebken](#)

,

[Sylvia Veit](#)

and

[Mandy Singer-Brodowski](#)

Sustainability 2021, 13(9), 4698; <https://doi.org/10.3390/su13094698> - 22 Apr 2021

[Cited by 1](#) | Viewed by 832

Abstract

Public administrations are designed towards efficient and effective problem solving. A division of work along the various issues of public policy-making is constitutive for most administrations. With the recent demands to develop comprehensive transformative environmental policies, new tasks and requirements arise, both for [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainable Public Administration](#))

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subject

Open AccessArticle

Can Drones Map Earth Cracks? Landslide Measurements in North Greece Using UAV Photogrammetry for Nature-Based Solutions

by

Paschalis D. Koutalakis

,

Ourania A. Tzoraki

,

Georgios I. Prazioutis

,

Georgios T. Gkiatas

and

George N. Zaimes

Sustainability **2021**, *13*(9), 4697; <https://doi.org/10.3390/su13094697> - 22 Apr 2021

Cited by 2 | Viewed by 1130

Abstract

The accuracy of photogrammetry for geohazards monitoring has improved within the last years because of the “drone revolution”. This study is an attempt to perform morphometric measurements in a landslide event that took place near the village Nea Zichni in Northern Greece. The [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Use of Nature-Based Solutions for Erosion Control and Slope Protection](#))

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Open Access **Article**

Evaluating Occupational Health and Safety Management Strategy Success Factors for Small-Scale Contractors in Zambia

by

Mwewa Mambwe

,

Erastus M. Mwanaumo

Wellington D. Thwala

and

Clinton O. Aigbavboa

Sustainability 2021, 13(9), 4696; <https://doi.org/10.3390/su13094696> - 22 Apr 2021

[Cited by 2](#) | Viewed by 722

Abstract

Small-scale contractors (SSCs) require management strategies in implementing occupational health and safety (OH&S) performance at projects to reduce accidents, injuries, fatalities and diseases. Management strategy success factors have been acknowledged to be of great benefit in improving in OH&S performance. Hence, the study [\[...\]](#)

[Read more.](#)

(This article belongs to the Special Issue [Digital Innovations and Smart Technologies for Occupational Health and Safety in Construction](#))

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Open Access **Project Report**

CROSYMED Project: Enhancing Nutrient Use Efficiency through Legumes in Agroecosystems of the Mediterranean Basin

by

Mohamed Lazali

Simon Boudsocq

Elisa Taschen

Mohamed Farissi

Wissem Hamdi

,

Parthenopi Ralli

and

Hervé Sentenac

Sustainability **2021**, 13(9), 4695; <https://doi.org/10.3390/su13094695> - 22 Apr 2021

Cited by 1 | Viewed by 767

Abstract

Modern intensive agricultural systems generally focus on the productivity of monocultures. They are characterized by a low diversity of crops, with uniform and symmetrical planting layouts. They largely rely on the utilization of chemical inputs. They are widely denounced for their negative environmental [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability in Agricultural Systems and Ecosystem Services](#))

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Open Access **Article**

Urban Industrial Tourism: Cultural Sustainability as a Tool for Confronting Overtourism—Cases of Madrid, Brussels, and Copenhagen

by

Carmen Hidalgo-Giralt

,

Antonio Palacios-García

,

Diego Barrado-Timón

and

José Antonio Rodríguez-Esteban

Sustainability **2021**, 13(9), 4694; <https://doi.org/10.3390/su13094694> - 22 Apr 2021

Cited by 2 | Viewed by 1087

Abstract

The chief objective of this research was to analyze how the industrial heritage of three European capitals—Madrid, Brussels, and Copenhagen—has been integrated into the dynamics of their urban tourism, thereby generating new resources and cultural spaces. In regards to the latter point, this [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Development of Industrial Tourism](#))

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Open AccessArticle

Entrepreneurial Intention: A Gender Study in Business and Economics Students from Chile

by

[Nicolás Contreras-Barraza](#)

,

[Juan Felipe Espinosa-Cristia](#)

,

[Guido Salazar-Sepulveda](#)

and

[Alejandro Vega-Muñoz](#)

Sustainability **2021**, *13*(9), 4693; <https://doi.org/10.3390/su13094693> - 22 Apr 2021

[Cited by 3](#) | Viewed by 1146

Abstract

The study of entrepreneurial intention sheds new light on the complex dynamics of entrepreneurial behavior. This research contributes to the academic debate by examining the gap in studies on entrepreneurial intention in Latin America, considering the importance of gender differences and their effects [\[...\] Read more.](#)

(This article belongs to the Special Issue [Social Entrepreneurship, Hybrid Organizations and Sustainability](#))

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Open AccessArticle

Partial Discharge Online Detection for Long-Term Operational Sustainability of On-Site Low Voltage Distribution Network Using CNN Transfer Learning

by

Jinseok Kim

and

Ki-II Kim

Sustainability **2021**, *13*(9), 4692; <https://doi.org/10.3390/su13094692> - 22 Apr 2021

Cited by 1 | Viewed by 669

Abstract

Partial discharge (PD) detection studies aiming at the fault diagnosis for facilities and power cables in transmission networks have been conducted over the years. Recently, the deep learning models for PD detection have been used to diagnose the PD fault of facilities and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Growth in Engineering and Technology Management](#))

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Open Access **Article**

Marine Litter in Croatian Adriatic: Sources, Quantities and Stakeholders' Perspectives

by

Marina Funduk

,

Pero Tutman

,

Anamarija Farkaš

,

Sanja Tišma

and

Ana-Maria Boromisa

Sustainability **2021**, *13*(9), 4691; <https://doi.org/10.3390/su13094691> - 22 Apr 2021

Viewed by 871

Abstract

The problem of marine litter is becoming more visible in Croatia. The main goal of this paper is to investigate issues related to marine litter in the Croatian Adriatic, from the current state of sources and quantities of marine litter, through marine litter [\[...\] Read more.](#)

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Open AccessArticle

Group Spatial Preferences of Residential Locations—Simplified Method Based on Crowdsourced Spatial Data and MCDA

by

[Joanna Jaroszewicz](#)

and

[Anna Majewska](#)

Sustainability 2021, 13(9), 4690; <https://doi.org/10.3390/su13094690> - 22 Apr 2021

Viewed by 564

Abstract

Residential location preferences illustrate how the attractiveness of particular neighbourhoods is perceived and indicate what improves or lowers the comfort of life in a city according to its residents. This research analyses the residential preferences of students who were asked to indicate their [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Urban and Rural Development](#))

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Open AccessArticle

Energy Consumption Estimation of the Electric Bus Based on Grey Wolf Optimization Algorithm and Support Vector Machine Regression

by

[Wei Qin](#),

,

[Linhong Wang](#),

,

Yuhan Liu

and

Cheng Xu

Sustainability **2021**, *13*(9), 4689; <https://doi.org/10.3390/su13094689> - 22 Apr 2021

[Cited by 1](#) | Viewed by 709

Abstract

Electric buses have many significant advantages, such as zero emissions and low noise and energy consumption, making them play an important role in saving the operation cost of bus companies and reducing urban traffic pollution emissions. Therefore, in recent years, many cities in [\[...\] Read more.](#)

(This article belongs to the Special Issue [Modeling Activity-Travel Behavior for Sustainable Transportation](#))

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Open Access **Article**

Examining the Asymmetric Impact of COVID-19 Pandemic and Global Financial Crisis on Dow Jones and Oil Price Shock

by

Khurram Shehzad

,

Umer Zaman

,

Xiaoxing Liu

,

Jarosław Górecki

and

Carlo Pugnetti

Sustainability **2021**, *13*(9), 4688; <https://doi.org/10.3390/su13094688> - 22 Apr 2021

[Cited by 8](#) | Viewed by 1059

Abstract

COVID-19 has significantly affected the financial and commodity markets. The purpose of this investigation is to understand the impact of the COVID-19 crisis on Dow Jones and West Texas Intermediate (WTI) oil returns in relation to other crises using the Exponential Generalized Autoregressive [\[...\] Read more.](#)

(This article belongs to the Special Issue [A Prerequisite for Sustainability: Financial Sustainability](#))

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Open AccessArticle

Research on the Temporal and Spatial Distribution and Influencing Factors of Forestry Output Efficiency in China

by

[Yu Lin](#)

,

[Wenhui Chen](#)

and

[Junchang Liu](#)

Sustainability **2021**, *13*(9), 4687; <https://doi.org/10.3390/su13094687> - 22 Apr 2021

Viewed by 466

Abstract

Forestry output efficiency is key to forestry development. China is now promoting the development of forestry, and thus the research on forestry output efficiency is of practical significance. Through the data envelopment analysis (DEA)-Malmquist index, spatial autocorrelation model, and fixed effect model of [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open AccessReview

Are LCA Studies on Bulk Mineral Waste Management Suitable for Decision Support? A Critical Review

by

[Christian Dierks](#)

Tabea Hagedorn

Alessio Campitelli

Winfried Bulach

and

Vanessa Zeller

Sustainability **2021**, 13(9), 4686; <https://doi.org/10.3390/su13094686> - 22 Apr 2021

Viewed by 817

Abstract

Bulk mineral waste materials are one of the largest waste streams worldwide and their management systems can differ greatly depending on regional conditions. Due to this variation, the decision-making context is of particular importance when studying environmental impacts of mineral waste management systems [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Measures and Strategies for Waste Prevention and Management](#))

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Open Access **Article**

The Cost of a Sustainable Water Supply at Network Kiosks in Peri-Urban Blantyre, Malawi

by

Andrea B. Coulson

Michael O. Rivett

Robert M. Kalin

Sergio M. P. Fernández

,

Jonathan P. Truslove

,

Muthi Nhlema

and

Joseph Maygoya

Sustainability **2021**, 13(9), 4685; <https://doi.org/10.3390/su13094685> - 22 Apr 2021

Cited by 1 | Viewed by 766

Abstract

Empirical insights were made into the challenges of supplying water to communities within low-income areas of peri-urban Blantyre, Malawi. A networked public water supply is provided to those without a domestic tap via communal water kiosks managed by community-based Water User Associations (WUAs) [\[...\] Read more.](#)

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Open Access **Article**

Relationship between Water Surface Area of Qingtu Lake and Ecological Water Delivery: A Case Study in Northwest China

by

Yuntong Guo

,

Jingli Shao

,

Qiulan Zhang

and

Yali Cui

Sustainability **2021**, 13(9), 4684; <https://doi.org/10.3390/su13094684> - 22 Apr 2021

Viewed by 469

Abstract

Qingtu Lake is located between Tengger Desert and Badain Jilin Desert, Gansu Province, Northwest China. It is the terminal lake of Shiyang River. In recent years, Qingtu lake has maintained a certain area of water surface and vegetation by artificial water conveyance. It [\[...\] Read more.](#)

(This article belongs to the Special Issue [Understanding the Effects of Anthropogenic Activities on the Sustainability of Groundwater Resources](#))

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Open AccessArticle

Decomposing the Persistent and Transitory Effect of Information and Communication Technology on Environmental Impacts Assessment in Africa: Evidence from Mundlak Specification

by

[Olatunji Abdul Shobande](#)

Sustainability **2021**, *13*(9), 4683; <https://doi.org/10.3390/su13094683> - 22 Apr 2021

[Cited by 4](#) | Viewed by 774

Abstract

This study examines the persistent and transitory effects of information and communication technology (ICT) on the environmental impact assessment in Africa. The applied advanced econometrics is based on both the Mundlak and Hausman–Taylor methodology for correcting endogeneity and the feasible generalized least squares [\[...\] Read more.](#)

(This article belongs to the Special Issue [Adoption of Management Strategies and Technologies for Sustainable Production: A Solution to Reduce Environmental Emissions](#))

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Open AccessArticle

Effect of Ultrafiltration Operating Conditions for Separation of Ferulic Acid from Arabinoxylans in Corn Fibre Alkaline Extract

by

[Rita Valério](#)

,

[João G. Crespo](#)

,

Claudia F. Galinha

and

Carla Brazinha

Sustainability **2021**, *13*(9), 4682; <https://doi.org/10.3390/su13094682> - 22 Apr 2021

Cited by 3 | Viewed by 489

Abstract

Corn fibre, a co-product of the starch industry, is rich in compounds with high added value, such as ferulic acid and arabinoxylans, which are released during alkaline extraction. This work aims to optimise an efficient separation method for the recovery of these two [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Food Waste Valorisation by Membrane Technology](#))

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Open Access **Article**

Eco-Emission Analysis of Multi-Carrier Microgrid Integrated with Compressed Air and Power-to-Gas Energy Storage Technologies

by

Khashayar Hamed

,

Shahrbanoo Sadeghi

,

Saeed Esfandi

,

Mahdi Azimian

and

Hessam Golmohamadi

Sustainability **2021**, *13*(9), 4681; <https://doi.org/10.3390/su13094681> - 22 Apr 2021

Cited by 4 | Viewed by 992

Abstract

Growing concerns about global greenhouse gas emissions have led power systems to utilize clean and highly efficient resources. In the meantime, renewable energy plays a vital role in energy prospects worldwide. However, the random nature of these resources has increased the demand for [\[...\] Read more.](#)

(This article belongs to the Special Issue [Integration of Demand-Side Flexibility into Smart Grids](#))

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Open AccessArticle

Predicting Job Burnout and Its Antecedents: Evidence from Financial Information Technology Firms

by

[Stanley Y. B. Huang](#)

,

[Yu-Ming Fei](#)

and

[Yue-Shi Lee](#)

Sustainability **2021**, *13*(9), 4680; <https://doi.org/10.3390/su13094680> - 22 Apr 2021

[Cited by 6](#) | Viewed by 798

Abstract

Job burnout is a continuing concern for human resource management and mental health at work, as it affects employee productivity and well-being. The present study conceptualizes Kahn's job engagement theory to predict job burnout through a latent growth model. To test the proposed [\[...\] Read more.](#)

(This article belongs to the Special Issue [Occupational Mental Health](#))

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Open AccessArticle

The Urban Characteristics of High Economic Resilient Neighborhoods during the COVID-19 Pandemic: A Case of Suwon, South Korea

by

[Sungjo Hong](#)

and

Seok-Hwan Choi

Sustainability **2021**, *13*(9), 4679; <https://doi.org/10.3390/su13094679> - 22 Apr 2021

Cited by 3 | Viewed by 962

Abstract

Infectious diseases and pandemics, including the COVID-19 pandemic, have a huge economic impact on cities. However, few studies examine the economic resilience of small-scale regions within cities. Thus, this study derives neighborhoods with high economic resilience in a pandemic situation and reveals their [\[...\] Read more.](#)

(This article belongs to the Special Issue [Assessment of Socio-Economic Sustainability and Resilience after COVID-19](#))

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[Open Access Article](#)

Comprehensive Performance Evaluation of Green Infrastructure Practices for Urban Watersheds Using an Engineering–Environmental–Economic (3E) Model

by

Yi-Jia Xing

,

Tse-Lun Chen

,

Meng-Yao Gao

,

Si-Lu Pei

,

Wei-Bin Pan

and

Pen-Chi Chiang

Sustainability **2021**, *13*(9), 4678; <https://doi.org/10.3390/su13094678> - 22 Apr 2021

Cited by 4 | Viewed by 710

Abstract

Green infrastructure practices could provide innovative solutions for on-site stormwater management and runoff pollution control, which could relieve the stress of nonpoint pollution resulting from heavy rainfall events. In this study, the performance and cost-effectiveness of six green infrastructure practices, namely, green roofs, [\[...\] Read more.](#)

(This article belongs to the Special Issue [Green Energy Technologies for Sustainability](#))

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Open Access **Article**

Resistance to Change and Perceived Risk as Determinants of Water-Saving Intention

by

Francisco J. Sarabia-Sanchez

,

Isabel P. Riquelme

and

Juan Manuel Bruno

Sustainability **2021**, *13*(9), 4677; <https://doi.org/10.3390/su13094677> - 22 Apr 2021

[Cited by 1](#) | Viewed by 571

Abstract

Both the academic literature and global organizations have emphasized the need for responsible water consumption, as stated in Sustainable Development Goal 12. However, individuals' water-saving behaviors in their current state are not enough. This situation entails a resistance to change (RC) in consumer [\[...\] Read more.](#)

(This article belongs to the Section [Resources and Sustainable Utilization](#))

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Open Access **Editorial**

Sustainable Real Estate: Management, Assessment and Innovations

by

Pierfrancesco De Paola

,

Francesco Tajani

and

Marco Locurcio

Sustainability **2021**, 13(9), 4676; <https://doi.org/10.3390/su13094676> - 22 Apr 2021

Viewed by 730

Abstract

Production and consumption activities have determined a weakness of the sustainable real estate economy [...] [Full article](#)

(This article belongs to the Special Issue [Sustainable Real Estate: Management, Assessment and Innovations](#))

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Open Access **Article**

Integration of Multi-Criteria Decision Support with Infrastructure of Smart Services for Sustainable Multi-Modal Transportation of Freights

by

Dalé Dzemydienė

,

Aurelija Burinskienė

and

Arūnas Miliauskas

Sustainability **2021**, 13(9), 4675; <https://doi.org/10.3390/su13094675> - 22 Apr 2021

[Cited by 3](#) | Viewed by 676

Abstract

The problems of developing online decision support systems concern the complexity of the transportation management processes, the multi-dimensionality of data warehouses (DWs), and the multi-criteria of decision making. Such issues arise in the management processes by supporting them with adaptable information and communication [...] [Read more.](#)

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Open Access Article

Time-Dependent Multi-Depot Heterogeneous Vehicle Routing Problem Considering Temporal–Spatial Distance

by

[Dengkai Hou](#)

,

[Houming Fan](#)

,

[Xiaoxue Ren](#)

,

[Panjun Tian](#)

and

[Yingchun Lv](#)

Sustainability 2021, 13(9), 4674; <https://doi.org/10.3390/su13094674> - 22 Apr 2021

[Cited by 3](#) | Viewed by 651

Abstract

Aiming at the multi-depot heterogeneous vehicle routing problem under the time-dependent road network and soft time window, considering vehicle fixed cost, time window penalty cost and vehicle transportation cost, an optimization model of time-dependent multi-depot heterogeneous vehicle routing problem is established with the [\[...\] Read more.](#)

(This article belongs to the Collection [Sustainable Urban Mobility Project](#))

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Open Access Article

Modeling the Underlying Drivers of Natural Vegetation Occurrence in West Africa with Binary Logistic Regression Method

by

[Beatrice Asenso Barnieh](#)

,

Li Jia

Massimo Menenti

Min Jiang

Jie Zhou

Yelong Zeng

and

Ali Bennour

Sustainability 2021, 13(9), 4673; <https://doi.org/10.3390/su13094673> - 22 Apr 2021

[Cited by 2](#) | Viewed by 1352

Abstract

The occurrence of natural vegetation at a given time is determined by interplay of multiple drivers. The effects of several drivers, e.g., geomorphology, topography, climate variability, accessibility, demographic indicators, and changes in human activities on the occurrence of natural vegetation in the severe [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Use of Natural Resources in a Changing Climate](#))

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Open Access **Article**

An ISM Modeling of Barriers for Blockchain/Distributed Ledger Technology Adoption in Supply Chains towards Cybersecurity

by

Niloofar Etemadi

Pieter Van Gelder

and

Fernanda Strozzi

Sustainability **2021**, 13(9), 4672; <https://doi.org/10.3390/su13094672> - 22 Apr 2021

[Cited by 5](#) | Viewed by 1297

Abstract

Over the last few years, the increasing level of cyber risks derived from the growing connectedness of Industry 4.0 has led to the emergence of blockchain technology as a major innovation in supply chain cybersecurity. The main purpose of this study is to [\[...\] Read more.](#)

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Open AccessArticle

Preparation and Properties of Sustainable Concrete Using Activated Sludge of Industrial By-Products

by

Young-Yeop Kim

,

Hyun-Min Yang

and

Han-Seung Lee

Sustainability **2021**, 13(9), 4671; <https://doi.org/10.3390/su13094671> - 22 Apr 2021

Viewed by 502

Abstract

Industrial sludge byproducts contain CaO, SiO₂, Al₂O₃, etc. When industrial sludge is used in ready-mixed concrete, the performance of the concrete can be enhanced due to the hydration reaction. In the present study, activated sludge was used [\[...\] Read more.](#)

(This article belongs to the Special Issue [Low CO₂ Concrete](#))

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Open AccessArticle

Research on the Sustainable Heterogeneous Catalyst Development for Photocatalytic Treatment of Phenol

by

[Zan Li](#)

,

[Hongkun Zhang](#)

and

[Wenrui Jiang](#)

Sustainability **2021**, *13*(9), 4670; <https://doi.org/10.3390/su13094670> - 22 Apr 2021

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Abstract

A large amount of wastewater from various and discharged sources that are not treated in any way could affect properties of both land and water, causing severe problems for the environment. Advanced oxidation processes seem to be a feasible option to address effluent [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Wastewater Treatments and Reuse](#))

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Open Access **Article**

Supply Chain Integration Enables Resilience, Flexibility, and Innovation to Improve Business Performance in COVID-19 Era

by

[Hotlan Siagian](#)

,

[Zeplin Jiwa Husada Tarigan](#)

and

[Ferry Jie](#)

Sustainability **2021**, *13*(9), 4669; <https://doi.org/10.3390/su13094669> - 22 Apr 2021

[Cited by 5](#) | Viewed by 2373

Abstract

The COVID-19 pandemic has brought about a sudden change from normal conditions to disruption conditions, and industrial sectors have experienced eroded growth. In particular, the manufacturing industry experienced a slowdown due to the sudden disruption in supply and demand. This situation stimulates the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Emerging Emergencies and Sustainability: The Role of Supply Chain and Logistics](#))

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Open Access Article

Path Planning for Autonomous Platoon Formation

by

[Ouafae El Ganaoui-Mourlan](#)

,

[Stephane Camp](#)

,

[Thomas Hannagan](#)

,

[Vaibhav Arora](#)

,

[Martin De Neuville](#)

and

[Vaios Andreas Kousournas](#)

Sustainability **2021**, *13*(9), 4668; <https://doi.org/10.3390/su13094668> - 22 Apr 2021

[Cited by 2](#) | Viewed by 945

Abstract

In the context of automated highway systems (AHS), this work proposes an approach that enables a vehicle to autonomously join a platoon with optimized trajectory in the presence of dynamical traffic obstacles. A notable aspect is the use of Model Predictive Control (MPC) [\[...\] Read more.](#)

(This article belongs to the Special Issue [Autonomous Vehicles: Future of Transportation Sustainability](#))

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Open AccessArticle

Weekly Wellness Variations to Identify Non-Functional Overreaching Syndrome in Turkish National Youth Wrestlers: A Pilot Study

by

[Hadi Nobari](#)

,

[Zeki Akyildiz](#)

,

[Maryam Fani](#)

,

[Rafael Oliveira](#)

,

[Jorge Pérez-Gómez](#)

and

[Filipe Manuel Clemente](#)

Sustainability 2021, 13(9), 4667; <https://doi.org/10.3390/su13094667> - 22 Apr 2021

[Cited by 5](#) | Viewed by 770

Abstract

The present study aimed at (i) investigating weekly variations in wellness ratings relative to Hooper indicators (HI): fatigue (wFatigue), stress levels (wStress), delayed onset muscle soreness (wDOMS), sleep quality/disorders (wSleep), and wHI across the full preparation season (PS) and (ii) comparing the aforementioned [\[...\] Read more.](#)

(This article belongs to the Section [Health and Sustainability](#))

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subject

Open AccessArticle

Landscape Design toward Urban Resilience: Bridging Science and Physical Design Coupling Sociohydrological Modeling and Design Process

by

Yoonshin Kwak

,

Brian Deal

and

Grant Mosey

Sustainability **2021**, 13(9), 4666; <https://doi.org/10.3390/su13094666> - 22 Apr 2021

Cited by 4 | Viewed by 820

Abstract

Given that evolving urban systems require ever more sophisticated and creative solutions to deal with uncertainty, designing for resilience in contemporary landscape architecture represents a cross-disciplinary endeavor. While there is a breadth of research on landscape resilience within the academy, the findings of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Integrate Landscape Ecology and Landscape Architecture to Approach Urban Resilience and Sustainability](#))

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subject

Open Access **Article**

Effect of Roof Tile Colour on Heat Conduction Transfer, Roof-Top Surface Temperature and Cooling Load in Modern Residential Buildings under the Tropical Climate of Malaysia

by

Syed Ahmad Farhan

,

Fouad Ismail Ismail

,

Osamah Kiwan

,

Nasir Shafiq

Azni Zain-Ahmed

Nadzhratul Husna

and

Afif Izwan Abd Hamid

Sustainability 2021, 13(9), 4665; <https://doi.org/10.3390/su13094665> - 22 Apr 2021

Cited by 4 | Viewed by 1626

Abstract

Modern residential roofs in Malaysia mainly employ red and brown roof tiles due to aesthetic factors and the ability of the roof surface to reflect or retard heat transfer is typically not considered the main priority. The present article reveals the findings of [\[...\] Read more.](#)

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Open Access **Article**

Analyzing Continuance of Cloud Computing in Higher Education Institutions: Should We Stay, or Should We Go?

by

Yousef A. M. Qasem

Rusli Abdullah

Yusmadi Yah Jusoh

Rodziah Atan

and

Shahla Asadi

Sustainability **2021**, 13(9), 4664; <https://doi.org/10.3390/su13094664> - 22 Apr 2021

[Cited by 3](#) | Viewed by 1113

Abstract

Higher Education Institutions (HEIs) consider resource optimization as an essential concern. Cloud computing (CC) in the fourth industrial revolution became the de-facto standard for delivering IT resources and services. CC is now a mainstream technology, and HEIs across the globe are rapidly transitioning to [\[...\] Read more.](#)

(This article belongs to the Special Issue [Technology and Innovation Management in Education](#))

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subject

Open Access **Article**

What Best Explains Reporting Delays? A SME Population Level Study of Different Factors

by

Oliver Lukason

and

María-del-Mar Camacho-Miñano

Sustainability **2021**, 13(9), 4663; <https://doi.org/10.3390/su13094663> - 22 Apr 2021

[Cited by 3](#) | Viewed by 698

Abstract

The objective of this paper is to find out which factors best explain why SMEs delay their annual reports (DAR). Relying on various theoretical streams, we use three types of variables to explain DAR: past DAR behaviour of managers, corporate governance characteristics and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Determinants of Functioning and Sustainable Growth of Small and Medium-Sized Enterprises from the Regional and International Perspectives](#))

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Open Access **Article**

Circle in Space—Space in Circle: A Study of Ratio between Open Space and Built-Up Area in Historical Circular Objects

by

Biljana Stanislav Jović

Aleksandar Acim Čučaković

and

Mihailo Nebojsa Grbić

Sustainability **2021**, 13(9), 4662; <https://doi.org/10.3390/su13094662> - 22 Apr 2021

Viewed by 547

Abstract

Many cities nowadays explore different circular designs as new sustainable city concepts in different urban aspects. The new trend, as part of the adaptation for climate change, is a strategy of increasing the number of urban open spaces, and circular plan design could [\[...\] Read more.](#)

(This article belongs to the Section [Sustainable Engineering and Science](#))

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subject

Open Access **Article**

A Hierarchical Pyramid for Food Waste Based on a Social Innovation Perspective

by

Mariarosaria Lombardi

and

Marco Costantino

Sustainability **2021**, 13(9), 4661; <https://doi.org/10.3390/su13094661> - 22 Apr 2021

[Cited by 3](#) | Viewed by 1242

Abstract

Food waste (FW) represents one of the greatest concerns facing mankind today; thus, the UN Agenda 2030 for Sustainable Development establishes that it must be halved by 2030. European Union legislators have taken part in this debate by publishing Directive 2018/851 to monitor [\[...\] Read more.](#)

(This article belongs to the Special Issue [Human, Cultural, Social, Political and Environmental Dimensions for a New Vision of the Sustainable Agro-Food System Post COVID-19](#))

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subject

Open AccessArticle

Adaptive Capacity as Local Sustainable Development: Contextualizing and Comparing Risks and Resilience in Two Chilean Regions

by

Jonathan R. Barton

,

Felipe Gutiérrez-Antinopai

and

Miguel Escalona Ulloa

Sustainability **2021**, 13(9), 4660; <https://doi.org/10.3390/su13094660> - 22 Apr 2021

Viewed by 756

Abstract

Regional resilience refers to an immanent condition for facing multiple risks on a permanent basis, both episodic and incremental. These risks are not only linked to natural disasters and climate change, but also to poverty and inequality of access to services such as [\[...\] Read more.](#)

(This article belongs to the Special Issue [Regional Resilience – Opportunities for Sustainable Development in Times of Crisis](#))

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Open AccessArticle

An Approach to Applying the Ability-Motivation-Opportunity Theory to Identify the Driving Factors of Green Employee Behavior in the Hotel Industry

by

Adina-Raluca Sibian

and

Ana Ispas

Sustainability **2021**, 13(9), 4659; <https://doi.org/10.3390/su13094659> - 22 Apr 2021

[Cited by 1](#) | Viewed by 921

Abstract

In the context of climate change and all other harmful effects of pollution, companies should improve their environmental performances. As part of their strategies, companies should explore the consequences of their environmental practices from the perspective of internal stakeholders and must be more [\[...\] Read more.](#)

(This article belongs to the Special Issue [Environmentally Sustainable Behavior: Theories, Empirical Evidence and Implications](#))

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Open Access Feature Paper Article

Building Information Modeling as an Effective Process for the Sustainable Re-Shaping of the Built Environment

by

[Cecilia Mazzoli](#)

,

[Marco Iannantuono](#)

,

[Vieri Giannakopoulos](#)

,

[Anastasia Fotopoulou](#)

,

[Annarita Ferrante](#)

and

[Simone Garagnani](#)

Sustainability **2021**, *13*(9), 4658; <https://doi.org/10.3390/su13094658> - 22 Apr 2021

[Cited by 1](#) | Viewed by 1115

Abstract

This paper focuses on the definition of a method supported by digital processes for a sustainable and user-orientated re-design of the existing building stock. Based on the analysis of the methodological and procedural aspects of the computational approach to architectural design in relation [\[...\] Read more.](#)

(This article belongs to the Special Issue [Integration of BIM and ICT for Sustainable Building Projects](#))

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Open AccessArticle

To Care or Not to Care? Which Factors Influence the Distribution of Early-Flowering Geophytes at the Vienna Central Cemetery (Austria)

by

Julia Konic

,

Franz Essl

and

Bernd Lenzner

Sustainability **2021**, 13(9), 4657; <https://doi.org/10.3390/su13094657> - 22 Apr 2021

Cited by 1 | Viewed by 625

Abstract

Cemeteries not only serve as burial sites but also as a habitat for many animal and plant species, as the specific management of cemeteries creates conditions that hardly exist anywhere else. So-called stinzen plants are those plant species that show a connection to [\[...\] Read more.](#)

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Open AccessFeature PaperReview

Physical and Biological Treatment Technologies of Slaughterhouse Wastewater: A Review

by

Mohammed Ali Musa

and

Syazwani Idrus

Sustainability **2021**, 13(9), 4656; <https://doi.org/10.3390/su13094656> - 22 Apr 2021

Cited by 16 | Viewed by 1585

Abstract

Physical and biological treatment technology are considered a highly feasible and economic way to treat slaughterhouse wastewater. To achieve the desired effluent quality for disposal or reuse, various technological options were reviewed. However, most practical operations are accompanied by several advantages and disadvantages. [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Urban Wastewater Management](#))

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Open Access **Review**

Principles of Monetary & Financial Sustainability and Wellbeing in a Post-COVID-19 World: The Crisis and Its Management

by

[Jesús Huerta de Soto](#)

,

[Antonio Sánchez-Bayón](#)

and

[Philipp Bagus](#)

Sustainability **2021**, *13*(9), 4655; <https://doi.org/10.3390/su13094655> - 22 Apr 2021

[Cited by 9](#) | Viewed by 1518

Abstract

This paper analyses the COVID-19 crisis and its management from the perspective of Austrian Economics. The attention focuses on the State's coercive intervention according to the principles of political economy, capital theory and Austrian business economic cycles. The paper examines the specific case [\[...\] Read more.](#)

(This article belongs to the Special Issue [Monetary and Financial Sustainability in a Post COVID-19 World](#))

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Open Access **Article**

Neighbourhood Modelling for Urban Sustainability Assessment

by

[Javier Orozco-Messana](#)

,

Milagro Iborra-Lucas

and

Raimon Calabuig-Moreno

Sustainability **2021**, 13(9), 4654; <https://doi.org/10.3390/su13094654> - 22 Apr 2021

Cited by 1 | Viewed by 773

Abstract

Climate change is becoming a dominant concern for advanced countries. The Paris Agreement sets out a global framework whose implementation relates to all human activities and is commonly guided by the United Nations Sustainable Development Goals (UN SDGs), which set the scene for [\[...\] Read more.](#)

(This article belongs to the Collection [Indicators, Assessment Tools, and Rating Systems for Mainstreaming Sustainability in Urban Planning and Development](#))

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Open Access **Article**

A Comprehensive Emissions Model Combining Autonomous Vehicles with Park and Ride and Electric Vehicle Transportation Policies

by

Mohammed Obaid

,

Arpad Torok

and

Jairo Ortega

Sustainability **2021**, 13(9), 4653; <https://doi.org/10.3390/su13094653> - 22 Apr 2021

Cited by 3 | Viewed by 897

Abstract

Several transport policies reduce pollution levels caused by private vehicles by introducing autonomous or electric vehicles and encouraging mode shift from private to public transport through park and ride (P&R) facilities. However, combining the policies of introducing autonomous vehicles with the implementation of [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Transport Policy, Environmental Management and Energy Economic Development](#))

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Open AccessArticle

Digitalization and AI in European Agriculture: A Strategy for Achieving Climate and Biodiversity Targets?

by

[Beatrice Garske](#)

,

[Antonia Bau](#)

and

[Felix Ekardt](#)

Sustainability **2021**, 13(9), 4652; <https://doi.org/10.3390/su13094652> - 22 Apr 2021

[Cited by 7](#) | Viewed by 2099

Abstract

This article analyzes the environmental opportunities and limitations of digitalization in the agricultural sector by applying qualitative governance analysis. Agriculture is recognized as a key application area for digital technologies, including artificial intelligence. This is not least because it faces major sustainability challenges, [\[...\] Read more.](#)

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Open AccessArticle

Sustainable Ventilation Strategies for a Medium-Sized Space with Regional Effect

by

[Ming-Lun Alan Fong](#)

Sustainability **2021**, 13(9), 4651; <https://doi.org/10.3390/su13094651> - 22 Apr 2021

Viewed by 595

Abstract

The analysis of ventilation strategies is fundamentally affected by regional climate conditions and local cost databases, in terms of energy consumption, CO₂ emission and cost-effective analysis. A systematic approach is covered in this paper to estimate a local economic and environmental impact [\[...\] Read more.](#)

(This article belongs to the Section [Energy Sustainability](#))

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Open AccessArticle

Old but Not Old Fashioned: Agricultural Landscapes as European Heritage and Basis for Sustainable Multifunctional Farming to Earn a Living

by

[Martina Slámová](#)

,

[Alexandra Kruse](#)

,

[Ingrid Belčáková](#)

and

[Johannes Dreer](#)

Sustainability **2021**, *13*(9), 4650; <https://doi.org/10.3390/su13094650> - 22 Apr 2021

[Cited by 2](#) | Viewed by 828

Abstract

Today, farmers are multioptional entrepreneurs, demanding far more skills than only those of agricultural production. The awareness of European agricultural landscape (EAL) values should enable farmers to create new business strategies. Open education repositories (OERs) based on online vocational education and training (VET) [\[...\]](#) [Read more.](#)

(This article belongs to the Special Issue [Exploring Agricultural Heritage in European and Mediterranean Countries](#))

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Open AccessArticle

Retrieval and Evaluation of Chlorophyll-A Spatiotemporal Variability Using GF-1 Imagery: Case Study of Qinzhou Bay, China

by

[Ze-Lin Na](#)

Huan-Mei Yao

Hua-Quan Chen

Yi-Ming Wei

Ke Wen

Yi Huang

and

Peng-Ren Liao

Sustainability **2021**, *13*(9), 4649; <https://doi.org/10.3390/su13094649> - 22 Apr 2021

[Cited by 1](#) | Viewed by 536

Abstract

Chlorophyll-a (Chl-a) concentration is a measure of phytoplankton biomass, and has been used to identify 'red tide' events. However, nearshore waters are optically complex, making the accurate determination of the chlorophyll-a concentration challenging. Therefore, in this study, a typical area affected by the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Remote Sensing Applied to the Environment and Sustainability](#))

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Open Access **Article**

Suspended Sediment Modeling Using a Heuristic Regression Method Hybridized with Kmeans Clustering

by

Rana Muhammad Adnan

Kulwinder Singh Parmar

Salim Heddam

Shamsuddin Shahid

and

Ozgur Kisi

Sustainability **2021**, 13(9), 4648; <https://doi.org/10.3390/su13094648> - 22 Apr 2021

[Cited by 5](#) | Viewed by 677

Abstract

The accurate estimation of suspended sediments (SSs) carries significance in determining the volume of dam storage, river carrying capacity, pollution susceptibility, soil erosion potential, aquatic ecological impacts, and the design and operation of hydraulic structures. The presented study proposes a new method for [\[...\] Read more.](#)

(This article belongs to the Special Issue [Exclusive Papers of Outstanding Scientists in section Environmental Sustainability and Applications](#))

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Open Access **Article**

Spanish Adaptation and Validation of the Child Adjustment and Parent Efficacy Scale

by

Dolores Seijo

David Tomé

Jessica Sanmarco

Alina Morawska

and

Francisca Fariña

Sustainability **2021**, 13(9), 4647; <https://doi.org/10.3390/su13094647> - 22 Apr 2021

Viewed by 635

Abstract

(1) Background: The aim of this study is to obtain an instrument, with robust psychometric properties validated with a Spanish sample, that allows for the evaluation of the emotional and behavioural adjustment of children, as well as the perceived ability of parents to [\[...\] Read more.](#)

(This article belongs to the Special Issue [Intercultural Education and Promotion of Sustainability, as An Improvement in Educational Quality, with A Focus on Technological Advancement](#))

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Open Access **Article**

Game-Based Social Learning for Socially Sustainable Water Management

by

Joop de Kraker

,

Astrid Offermans

and

Merel M. van der Wal

Sustainability **2021**, 13(9), 4646; <https://doi.org/10.3390/su13094646> - 22 Apr 2021

[Cited by 3](#) | Viewed by 658

Abstract

An important aspect of the social sustainability of a proposed solution is acceptance by societal stakeholders. Acceptance is determined by the extent to which the solution matches with stakeholder perspectives on the problem and preferred ways to deal with it. Social learning can [\[...\] Read more.](#)

(This article belongs to the Special Issue [Social Sustainability and Social Learning](#))

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Open Access Article

Perception of Self-Efficacy and Health-Related Behavior in Context of Taekwon-Do Sport Camps

by

Dorota Ortenburger

,

Jacek Wąsik

and

Dariusz Mosler

Sustainability **2021**, 13(9), 4645; <https://doi.org/10.3390/su13094645> - 22 Apr 2021

Cited by 3 | Viewed by 654

Abstract

Background: The aim of this paper is to expand the knowledge on the subject matter of the relations between behavior that is geared towards health and the feeling of effectiveness in the context of martial arts tourism in the form of Taekwon-do training [\[...\] Read more.](#)

(This article belongs to the Special Issue [Socio-Cultural Perspective for Martial Arts Tourism and Motor Recreation Research](#))

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Open Access Article

Thiamine in Lipid Systems vs. the Antioxidant Activity of Epigallocatechin Gallate and Caffeine

by

Justyna Piechocka

and

Krystyna Szymandera-Buszk

Sustainability **2021**, 13(9), 4644; <https://doi.org/10.3390/su13094644> - 22 Apr 2021

Cited by 1 | Viewed by 578

Abstract

The aim of this study was to determine correlations between the concentration of thiamine hydrochloride or thiamine pyrophosphate and the antioxidant activity of epigallocatechin gallate (EGCG) and caffeine, as well as thiamine stability. The study was conducted in model systems. Oxidation degree indices [\[...\] Read more.](#)

(This article belongs to the Special Issue [Functional Food as a Way to Provide Beneficial Nutrients](#))

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Open AccessArticle

Preliminary Proposal for an Alternative Wall Lining Panel Based on Molded Recycled Cellulose and Designed for Home Wiring Refurbishment of Building Interior Partitions

by

[Raül Serra-Fabregà](#)

and

[Joan-Lluís Zamora-Mestre](#)

Sustainability **2021**, *13*(9), 4643; <https://doi.org/10.3390/su13094643> - 22 Apr 2021

Viewed by 501

Abstract

Old dwellings usually have shortfalls in insulation, acoustic and thermal, and in security of electrical services in the interior partition walls. A common building solution is to add a wall lining with a laminate base gypsum board that improves both acoustic and thermal [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability Assessment of Architecture, Construction, Refurbishment and Restoration](#))

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subject

Open AccessCommunication

Food Loss–Food Waste–Food Security: A New Research Agenda

by

[Fabio Gaetano Santeramo](#)

and

[Emilia Lamonaca](#)

[Cited by 6](#) | Viewed by 1247

Abstract

The food loss and waste (FLW)–food security nexus is a relevant issue in the societal debate, in that it contributes to understanding the challenges posed by a continuous and unsustainable development of agri-food systems and supply chains. An overview on the state-of-the-art academic [\[...\] Read more.](#)

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Open Access **Article**

Laboratory Characterization of a Liquid Metal MHD Generator for Ocean Wave Energy Conversion

by

José Carlos Domínguez-Lozoya

,

Sergio Cuevas

,

David Roberto Domínguez

,

Raúl Ávalos-Zúñiga

and

Eduardo Ramos

[Cited by 3](#) | Viewed by 789

Abstract

Harnessing ocean wave energy is an old challenge that has gained momentum in recent years. In this paper, we present the flow and electrical characterization of a prototype of an alternate liquid metal magnetohydrodynamic (MHD) generator at a laboratory scale which has the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Static Conversion of Energy for the Smart Exploitation of Renewables](#))

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Open AccessReview

Knowledge Acquisition and Representation for High-Performance Building Design: A Review for Defining Requirements for Developing a Design Expert System

by

Seung Yeoun Choi

and

Sean Hay Kim

Sustainability 2021, 13(9), 4640; <https://doi.org/10.3390/su13094640> - 21 Apr 2021

Viewed by 754

Abstract

New functions and requirements of high performance building (HPB) being added and several regulations and certification conditions being reinforced steadily make it harder for designers to decide HPB designs alone. Although many designers wish to rely on HPB consultants for advice, not all [\[...\] Read more.](#)

(This article belongs to the Special Issue [Building Information Technologies and Building Energy Optimization](#))

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Open AccessReview

A Systematic Review of AR and VR Enhanced Language Learning

by

Xinyi Huang

,

Di Zou

,

Gary Cheng

and

Haoran Xie

Sustainability 2021, 13(9), 4639; <https://doi.org/10.3390/su13094639> - 21 Apr 2021

[Cited by 10](#) | Viewed by 2186

Abstract

This paper provided a systematic review of previous Augmented Reality (AR) and Virtual Reality (VR) studies on language learning. A total of 88 articles were selected and analyzed from five perspectives: their ways of integrating AR or VR tools in language learning; main [\[...\] Read more.](#)

(This article belongs to the Special Issue [Augmented Reality and Virtual Reality-supported Sustainable Education](#))

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subject

Open Access **Article**

Biophysical Accounting of Forests' Value under Different Management Regimes: Conservation vs. Exploitation

by

Paolo Vassallo

,

Claudia Turcato

,

Ilaria Rigo

,

Claudia Scopesi

,

Andrea Costa

,

Matteo Barcella

,

Giulia Dapuzo

,

Mauro Mariotti

and

Chiara Paoli

Sustainability **2021**, *13*(9), 4638; <https://doi.org/10.3390/su13094638> - 21 Apr 2021

Cited by 1 | Viewed by 720

Abstract

Forest ecosystems are important providers of ecosystem functions and services belonging to four categories: supporting, provisioning, regulating and cultural ecosystem services. Forest management, generally focused on timber production, has consequences on the ability of the system to keep providing services. Silviculture, in fact, [\[...\]](#)
[Read more.](#)

(This article belongs to the Special Issue [Assessing and Valuing Ecosystem Services](#))

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Open Access **Article**

Spatiotemporal Variations in Water Flow and Quality in the Sanyang Wetland, China: Implications for Environmental Restoration

by

Jingya Ban

,

Bing Ling

,

Wei Huang

,

Xiaobo Liu

,

Wenqi Peng

and

Jianmin Zhang

Sustainability **2021**, *13*(9), 4637; <https://doi.org/10.3390/su13094637> - 21 Apr 2021

[Cited by 3](#) | Viewed by 565

Abstract

Spatiotemporal modeling of wetland environments' hydrodynamics and water quality characteristics is key to understanding and managing these ecologically important areas' physical and environmental properties. We developed a two-dimensional numerical model based on the MIKE 21 module to analyze flow and pollution dynamics in [\[...\] Read more.](#)

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Open Access **Article**

Local Drivers Associated to Temporal Spectral Response of Chlorophyll-a in Mangrove Leaves

by

Blanca Castellanos-Basto

,

Jorge Herrera-Silveira

,

Érick Bataller

and

Rodolfo Rioja-Nieto

Sustainability **2021**, *13*(9), 4636; <https://doi.org/10.3390/su13094636> - 21 Apr 2021

Viewed by 857

Abstract

The pigment content in leaves has commonly been used to characterize vegetation condition. However, few studies have assessed temporal changes of local biotic and abiotic factors on leaf pigments. Here, we evaluated the effect of local environmental variables and tree structural characteristics, in [\[...\] Read more.](#)

(This article belongs to the Special Issue [Mangrove Ecosystem Ecology, Conservation and Sustainability](#))

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Open AccessArticle

Smart Steaming: A New Flexible Paradigm for Synchronodal Logistics

by

Riccardo Giusti

,

Daniele Manerba

and

Roberto Tadei

Sustainability **2021**, 13(9), 4635; <https://doi.org/10.3390/su13094635> - 21 Apr 2021

[Cited by 1](#) | Viewed by 716

Abstract

Slow steaming, i.e., the possibility to ship vessels at a significantly slower speed than their nominal one, has been widely studied and implemented to improve the sustainability of long-haul supply chains. However, to create an efficient symbiosis with the paradigm of synchronodality, an [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability in Synchronodal Logistics and Transportation](#))

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Open AccessArticle

Bills, Rights and Housing Policy: The Evolution of Israel's Seven-Decade Housing-Related Bills

by

Ravit Hananel

Sustainability **2021**, 13(9), 4634; <https://doi.org/10.3390/su13094634> - 21 Apr 2021

Viewed by 604

Abstract

How do bills contribute to the promotion of housing rights? Is there a relation between the content of proposed bills and a country's dominant political economy? Are changes in the political-economic regime reflected in housing-related bills? What type of bill is most likely [\[...\] Read more.](#)

(This article belongs to the Section [Geography and Sustainability](#))

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Open AccessArticle

Converting Municipal Waste to Energy through the Biomass Chain, a Key Technology for Environmental Issues in (Smart) Cities

by

Catalin Vrabie

Sustainability 2021, 13(9), 4633; <https://doi.org/10.3390/su13094633> - 21 Apr 2021

Cited by 2 | Viewed by 649

Abstract

Cities around the world should prioritize the management of municipal solid waste (MSW). For this to be effective, there is a strong need to buildup a complex system that involves social, economic, and environmental processes, leading to a supply chain (SC). The actors [\[...\] Read more.](#)

(This article belongs to the Section [Energy Sustainability](#))

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Open AccessArticle

Competency-Industry Relatedness (C-IR) Framework for Sustained Business Growth in Startups during and Beyond Pandemic: Myths and Lessons from Publicly Funded Innovative Startups

by

Varun Gupta

and

Luis Rubalcaba

Sustainability 2021, 13(9), 4632; <https://doi.org/10.3390/su13094632> - 21 Apr 2021

Cited by 1 | Viewed by 943

Abstract

Context: The coronavirus disease 2019 (COVID-19) pandemic led to a turbulent business environment, resulting in market uncertainties, frustrations, and rumors. Wrongly held beliefs—or myths—can hinder startups from turning new market opportunities into their favor (for example, by failing at diversification decisions) or undertaking [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability in Business: Change, Growth and Future Impact](#))

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Open AccessArticle

Multimetric Index to Evaluate Water Quality in Lagoons: A Biological and Geomorphological Approach

by

[Frank Aangel Hernández-Mira](#)

,

[José Luis Rosas-Acevedo](#)

,

[Maximino Reyes-Umaña](#)

,

[Juan Violante-González](#)

,

[José María Sigarreta-Almira](#)

and

[Nodari Vakhania](#)

Sustainability **2021**, *13*(9), 4631; <https://doi.org/10.3390/su13094631> - 21 Apr 2021

Viewed by 585

Abstract

In recent years, Multimetric Indices (MMIs) have received a lot of attention thanks to their ability to develop integrative evaluations of water quality, particularly in lagoons. In this article, we propose a new MMI for determining the water quality in lagoons. The proposed [\[...\] Read more.](#)

(This article belongs to the Special Issue [Modeling and Simulations for Sustainable Water Environments](#))

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Open AccessArticle

Conceptual Model of Ecosystem Service Flows from Carbon Dioxide to Blue Carbon in Coastal Wetlands: An Empirical Study Based on Yancheng, China

by

Zheng Zang

Sustainability **2021**, *13*(9), 4630; <https://doi.org/10.3390/su13094630> - 21 Apr 2021

Cited by 1 | Viewed by 763

Abstract

Large amounts of blue carbon exist in the ecosystems of coastal wetlands. Accurate calculations of the stocks and economic value of blue carbon in various plant communities can facilitate vegetation rehabilitation. Based on this objective, first, a blue carbon estimation model was constructed [\[...\] Read more.](#)

(This article belongs to the Special Issue [Application of Wetlands as Nature Based Solutions for Ecological Service](#))

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Open Access [Review](#)

Chromium Stress in Plants: Toxicity, Tolerance and Phytoremediation

by

Dipali Srivastava

,

Madhu Tiwari

,

Prasanna Dutta

,

Puja Singh

,

Khushboo Chawda

,

Monica Kumari

and

Debasis Chakrabarty

Sustainability **2021**, *13*(9), 4629; <https://doi.org/10.3390/su13094629> - 21 Apr 2021

Cited by 10 | Viewed by 1512

Abstract

Extensive industrial activities resulted in an increase in chromium (Cr) contamination in the environment. The toxicity of Cr severely affects plant growth and development. Cr is also recognized as a human carcinogen that enters the human body via inhalation or by consuming Cr-contaminated [\[...\] Read more.](#)

(This article belongs to the Special Issue [Chemical Pollution, Prevention, and Environmental Sustainability](#))

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Open Access Article

Physio-Chemical Characterization of Biochar, Compost and Co-Composted Biochar Derived from Green Waste

by

Ghulam Mujtaba

,

Rifat Hayat

,

Qaiser Hussain

and

Mukhtar Ahmed

Sustainability **2021**, *13*(9), 4628; <https://doi.org/10.3390/su13094628> - 21 Apr 2021

Cited by 2 | Viewed by 1128

Abstract

Organic wastes are naturally biodegradable, but they contribute to environmental pollution and management issues. Composting and pyrolysis are widely used technologies for recycling these wastes into valuable organic products for soil health and crop production. In the current study, fruits vegetables waste (FVW) [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Agriculture Through Technological Intervention](#))

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Open AccessArticle

A C-Vine Copula-Based Quantile Regression Method for Streamflow Forecasting in Xiangxi River Basin, China

by

[Huawei Li](#)

,

[Guohe Huang](#)

,

[Yongping Li](#)

,

[Jie Sun](#)

and

[Pangpang Gao](#)

Sustainability 2021, 13(9), 4627; <https://doi.org/10.3390/su13094627> - 21 Apr 2021

[Cited by 1](#) | Viewed by 747

Abstract

In this study, a C-vine copula-based quantile regression (CVQR) model is proposed for forecasting monthly streamflow. The CVQR model integrates techniques for vine copulas and quantile regression into a framework that can effectively establish relationships between the multidimensional response-independent variables as well as [\[...\]](#)
[Read more.](#)

(This article belongs to the Special Issue [Sustainability Analysis and Environmental Decision-Making Using Simulation, Optimization, and Computational Analytics](#))

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Open AccessArticle

Mindfulness for Sustainable Internet Use in Chinese Junior Secondary School Students: A Dual-Path Mediation Model

by

Jianfen Wu

and

Hui Li

Sustainability **2021**, *13*(9), 4626; <https://doi.org/10.3390/su13094626> - 21 Apr 2021

Cited by 1 | Viewed by 848

Abstract

Mindfulness training can reduce Internet addiction and promote sustainable development, but the possible mediators of this impact have not been thoroughly explored. This study explored the mediating roles of self-control and maladaptive cognitions in the association between mindfulness and Internet addiction to fill [\[...\] Read more.](#)

(This article belongs to the Collection [Digital Processes in Social, Cultural and Ecological Conservation](#))

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Open Access **Article**

Research Trends in Career Success: A Bibliometric Review

by

Roberto Pico-Saltos

,

Paúl Carrión-Mero

,

Néstor Montalván-Burbano

,

Javier Garzás

and

Andrés Redchuk

Sustainability **2021**, *13*(9), 4625; <https://doi.org/10.3390/su13094625> - 21 Apr 2021

Cited by 10 | Viewed by 1695

Abstract

The purpose of this article is to provide an overview of academic research on professional success, using the bibliometric analysis to understand the evolution of this field between the years 1990 and 2020. The information was obtained from the publications indexed in the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Wellbeing in Education, Career, and Work: Current Contributions from Emotional Intelligence and other Non-Cognitive Constructs to the Psychology of Sustainability](#))

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Open Access **Article**

Geosites and Geotourism in the Local Development of Communities of the Andes Mountains. A Case Study

by

[Paúl Carrión-Mero](#)

,

[César Borja-Bernal](#)

,

[Gricelda Herrera-Franco](#)

,

[Fernando Morante-Carballo](#)

,

[María Jaya-Montalvo](#)

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[Alfonso Maldonado-Zamora](#)

,

[Nataly Paz-Salas](#)

and

Edgar Berrezueta

Sustainability **2021**, 13(9), 4624; <https://doi.org/10.3390/su13094624> - 21 Apr 2021

Cited by 6 | Viewed by 1292

Abstract

The inventory and assessment of a geosite in a territory provides a sound basis for the protection and use of its geological heritage. This article aims to evaluate the most relevant geosites in the province of Chimborazo (Ecuador), applying the Spanish Inventory of [\[...\] Read more.](#)

(This article belongs to the Special Issue [The Sustainable Management of Geodiversity: Following Studies on Heritage for Conservation](#))

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Open Access **Article**

Examining Evacuee Response to Emergency Communications with Agent-Based Simulations

by

C. Natalie van der Wal

,

Daniel Formolo

,

Mark A. Robinson

and

Steven Gwynne

Sustainability **2021**, 13(9), 4623; <https://doi.org/10.3390/su13094623> - 21 Apr 2021

Viewed by 856

Abstract

To improve communication during emergencies, this research introduces an agent-based modeling (ABM) method to test the effect of psychological emergency communication strategies on evacuation performance. We follow a generative social science approach in which agent-based simulations allow for testing different candidate solutions. Unlike [\[...\] Read more.](#)

(This article belongs to the Special Issue [Simulations and Methods for Disaster Risk Reduction in Sustainable Built Environments](#))

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Open AccessArticle

Who Benefits from the Housing Provident Fund System in China? An Analysis of the Internal Rate of Return for Typical Employees with Different Incomes

by

[Xiang Zhang](#)

,

[Yanhuang Zheng](#)

and

[Chuanhao Tian](#)

Sustainability **2021**, *13*(9), 4622; <https://doi.org/10.3390/su13094622> - 21 Apr 2021

Viewed by 674

Abstract

The Housing Provident Fund System (HPFS) was established in China in the 1990s as a welfare program to offer low-cost loans and encourage the purchasing of houses. However, there has been some controversy over the income redistribution effect of HPFS. Previous studies focused [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Open AccessArticle

The Community Integration of New Residents in the Community Reorganization at a Heritage Site: A Model Based on Tangkou in Huangshan

by

[Wenzhi Wu](#)

,

[Yuxi Dai](#)

and

Fudong Qiu

Sustainability **2021**, 13(9), 4621; <https://doi.org/10.3390/su13094621> - 21 Apr 2021

[Cited by 1](#) | Viewed by 488

Abstract

With the transition of a heritage community from a living community to one based on servicing tourists, an influx of new residents seeking to run businesses and work in the tourism sector generates an intense process of community reorganization. In turn, changes in [\[...\] Read more.](#)

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Open Access **Editor's Choice** **Article**

Cycling in the Era of COVID-19: Lessons Learnt and Best Practice Policy Recommendations for a More Bike-Centric Future

by

Alexandros Nikitas

,

Stefanos Tsigdinos

,

Christos Karolemeas

,

Efthymia Kourmpa

and

Efthimios Bakogiannis

Sustainability **2021**, 13(9), 4620; <https://doi.org/10.3390/su13094620> - 21 Apr 2021

[Cited by 27](#) | Viewed by 2883

Abstract

The COVID-19 pandemic has affected our cities in monumental ways with no sector likely being more severely impacted than transport. Lockdowns, physical spacing, transport restrictions and stay-at-home guidelines have transformed personal mobility and highlighted the mistakes of an unbalanced pro-car culture that defined [\[...\] Read more.](#)

(This article belongs to the Collection [Bicycling Today: Establishing and Learning from the State of the Art](#))

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Open AccessArticle

Knowledge Criticality Assessment and Codification Framework for Major Maintenance Activities: A Case Study of Cement Rotary Kiln Plant

by

Lilian. O. Iheukwumere-Esotu

and

Akilu Yunusa-Kaltungo

Sustainability 2021, 13(9), 4619; <https://doi.org/10.3390/su13094619> - 21 Apr 2021

[Cited by 5](#) | Viewed by 1103

Abstract

Maintenance experts involved in managing major maintenance activities such as; Major overhauls, outages, shutdowns and turnarounds (MoOSTs) are constantly faced with uncertainties during the planning and/or execution phases, which often stretches beyond the organisation's standard operating procedures and require the intervention of staff [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability in Operations Management](#))

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Open AccessArticle

Ageing in Place in Disaster Prone Rural Coastal Communities: A Case Study of Tai O Village in Hong Kong

by

Crystal Kwan

and

Ho Chung Tam

Sustainability 2021, 13(9), 4618; <https://doi.org/10.3390/su13094618> - 21 Apr 2021

[Cited by 2](#) | Viewed by 764

Abstract

Rural coastal communities face unique disaster risks that will impact interventions throughout the disaster risk reduction (DRR) cycle (mitigation, preparedness, response, and recovery). At the same time, these communities are experiencing an ageing population. As climate change contributes to rising sea levels and [\[...\] Read more.](#)

(This article belongs to the Special Issue [Planning for Resilience in Rural Communities](#))

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Open Access **Article**

Capability Assessment toward Sustainable Development of Business Incubators: Framework and Experience Sharing

by

Nathasit Gedsri

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Boonkiart lewwongcharoen

,

Kittichai Rajchamaha

,

Nisit Manotungvorapun

,

Jakapong Pongthanaisawan

and

Watcharin Witthayaweerarak

Sustainability **2021**, 13(9), 4617; <https://doi.org/10.3390/su13094617> - 21 Apr 2021

[Cited by 2](#) | Viewed by 947

Abstract

Business incubators have been widely developed to advise, support, promote, and provide a nurturing environment for new business start-ups and entrepreneurs. The development of a framework for capability assessment allows the management of each incubator to understand its strengths and room for further [\[...\] Read more.](#)

(This article belongs to the Special Issue [New Approaches in Social, Environmental Management and Policy to Address SDGs](#))

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Open Access Article

Urban Strategies Enabling Industrial and Urban Symbiosis: The Case of Slovenia

by

Lucija Ažman Momirski

,

Barbara Mušič

and

Boštjan Cotič

Sustainability **2021**, 13(9), 4616; <https://doi.org/10.3390/su13094616> - 21 Apr 2021

[Cited by 1](#) | Viewed by 887

Abstract

Industrial symbiosis (IS) recognizes the exchange of waste resources and by-products between companies that do not normally cooperate in resource exchange; on the other hand, urban symbiosis (UrS) recognizes the use of solid waste in cities as input sources for industries that do [\[...\] Read more.](#)

(This article belongs to the Special Issue [Industrial Energy Symbiosis](#))

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Open Access Article

A Conceptual Hybrid Approach from a Multicriteria Perspective for Sustainable Third-Party Reverse Logistics Provider Identification

by

Mohamed Abdel-Basset

,

Abduallah Gamal

,

Mohamed Elhoseny

Ripon K. Chakrabortty

and

Michael Ryan

Sustainability **2021**, 13(9), 4615; <https://doi.org/10.3390/su13094615> - 21 Apr 2021

[Cited by 3](#) | Viewed by 817

Abstract

Reverse logistics (RL) is considered the reverse manner of gathering and redeploying goods at the end of their lifetime span from consumers to manufacturers in order to reutilize, dispose, or remanufacture. Whereas RL has many economic benefits, it presents compromises to businesses that [\[...\] Read more.](#)

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Open Access **Article**

Managing Sustainable Urban Public Transport Systems: An AHP Multicriteria Decision Model

by

Lourdes Rivero Gutiérrez

María Auxiliadora De Vicente Oliva

and

Alberto Romero-Ania

Sustainability **2021**, 13(9), 4614; <https://doi.org/10.3390/su13094614> - 21 Apr 2021

[Cited by 6](#) | Viewed by 774

Abstract

The current combination of sustainable social awareness and the improved decision support systems, including multiple criteria decision models for sustainable development, creates the need for more efficient and accurate public policy decisions based on available technology. The continuous growth of urban public road [\[...\] Read more.](#)

(This article belongs to the Special Issue [Decision Support Systems and Multiple Criteria Decision Making for Sustainable Development](#))

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Open AccessArticle

The Ideal Debt Ratio of an Agricultural Enterprise

by

Jiří Kučera

,

Marek Vochozka

and

Zuzana Rowland

Sustainability **2021**, 13(9), 4613; <https://doi.org/10.3390/su13094613> - 21 Apr 2021

[Cited by 3](#) | Viewed by 704

Abstract

The objective of the contribution is to propose a new methodology for determining the optimal credit absorption capacity of an enterprise while maintaining the positive function of financial leverage, i.e., the maximum possible loan that would continuously bring benefit to the enterprise. The [\[...\] Read more.](#)

(This article belongs to the Special Issue [New Trends in Corporate Finance for Sustainability](#))

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Open AccessArticle

Legal Issues Concerning the Impact of Anthropogenic Underwater Noise in the Marine Environment

by

Yen-Chiang Chang

and

Xu Zhang

Sustainability **2021**, 13(9), 4612; <https://doi.org/10.3390/su13094612> - 21 Apr 2021

Viewed by 598

Abstract

Anthropogenic underwater noise has an adverse effect on the marine environment. Therefore, it is of essential importance to establish the problem consciousness regarding this issue and then regulate it by the application of laws. In order to achieve the aim of protecting the [...] [Read more.](#)

(This article belongs to the Special Issue [Sustainable Management of Semi-aquatic Ecosystems](#))

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Open Access **Editorial**

The Challenge of Communication in Pandemic

by

[Sangkyun Kim](#)

Sustainability **2021**, 13(9), 4611; <https://doi.org/10.3390/su13094611> - 21 Apr 2021

Viewed by 563

Abstract

COVID-19, the first cases of which were reported at the beginning of 2020, has significantly impacted the world [...] [Full article](#)

(This article belongs to the Special Issue [Sustainable Transformation and Innovation in Organization Management](#))

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Open Access **Editorial**

Green Growth Policy, De-Growth, and Sustainability: The Alternative Solution for Achieving the Balance between Both the Natural and the Economic System

by

[Diego A. Vazquez-Brust](#)

and

[José A. Plaza-Úbeda](#)

Sustainability **2021**, 13(9), 4610; <https://doi.org/10.3390/su13094610> - 21 Apr 2021

Viewed by 713

Abstract

“We are ethically obliged and incited to think beyond what are treated as the realistic limits of the possible” [...] [Full article](#)

(This article belongs to the Special Issue [Green Growth Policy, Degrowth, and Sustainability: The Alternative Solution for Achieving the Balance between Both the Natural and the Economic System](#))

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Open AccessArticle

Talking about Sustainability: How the Media Construct the Public's Understanding of Sustainable Food in Romania

by

[Valentina Marinescu](#)

,

[Bianca Fox](#)

,

[Darie Cristea](#)

,

[Daniela Roventa-Frumusani](#)

,

[Ramona Marinache](#)

and

[Silvia Branea](#)

Sustainability 2021, 13(9), 4609; <https://doi.org/10.3390/su13094609> - 21 Apr 2021

[Cited by 2](#) | Viewed by 835

Abstract

Decades of medical research have focused on analysing the effects of sustainable eating on health and well-being; yet, less attention has been devoted to this subject in communication and media studies research. Recently, however, scholarly attention has shifted towards the way sustainable food [\[...\] Read more.](#)

(This article belongs to the Special Issue [Mediatization of Social Sustainability: Paradigm of Explication and Understanding of the Environment, Society and the Economy](#))

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Open AccessArticle

Prioritization of the Best Sustainable Supply Chain Risk Management Practices Using a Structural Analysis Based-Approach

by

Manel Elmsalmi

,

Wafik Hachicha

and

Awad M. Aljuaid

Sustainability **2021**, 13(9), 4608; <https://doi.org/10.3390/su13094608> - 21 Apr 2021

Cited by 4 | Viewed by 815

Abstract

Companies attempt to improve the performance of their supply chain (SC) by distinguishing and presenting feasible sustainable development practices (SDP). Considering SDP without focusing on sustainability risks may disturb the company's future. Very few studies in the extant literature have dealt with the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Digitalization and Sustainable Supply Chain Management in a Period of Crisis](#))

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Open Access **Article**

Forecasting Rainfed Agricultural Production in Arid and Semi-Arid Lands Using Learning Machine Methods: A Case Study

by

Shahram Rezapour

,

Erfan Jooyandeh

,

Mohsen Ramezanzade

,

Ali Mostafaeipour

Mehdi Jahangiri

Alibek Issakhov

Shahariar Chowdhury

and

Kuaanan Techato

Sustainability 2021, 13(9), 4607; <https://doi.org/10.3390/su13094607> - 21 Apr 2021

[Cited by 1](#) | Viewed by 695

Abstract

With the rising demand for food products and the direct impact of climate change on food production in many parts of the world, recent years have seen growing interest in the subject of food security and the role of rainfed farming in this [\[...\] Read more.](#)

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Open Access **Article**

A New Approach for Design Optimization and Parametric Analysis of Symmetric Compound Parabolic Concentrator for Photovoltaic Applications

by

Faisal Masood

Perumal Nallagownden

Irraivan Elamvazuthi

Javed Akhter

and

Mohammad Azad Alam

Sustainability **2021**, *13*(9), 4606; <https://doi.org/10.3390/su13094606> - 21 Apr 2021

Cited by 6 | Viewed by 1002

Abstract

A compound parabolic concentrator (CPC) is a non-imaging device generally used in PV, thermal, or PV/thermal hybrid systems for the concentration of solar radiation on the target surface. This paper presents the geometric design, statistical modeling, parametric analysis, and geometric optimization of a [\[...\] Read more.](#)

(This article belongs to the Special Issue [Design and Optimization of Renewable Energy Systems](#))

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Open Access Article

Physio-Morphological and Biochemical Trait-Based Evaluation of Ethiopian and Chinese Wheat Germplasm for Drought Tolerance at the Seedling Stage

by

Gizie Abeje Belay

,

Zhengbin Zhang

and

Ping Xu

Sustainability **2021**, *13*(9), 4605; <https://doi.org/10.3390/su13094605> - 21 Apr 2021

Cited by 4 | Viewed by 986

Abstract

For Ethiopia's wheat production, drought is a major natural disaster. Exploration of drought-resistant varieties from a bulk of wheat germplasm conserved in the gene bank is of paramount importance for breeding climate change-resilient modern cultivars. The present study was aimed at identifying the [\[...\] Read more.](#)

(This article belongs to the Special Issue [Drought and Salinity Tolerance in Crops for Sustainable Agriculture](#))

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Experimental Winter Monitoring of a Light-Weight Green Roof Assembly for Building Retrofit

by

[Fabiana Frota de Albuquerque Landi](#)

,

[Claudia Fabiani](#)

and

[Anna Laura Pisello](#)

Sustainability **2021**, 13(9), 4604; <https://doi.org/10.3390/su13094604> - 21 Apr 2021

[Cited by 2](#) | Viewed by 615

Abstract

Green roofs are a recurrent solution for improving environmental quality in buildings. Such systems can, among other things, reduce the urban heat island effect, improve indoor thermal comfort and visual quality, and reduce energy consumption in buildings, therefore promoting human comfort. This work [\[...\] Read more.](#)

(This article belongs to the Special Issue [Architecture and Indoor Environmental Quality](#))

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Open AccessArticle

Response of Different Band Combinations in Gaofen-6 WFV for Estimating of Regional Maize Straw Resources Based on Random Forest Classification

by

[Huawei Mou](#)

,

[Huan Li](#)

,

Yuguang Zhou

and

Renjie Dong

Sustainability **2021**, *13*(9), 4603; <https://doi.org/10.3390/su13094603> - 21 Apr 2021

[Cited by 1](#) | Viewed by 633

Abstract

Maize straw is a valuable renewable energy source. The rapid and accurate determination of its yield and spatial distribution can promote improved utilization. At present, traditional straw estimation methods primarily rely on statistical analysis that may be inaccurate. In this study, the Gaofen [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainable Agricultural, Biological, and Environmental Engineering Applications](#))

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Open Access **Article**

The Heterogeneous Public Debt–Growth Relationship: The Role of the Expenditure Multiplier

by

Mindaugas Butkus

,

Diana Cibulskiene

,

Lina Garsviene

and

Janina Seputiene

Sustainability **2021**, *13*(9), 4602; <https://doi.org/10.3390/su13094602> - 21 Apr 2021

[Cited by 2](#) | Viewed by 651

Abstract

Currently countries are facing a new crisis caused by the COVID-19, which leads to the rise of government expenditures and additional borrowing. This situation highlights the importance of examine factors which determine the level of public debt that still sustains economic growth. A [\[...\] Read more.](#)

(This article belongs to the Special Issue [Fiscal Policy, the Theory and its Role in a Future Sustainable Economy Development](#))

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Purchasing Eco-Sustainable Products: Interrelationship between Environmental Knowledge, Environmental Concern, Green Attitude, and Perceived Behavior

by

[Erni Rusyani](#)

,

[Rambabu Lavuri](#)

and

[Ardi Gunardi](#)

Sustainability **2021**, 13(9), 4601; <https://doi.org/10.3390/su13094601> - 21 Apr 2021

[Cited by 2](#) | Viewed by 1191

Abstract

Due to eco-sustainable marketing practices, customer consciousness has increased the use of eco-sustainable goods in India. This provides new opportunities for businesses and researchers in terms of eco-sustainable behavior; however, the market analysis in India is weak. This study examines the factors that [\[...\] Read more.](#)

(This article belongs to the Section [Economic and Business Aspects of Sustainability](#))

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Evaluating the Relationship between Park Features and Ecotherapeutic Environment: A Comparative Study of Two Parks in Istanbul, Beylikdüzü

by

[Didem Kara](#)

and

Gülden Demet Oruç

Sustainability **2021**, 13(9), 4600; <https://doi.org/10.3390/su13094600> - 21 Apr 2021

Viewed by 763

Abstract

The impacts of problems related to dense, unplanned, and irregular urbanization on the natural environment, urban areas, and humankind have been discussed in many disciplines for decades. Because of the circular relationship between humans and their environment, human health and psychology have become [\[...\] Read more.](#)

(This article belongs to the Special Issue [Greening Cities Shaping Cities: Pinpointing Nature-Based Solutions in Cities between Shared Governance and Citizen Participation](#))

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Open AccessArticle

Land-Use Change Impacts from Sustainable Hydropower Production in EU28 Region: An Empirical Analysis

by

Mohd Alsaleh

,

Muhammad Mansur Abdulwakil

and

Abdul Samad Abdul-Rahim

Sustainability **2021**, 13(9), 4599; <https://doi.org/10.3390/su13094599> - 21 Apr 2021

[Cited by 4](#) | Viewed by 713

Abstract

Under the current European Union (EU) constitution approved in May 2018, EU countries ought to guarantee that estimated greenhouse-gas releases from land use, land-use change, or forestry are entirely compensated by an equivalent accounted removal of carbon dioxide (CO₂) from the [\[...\] Read more.](#)

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Open AccessArticle

Multiscale Integral Assessment of Habitability in the Case of El Raval in Barcelona

by

Sara Vima-Grau

,

Còssima Cornadó

,

Pere-Joan Ravetllat

and

Pilar Garcia-Almirall

Sustainability **2021**, 13(9), 4598; <https://doi.org/10.3390/su13094598> - 21 Apr 2021

[Cited by 1](#) | Viewed by 750

Abstract

The understanding of habitability conditions of existing housing stock plays a central role in the quantification and qualification of sustainability from the architectural field. This research assessed habitability as a fundamental social benefit by means of a multiscale approach to the case study [\[...\] Read more.](#)

(This article belongs to the Special Issue [Sustainability Assessment of Architecture, Construction, Refurbishment and Restoration](#))

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Corporate Social Responsibility and Proenvironmental Behaviour in Employees: Evidence in Acapulco, Mexico

by

Rayma Ileri Maldonado Astudillo

,

Yan Pallac Maldonado Astudillo

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Sustainability 2021, 13(9), 4597; <https://doi.org/10.3390/su13094597> - 21 Apr 2021

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Abstract

Corporate social responsibility (CSR) has been the subject of extensive research, especially during the past two decades; however, few academic studies investigated the relationship between CSR and employee behaviour. This study reduces this gap by identifying the degree of association between CSR and [\[...\] Read more.](#)

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Insights into Particle-Bound Metal(loid)s in Winter Snow Cover: Geochemical Monitoring of the Korkinsky Coal Mine Area, South Ural Region, Russia

by

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Sustainability **2021**, *13*(9), 4596; <https://doi.org/10.3390/su13094596> - 21 Apr 2021

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Abstract

Snow plays an important role in air quality and winter geochemical monitoring in the South Ural region. This study deals with the air pollution monitoring of particle-bound metal(loid) concentrations using snow cover around the deepest coal mine in Eurasia, the Korkinsky coal mi

Article

Value-Based Decision to Redevelop Transportation Facilities: A Case Study of an Abandoned Airport

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Abstract: Value-based decision making is the consideration of function and cost in the decision to select the highest possible option. Reviews to previous studies showed that there is a lack of consideration of the criteria of value in the decision-making process. Hence, this research aims to identify the criteria for redeveloping transportation facilities based on function and cost. The ultimate goal of this research is to select the best value alternative for project redevelopment. An abandoned airport was chosen as the case study to evaluate the decision made by the government to invest in the project of transforming the abandoned airport into a hospital that aims to cater to the increasing demand for healthcare. A quantitative and qualitative approach was applied through literature review, survey, and interview to experts in the area of transportation facilities development. Statistical descriptive analysis was used to analyse the first survey, which was to investigate the critical factors under the category of function. The second survey was conducted to select the most valuable alternative for the redevelopment by utilising the Analytical Hierarchy Process (AHP), and it was found that the transportation hub is the most valuable alternative for redeveloping the abandoned airport. The result was then validated by an expert from the industry, and it can be concluded that the value-based decision-making model can be used in enhancing the decision of the redevelopment of transportation facilities by considering both function and cost.

Keywords: value; transportation facilities; redevelopment; urban land use; decision making



Citation: Xian, B.W.X.; Rahmawati, Y.; Al-Aidrous, A.-H.M.H.; Utomo, C.; Wan Abdullah Zawawi, N.A.; Raflis Value-Based Decision to Redevelop Transportation Facilities: A Case Study of an Abandoned Airport. *Sustainability* **2021**, *13*, 4959. <https://doi.org/10.3390/su13094959>

Academic Editor: Neil Ferguson

Received: 28 January 2021

Accepted: 20 April 2021

Published: 28 April 2021

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1. Introduction

Redevelopment is a process of land use development to revitalise the urban space through physical, economic, and social indicators [1,2]. It is necessary for redeveloping urban areas since the global population continues to grow larger with the ageing infrastructure and abandoning of urban manufacturing sites [3]. Lots of consideration need to be taken into account during the decision-making process for the redevelopment. Thus, it is essential to consider multiple criteria that affect redevelopment such as technological, economic and environmental [4]. Changes in lifestyle, policies, and environmental condition are some criteria that may change the productivity of a facility in improving the land value, which may lead to the closure of the facility and its abandonment.

Transportation facilities are one of the most important infrastructures in a country. They serve as a hub that connects different locations and allow travelling between different locations to be done effectively and efficiently. Moreover, they can help to connect the cities in a country and allow development to progress at a higher rate. It is necessary to understand how transportation facilities will affect the development of a country. Therefore, it is important to determine transportation facilities' efficiency and relate their performance to a country's development in all categories [5]. Furthermore, for a transportation facility, it

is highly crucial to understand whether it has achieved its targets and potential in terms of sustainability and economic performance. By evaluating its performance, relationships can be established between transportation facilities and their potential development concerning operational cost, the number of users, and location [6,7]. This is important in determining methods with which a transportation facility can be redeveloped to increase its economic viability and achieve the ultimate goal of connecting different parts of cities within urban and rural areas [7]. Redevelopment of an abandoned transportation facility is necessary. The selection of a valuable alternative for redevelopment that is able to increase the productivity of the property to enhance the land value becomes vital.

Value can be defined as the function of a facility over its life cycle cost [8]. It is significant to stress the value of redevelopment to maximise the profits and advantages by the stakeholders through redevelopment for long-lasting serviceability. In line with value engineering, the intended functions of the facilities shall be achieved at the lowest life cycle cost [9]. Therefore, in this paper, value-based decision making will be used as an approach to decide the best value alternative for redeveloping transportation facilities by considering the criteria of value. The value of the properties can be improved by identifying and eliminating the superfluous cost through value-based decision [9]. In the research, a value-based decision-making model will be developed to select the best value alternative for redevelopment that may support the government in investing their budget for redevelopment. This research could help the developers or stakeholders to plan and make a more accurate decision on redeveloping the existing transportation facilities based on the value.

Kapit Airport (KPI) was chosen as the case study in this research. The Kapit is the largest division in Sarawak, Malaysia with a total area of 38,934 km² [10]. It consists of three administrative districts which are Kapit, Song, and Belaga. The current total population of Kapit is about 120,000 people. Rajang River is the main transport link connecting the division to other towns. Figure 1 presents the location of Kapit Airport in Malaysia. In addition to this, the economy in Kapit is based mainly on agriculture, the timber industry, coal mining, and oil palm plantation [10,11]. According to Chia [12], Kapit Airport was built in the 1970s with a total length of 427 m of runways. It was operated by Malaysian Airlines using Twin Otter aircraft which connected the local communities to Sibul, Kuching, and Belaga [12,13]. Additionally, the land is owned by the Federal Lands Commissioner. The abandoned airport is situated at a strategic location which is 1.5 km from the main town and it is next to the residential area. However, because of the financial crisis in 1997 and low demand, Malaysia Airlines decided to stop its operation in March 1998 [12]. The airport now has been abandoned for more than 20 years. Recently, with the COVID-19 outbreak, Deputy Health Minister II has proposed to utilise the abandoned airport to construct a new public hospital to fulfil the rising demand for healthcare in Kapit [14].

Any infrastructure facility that does not have good economic performance will not be able to sustain its operation and hence it would affect people that depend on it. Various types of redevelopment evaluation should be done to improve a transportation facility's performance if necessary [15,16]. This can ensure its longevity and stability of operation. An accurate redevelopment evaluation can make sure that transportation facilities' economic and function parameters are being fulfilled [5,17]. Currently, there is a lack of an evaluation model that can assess sustainability from the economic and functional performance perspective of an infrastructure [18]. Hence, there is a need to develop an evaluation model that can support the redevelopment decision and assess both economical and functional attributes of an infrastructure facility. A thorough and accurate evaluation will allow the policymakers to make effective decisions on the future development of their country [19].

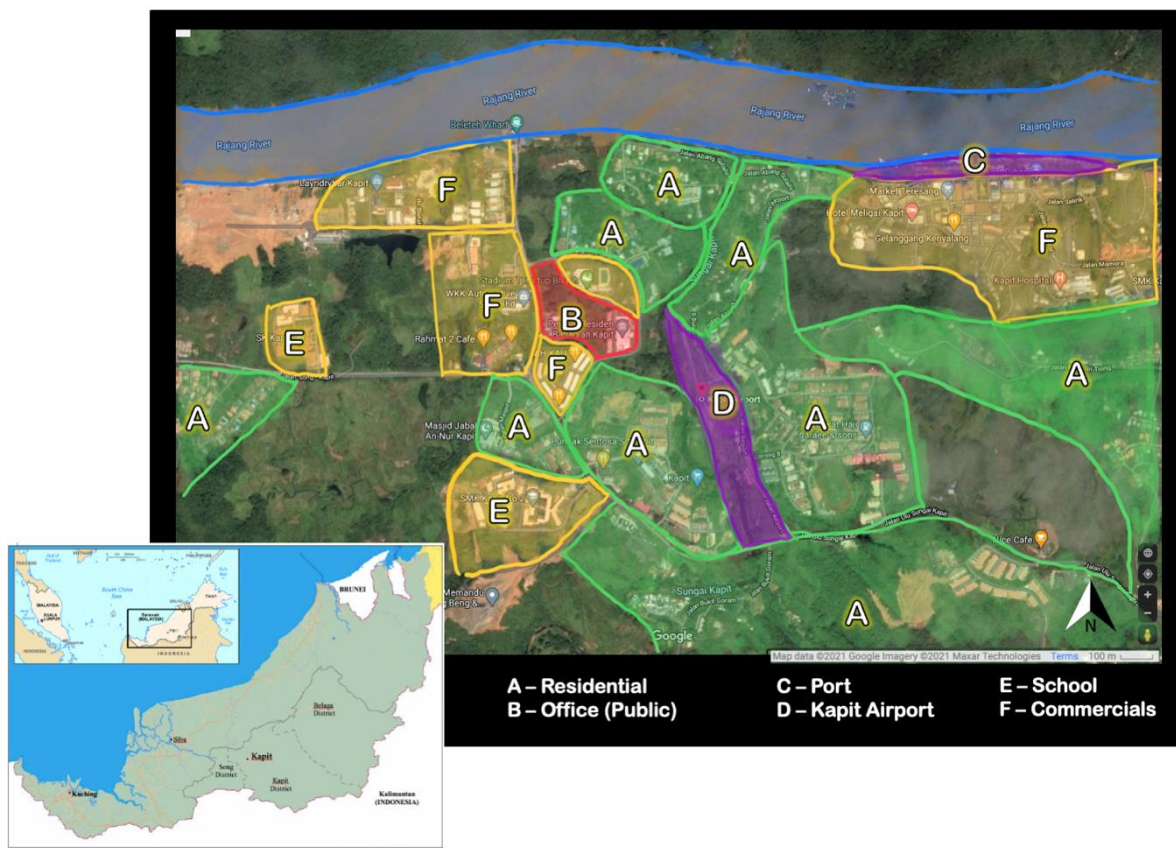


Figure 1. Location of Kapit Airport and the surroundings.

It can be concluded that this paper is needed to enhance the decision for redeveloping the transportation facility. The evaluation process should not be based on criteria of function only, but it needs to include the criteria of cost since the lack of considerations for the “value” of investment for redeveloping property has become the obstacle for sustainable development [18]. Hence, because of the necessity of decision making for redeveloping the valuable transportation facilities, the cost of each alternative needs to be taken into consideration too.

2. Literature Review

A value-based decision is a unique approach in selecting the best alternative that considers the criteria of both function and cost. Reviews to previous studies related to the implementation of value-based decision as well as project redevelopment have been conducted to build the conceptual model. Reviews on both criteria of function and cost also being further explored to strengthen the conceptual model of this research.

2.1. Value-Based Decision Making for Redevelopment

A value-based decision is a structural and analytical process which aims to select an alternative with the lowest cost while having all the required function at the same time maintain its quality and performance [9]. In value-based decision making, desirable benefit and considerable cost are taken into consideration to evaluate the value of the alternatives [18]. According to Pica [20], the value of an investment is defined as the ideal combination of life cycle cost and the function of the goods or services to meet the user’s requirements. A value of an alternative can be obtained by comparing function and cost [21]. An alternative can be determined as a valuable alternative if the function is equal with cost, meaning the value of the alternative is one. A high-value alternative will have value more than once, which means that it gives more functions/benefits than the

cost. In contrast, a low-value alternative has a value of less than one, which means that the functions/benefits received are deficient compared to the expenses. To evaluate the alternatives of the redevelopment, numerical data on both function and cost are necessary. AHP is a suitable approach to select the best alternatives for development by considering the criteria of function and cost [18]. Life cycle cost (LCC) is used as the approach for getting the weight on the cost of each alternative. LCC is the useful economics construct that underlies the entire lifespan of the asset from conception to demolition which includes construction, maintenance, operation, occupation, and end-of-life cost [20,22,23]. The formula for calculating LCC is as follows:

$$LCC = C_{ic} + C_{inst} + C_e + C_o + C_m + C_s + C_d \quad (1)$$

where:

- C_{ic} —Initial cost
- C_{inst} —Delivery and installation cost
- C_e —Energy cost
- C_o —Operational cost
- C_m —Maintenance cost
- C_s —Downtime cost
- C_d —Decommissioning cost

2.2. Reviews to Previous Case Studies of Decision Making in the Redevelopment Project

In this era of urbanisation, redevelopment is vital as the decrease in available space to accommodate the urban sprawl and new construction. Urban redevelopment is a process of revitalising an existing developed area [16]. Moreover, redevelopment aids in optimising urban land use [24]. It is necessary to evaluate and identify the impacts of redevelopment based on multiple criteria such as technical, economic, social, and environmental indicators [3,4,25–27]. However, effective decision support is required to minimise the uncertainties and risks when solving the challenges in construction project information flows [4]. In addition to this, there is a lack of focus on technical and design aspects, as well as the effects brought about by redevelopment towards cultural, social, economic, and environmental sustainability during the redevelopment process [27]. Therefore, several recent studies [3,4,15,16,25,28,29] have recommended that a new model shall be developed or revise the existing techniques to make a more reliable decision for redevelopment. It has been found that several case studies are being conducted by researchers around the globe. Each of the case studies is discussed in the following subsections. The case studies were also reviewed to investigate the suitable and potential criteria for developing the conceptual model of this research. The criteria are further discussed in Section 2.3.

2.2.1. Old Equipment Repair Factory in Vilnius

The redevelopment of an old equipment repair factory in Vilnius was evaluated based on three alternatives which were the renovation of the existing building to adapt to current needs while maintaining or slightly altering the original object and its previous defined function (a_1), renovating the building into loft-type housing while maintaining its architectural-urban expression (a_2), and demolition of the current building and implementing a new construction project (a_3) [4]. The selection of the alternatives was based on a list of parameters that can be grouped under economic, environmental, and technological aspects. The criteria were analysed by using the initial decision-making matrix while the Weighted Aggregated Sum Product Assessment method with grey numbers (WASPAS-G) was applied to prioritise the results. To reach a reliable decision, the redevelopment project was then validated by using Multiple Criteria Decision Making (MCDM) and Building Information Modelling (BIM) techniques. The results showed that a_2 is the best alternative, followed by a_3 and a_1 .

2.2.2. Pier Arts Centre in Scotland

Pier Arts Centre (PAC) was being assessed after its renovation based on technical, social, and economic sustainability pillars [27]. Social and economic impacts of PAC were assessed through statistical analysis as well as a quantitative and qualitative method based on a list of indicators whereas the environmental impacts were evaluated using energy benchmarking and modelling. The renovation of PAC had indicated that redevelopment brings positive impacts to local social, cultural, and economic development [27].

2.2.3. Villages in the City (ViCs) in Shen Zhen

China underwent rapid urbanisation due to its massive economic reformation which led to the need for urban land redevelopment in the so-called “villages in the city” (ViCs) [15]. The poor infrastructure and disorganized built environment of ViCs affected sustainable development. Residents of ViCs near the redevelopment projects were interviewed to evaluate the effect of indirect displacement related to the rising housing prices and rents after redevelopment [29]. It was found that the location of the land and its existing rent were the main influencers for redeveloping industrial sites [15].

2.2.4. Abandoned Railway Lines in Italy

There are more than 7500 km of disused railways in Italy and the railway line which is about 16.5 km between the city of Pinerolo and the Pellice Valley was selected for redevelopment purposes [30]. The best alternatives for the revitalisation of the abandoned railways based on the environmental and socio-economic impacts and the performances of each alternative were evaluated by using a value tree. The listed alternatives were greenway, rail-banking, an extension of the urban railway service, old station recovery, and no action [30]. The results showed that the best solution was to requalify the disused railways as a greenway which converts the abandoned railways into a green corridor [30].

2.3. Criteria for Redevelopment Decision Making

Based on the previous studies, there are four main criteria with a list of sub-criteria. The impacts of redevelopment and the factors affecting redevelopment are evaluated based on these criteria. Therefore, they can be used as a reference in this study in developing the value-based decision-making model, as summarised in Table 1.

3. Methodology

The research flow is shown in Figure 2. This research starts with identifying and analysing the criteria for the redevelopment of transportation facilities. Reviews of previous studies have been conducted to identify the possible criteria for the redevelopment. A pilot study through an interview with experts was also conducted in the preliminary stage to evaluate the feasibility of research and the criteria for the redevelopment. Then, a questionnaire was prepared based on the identified criteria from the grounded theory. The first survey aims to identify and prioritise the most important and relevant criteria of function for the redevelopment of transportation facilities. A primary survey was administered to the stakeholders of transportation facilities in Malaysia. The data collected were analysed through a scatter plot analysis of mean and standard deviation to prioritise and select criteria for redeveloping the abandoned airport. In addition to this, potential decision-makers for the second survey were also identified from this primary survey. From this first survey, the top 5 criteria of function were selected to be the main criteria in the decision-making model which are further proceeded with AHP in the second survey.

Table 1. Main criteria for redevelopment decision making.

Criteria	Justification	Sub-Criteria	Source
Economic	Redevelopment is vital to enhance the capability of building to improve the land value, thus, economic criteria are considered. The previous study showed different main considerations of the criteria under the economic rubric.	Investments	[4]
		Net present value	[4]
		Payback period	[4]
		Profitability	[4,25,26]
		Rental prices/property values	[15,28]
		Depreciation and interest rate	[24]
		Market volatility	[24]
		Tax incentive	[25]
Environmental	The environmentally friendly building is vital for the sustainable living of occupants and reduces the negative impacts on the environment. It was found that some criteria need to be considered.	Gross operating surplus	[28]
		Energy efficiency by class	[31,32]
		Carbon dioxide emissions	[4,27,33]
		Waste prevention	[4]
		Green development	[25,30,34]
		Type of contamination	[25]
		Total energy use	[28]
		Stormwater pollutant loading	[28]
Technological	Previous studies found that some technological criteria also need to be considered in supporting the redevelopment project to be effective and efficient in reaching the goals.	Total water demand	[28]
		Project preparation and coordination	[4]
		Construction work duration	[4,30]
		Level of service/safety/comfort	[16]
		Building lifetime/age	[4,15,24,26]
		Building adaptation to current needs	[28]
		Location	[7,26,35]
		Floor-to-area ratio/floor level	[15,26,29]
Social	During the literature review, it was also found that social factors are necessary, whereby some of the criteria support the improvement of economic development.	Land use	[28]
		Connectivity	[16,28,29]
		Building materials	[15,29]
		Households in poverty	[28]
		Population in zero car households	[28]
		Tourism rate	[30]
		Physical activity	[25]

In the second step, a qualitative approach was adopted. A pairwise comparison between each criterion and alternatives was conducted through the second survey. Five potential decision-makers with the background of developer, contractor, and politician have been selected to answer the questionnaires. On the other hand, the initial cost as well as operational and maintenance cost for each of the alternatives were obtained through online resources and validated by the expert. The local priorities for the alternatives based on function and cost were derived from the data collected through the Analytical Hierarchy Process (AHP). AHP was chosen as the method in selecting the best alternative for the redevelopment since there are multiple decision criteria considered in the selection. This method is applicable for a single decision-maker, however, this study involved 5 respondents as decision-makers, and the result from each decision-maker is compared for further analysis. The best valuable alternative for redeveloping the abandoned airport was synthesised through the AHP model and finally validated by an expert. The AHP method is considered a systematic method that presents several issues in the form of a hierarchy [36]. The AHP method has been used in this research due to the need to involve experts in the investigated issue, and not only basing outcomes on specific research data and analysis [37].

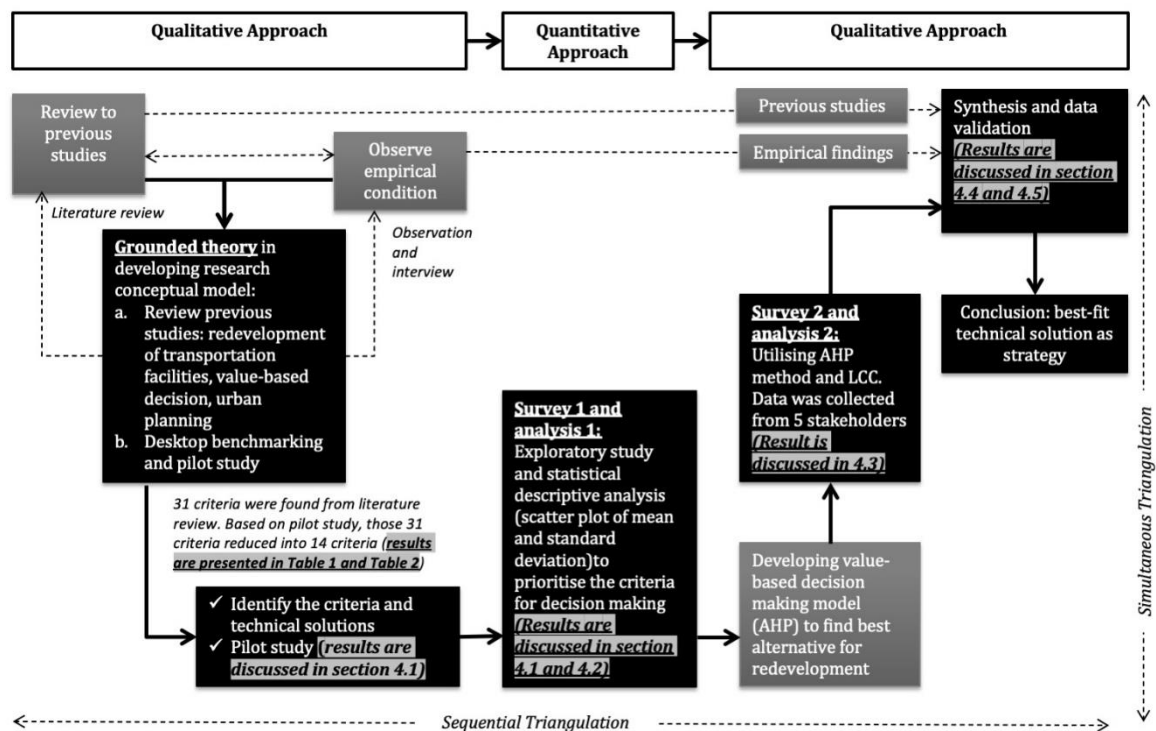


Figure 2. Research flow chart.

4. Results

4.1. Pilot Study

A pilot study was conducted with two experts who specialised in project development and transportation engineering. Both experts hold around 20 years of experience. The main purpose of conducting the pilot study is to evaluate the feasibility of the research also to verify the identified criteria from previous studies. Based on the pilot study, 9 criteria were nominated as the function for redeveloping the abandoned airport. The criteria were selected based on the agreement from both candidates whereas if there is any disagreement from any side, the criteria will not be considered. Therefore, only green development, building safety, comfortability, building age, type of land use, accessibility to public transport, building materials, the economic condition of local communities, and the capability to attract tourists were selected as the criteria for redeveloping the abandoned airport in the primary survey. Besides that, both experts have suggested a transportation hub as the alternative for redeveloping the abandoned airport. In addition to this, the experts also proposed to rebuild the airport, shopping mall, hotel, or food court. The results from the pilot study are summarised in Table 2.

Table 2. Results from the pilot study.

No.	Criteria Required for Redeveloping The Abandoned Airport	Expert (A)	Expert (B)
1.	Green development	Strongly agree	Agree
2.	Design complexities	Disagree	Agree
3.	The time required for the construction work	Neutral	Neutral
4.	Building safety	Agree	Neutral
5.	Comfortability	Neutral	Agree
6.	Building age	Agree	Agree
7.	Location	Disagree	Disagree
8.	Floor-to-area ratio and floor level	Disagree	Disagree
9.	Type of land use	Strongly agree	Strongly agree
10.	Accessibility to public transport	Agree	Agree
11.	Building materials	Neutral	Strongly agree
12.	The economic condition of the local communities	Agree	Agree
13.	The capability of the property to attract tourists	Neutral	Agree
14.	Ability to facilitate outdoor activities by the local communities	Disagree	Agree
	The suggestion of alternatives for redeveloping the abandoned airport.	<ul style="list-style-type: none"> • Hotel • Transportation hub • Food court 	<ul style="list-style-type: none"> • Rebuild the airport • Shopping mall • Transportation hub

4.2. Survey 1: Prioritising the Decision Criteria

Survey 1 aims to collect data from the stakeholders and potential users to prioritise the criteria and potential alternatives for redeveloping the abandoned airport. A Likert scale was used to capture the perspective of respondents on their agreement to the criteria of function to be considered in redeveloping the abandoned airport. This is necessary for achieving research objectives. A total of 86 responses were obtained from the primary survey. Referring to Figure 3a, 73% of the respondents have an educational level of bachelor's degree and 12% of the respondents are at SPM level. Besides that, the percentage of the respondents having a master's degree and diploma are equal at 5%. Only 2% of the respondents completed their studies up to doctorate level, whereas 3% of the respondents selected others. Additionally, in Figure 3b, 36% of the respondents have a background of studies in education followed by 22% with a background in engineering studies. Next were the fields of study of business and finance, accounting, and quantity surveying at 7%, 6%, and 3% respectively. Twenty-six percent of the respondents have academic qualifications in other fields such as construction and property management, operation management, economics, and medicine.

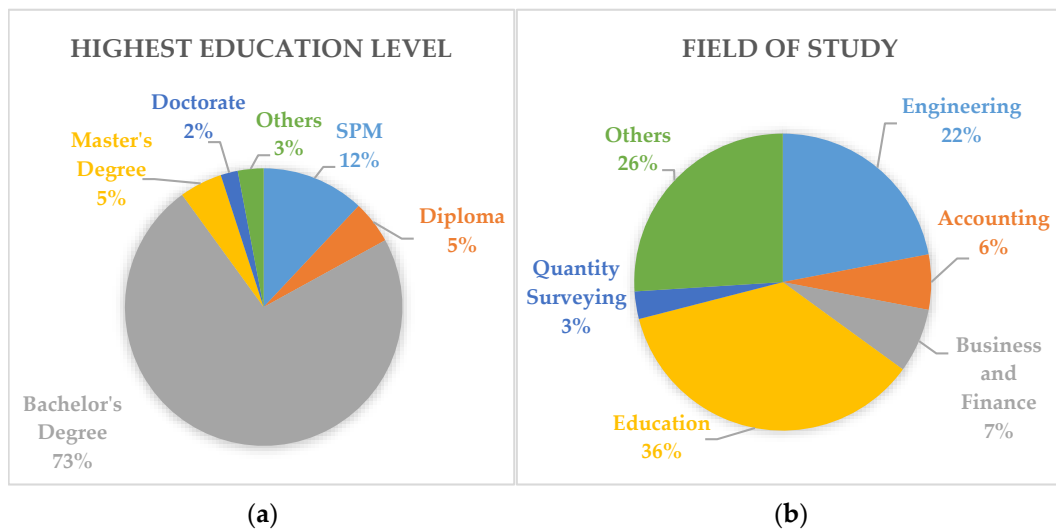


Figure 3. Respondents' background I: (a) Education level; (b) Field of study.

From the survey, the mean and standard deviation of each criterion are calculated; afterwards, they are plotted in the scatter plot of mean and standard deviation. The scatter plot of mean and standard deviation analysis was used to rank the criteria of function. The scatter plot analysis is presented in Figure 3, the axis (x) is the mean value, and the ordinate (y) is the standard deviation value. The top five rankings of the criteria were chosen as the main criteria of function for redeveloping the abandoned airport. Referring to Figure 4, the analysis showed that all criteria fall under Region 3 which indicates that all criteria have a high mean and high standard deviation. Therefore, the criteria in this region with lower standard deviation were prioritised first. Based on Table 3, building materials have the highest mean of 4.3953 and the lowest standard deviation of 0.8849, hence, it is the most important criteria for project redevelopment decision making. Besides, accessibility to public transport is ranked after building materials with a mean of 4.3837 and a standard deviation of 0.8966. Building safety and economic condition of local communities share the same mean of 4.2907. However, the standard deviation of economic condition of local communities is lower than the building's safety, as illustrated in Figure 4. This indicates that the economic condition of local communities is more important than the building's safety for project redevelopment decision making. Hence, the economic condition of local communities is selected as the third main criterion for redeveloping the abandoned airport. In addition to this, comfortability is chosen as the fourth main criterion because of its lower standard deviation as compared to other criteria. Lastly, the type of land use is selected as one of the main criteria with a mean of 4.1395 and a standard deviation of 0.9476 which is slightly higher than the standard deviation of comfortability of 0.9258. Based on the result, the five criteria of function that are included in the AHP decision-making model are building materials, the economic condition of local communities, accessibility to public transport, type of land use, and comfortability.

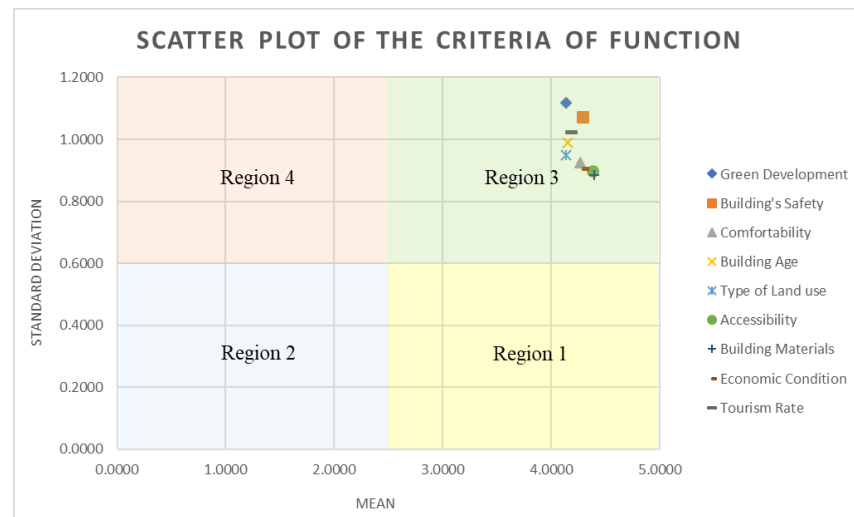


Figure 4. Scatter plot of the criteria of function.

Table 3. Ranking of the criteria.

Criteria	Mean	Standard Deviation	Ranking
Green development	4.1395	1.1184	9
Building safety	4.2907	1.0723	8
Comfortability	4.2674	0.9258	4
Building age	4.1512	0.9884	6
Type of land use	4.1395	0.9476	5
Accessibility to public transport	4.3837	0.8966	2
Building materials	4.3953	0.8849	1
The economic condition of local communities	4.2907	0.9057	3
Ability to improve tourism rate	4.1860	1.0234	7

Five potential alternatives which are to rebuild the airport, transportation hub, food court, shopping mall, and hotel were listed in the survey form. The respondents were asked to arrange the listed alternatives from the most to the least suitable potential alternatives. They were also allowed to suggest potential alternatives for redeveloping the abandoned airport. Figure 5 shows the ranking of potential alternatives from the stakeholders. It shows that 49.4% of the respondents have chosen to rebuild the airport as their first choice followed by turning it into a transportation hub at 27.7%. On the other hand, none of the respondent selected a hotel as their first choice of alternative. In short, the most potential alternative can be arranged in the order to rebuild the airport followed by a transportation hub, food court, shopping mall and hotel. Respondents also suggested redeveloping the abandoned airport into mixed development which consists of residential and commercial components, car parts, eco-friendly park, entertainment hub and theme park. However, the alternative of rebuilding the airport was rejected because the government has decided to build a new airport in another part of Kapit—Tunoh. In addition to this, on 4 July 2020, Deputy Health Minister Datuk Aaron Ago Dagang suggested building a new hospital in Kapit [14]. According to Borneo Post [14], the new hospital was proposed to be constructed at the abandoned airport site for a long-term plan to cater to the increasing demand for healthcare by the local communities. Therefore, the alternative of rebuilding the abandoned airport was replaced with plans for a hospital. Moreover, the food court can be classified under both transportation hub and shopping mall, too. Based on the majority rating preference of the stakeholders and decision from the government, three potential alternatives for redeveloping the abandoned airport are a hospital, transportation hub, and shopping mall.

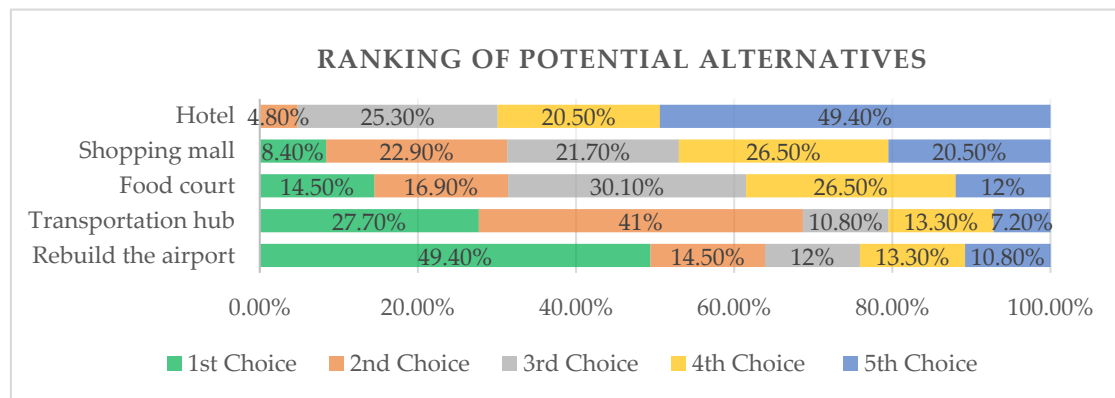


Figure 5. Ranking of potential alternatives.

4.3. Evaluation of Best Alternative Using AHP

The second survey was conducted to collect data from five decision-makers. It aims to prioritise and select the best value alternative for redeveloping the abandoned airport. Five main criteria of function and three potential alternatives were selected from a primary survey for pairwise comparison through a questionnaire. In the first section of the second survey form, the criteria of function were compared to each other with a scale of 1–9. In the second section, each alternative was compared to each other based on the five different main criteria. The five main criteria are building materials (f_1), the economic condition of local communities (f_2), accessibility to public transport (f_3), types of land use (f_4), and comfortability (f_5). Besides that, the initial cost (c_1) and operational and maintenance cost (c_2) for each alternative were identified as the criteria of cost. Three alternatives were proposed which are transportation hub (a_1), shopping mall (a_2), and hospital (a_3). The decision hierarchy model is presented in Figure 6.

A value-based decision is a decision-making process that considers the criteria of both function and cost. In the AHP model, the weight of each criterion of function was calculated from the responses given by respondents as mentioned above. For getting the weight of the criteria of cost, the authors used LCC to calculate the cost as data for comparison and calculating the weight. Finally, it was used to evaluate the value of each alternative as further discussed in Section 4.3.8. Data for cost were obtained from [14,38]. In addition to this, the demographic profiles of five potential decision-makers are discussed and demonstrated in Table 4. The responses of each decision-maker are discussed in Sections 4.3.1–4.3.5. Furthermore, in Section 4.3.6, the synthesis of the responses from all the decision-makers based on criteria of function for each alternative is discussed. On the other hand, the analysis of criteria of cost for each alternative is shown in Section 4.3.7. Lastly, the integrated perspective on the AHP model based on criteria of function and cost is synthesised and discussed in Section 4.3.8.

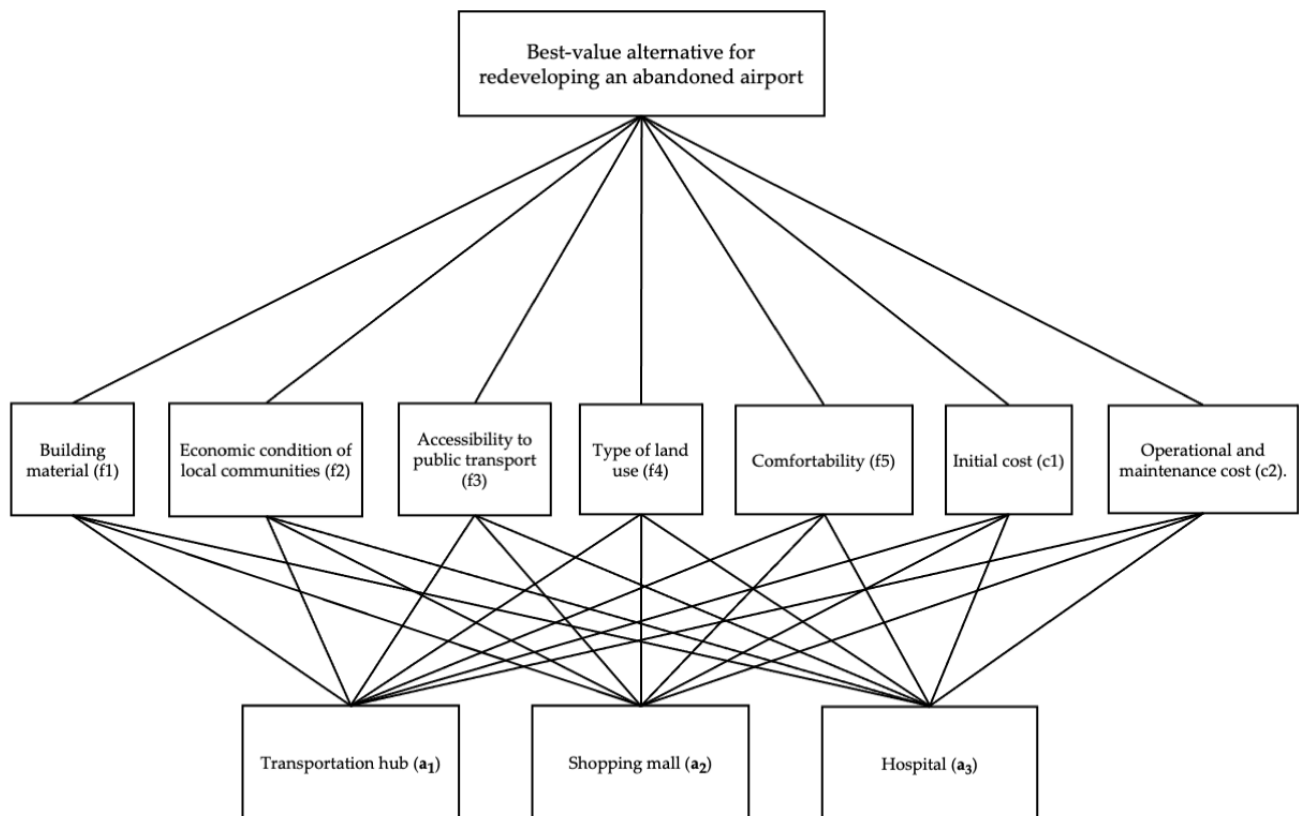


Figure 6. Decision hierarchy model for project redevelopment.

Table 4. The profile of the respondents.

Respondents	Years of Work Experience	Occupation	Job Title
1	16–20 years	Developer	Director
2	16–20 years	Politician	Member of Parliament
3	Less than 5 years	Contractor	Project Coordinator
4	More than 20 years	Contractor	Director
5	More than 20 years	Developer	Director

All the respondents had been to Kapit and were familiar with the demographic of Kapit and its development. Four out of five respondents had work experience of more than 15 years. The occupations of the respondents include developer, contractor, and politician. In addition to this, three of the respondents are directors of organizations while the other two respondents are a member of parliament and a project coordinator. They were chosen as potential decision-makers as they are highly experienced in property development and construction. The backgrounds of each decision-maker are presented in Table 4. The details of calculation and analysis on the AHP decision making for each respondent are presented in Appendix A.

4.3.1. Best Alternative Selected by Respondent 1

Based on the opinion of respondent 1, type of land use (f_4) is the most important criterion for redeveloping the abandoned airport with a weightage of 0.51713 followed by the economic condition of local communities (f_2), with a weightage of 0.24571, as shown in Table 5. The third most important criterion is accessibility to public transport (f_3), followed by building materials (f_1) and comfortability (f_5). In addition, the alternatives were compared with each other based on different main criteria. The summary of the data from respondent 1 is shown in Table 5. From the results, respondent 1 feels that a

shopping mall (a_2) is the potential alternative for redeveloping the abandoned airport by considering the criteria of function only with a total weightage of 0.60717. The choices are then followed by transportation hub (a_1) and hospital (a_3) with a weightage of 0.26628 and 0.12655, respectively. Ability to improve the land value is becoming important in redeveloping buildings [39]. Looking at the location of the abandoned airport, which is surrounded by residential buildings, the selected alternative becomes possible since there will be demand for it. The alternative suits the criteria for improving the land value.

Table 5. The priority of criteria and alternatives from respondent 1.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	4th	0.06124	0.23179	0.01420	0.70028	0.04289	0.06793	0.00416
f_2	2nd	0.24571	0.07870	0.01934	0.69444	0.17063	0.22685	0.05574
f_3	3rd	0.14248	0.72640	0.10350	0.06189	0.00882	0.21171	0.03016
f_4	1st	0.51713	0.23353	0.12076	0.70136	0.36270	0.06511	0.03367
f_5	5th	0.03344	0.25383	0.00849	0.66186	0.02213	0.08431	0.00282
Sum				0.26628		0.60717		0.12655
Ranking of Alternatives			2nd		1st		3rd	

4.3.2. Best Alternative Selected by Respondent 2

Referring to Table 6, respondent 2 thinks that the economic condition of local communities (f_2) is the most important criterion for redeveloping the abandoned airport with a weightage of 0.59137. The second most important criterion is type of land use (f_4), followed by accessibility to public transport (f_3), building materials (f_1), and comfortability (f_5). The weights for the criteria are 0.15247, 0.12761, 0.08821, and 0.04035, respectively. Additionally, the alternatives were compared with each other based on different main criteria. Table 6 shows the synthesis of the data from respondent 2. From the synthesized results, transportation hub (a_1) is the most potent alternative as chosen by respondent 2, followed by shopping mall (a_2) and hospital (a_3) with a weightage of 0.70565, 0.22076, and 0.07359 accordingly. The respondent agrees with keeping the building use as a transportation facility, but changes its function into a transportation hub; this is because the respondent is greatly concerned about the economic condition of the local communities. Participation of the local communities becomes crucial in keeping the sustainability of the building, particularly in economic and social aspects. This finding relates to the results found by Chang and Kuo [40], Yeh et al. [41], and Khalil et al. [42].

Table 6. The priority of criteria and alternatives from respondent 2.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	4th	0.08821	0.67939	0.05993	0.24143	0.02130	0.07918	0.00698
f_2	1st	0.59137	0.71164	0.42084	0.22071	0.13052	0.06765	0.04001
f_3	3rd	0.12761	0.69010	0.08806	0.24465	0.03122	0.06525	0.00833
f_4	2nd	0.15247	0.71164	0.10850	0.22071	0.03365	0.06765	0.01031
f_5	5th	0.04035	0.70181	0.02832	0.10097	0.00407	0.19722	0.00796
Sum				0.70565		0.22076		0.07359
Ranking of Alternatives			1st		2nd		3rd	

4.3.3. Best Alternative Selected by Respondent 3

Referring to Table 7, the economic condition of local communities (f_2) has the highest weightage of 0.56517. Hence, respondent 3 has rated it as the most important criterion for redeveloping the abandoned airport. Besides that, accessibility to public transport (f_3) is the second most important criterion with a weightage of 0.20462, followed by building materials (f_1), with a weightage of 0.12476. According to respondent 3, type of land use (f_4) is the fourth most important criteria for project redevelopment. However, he had the same opinion as other respondents, whereby comfortability (f_5) is the least important criteria in

decision making for the abandoned airport. The results from respondent 3 are synthesised in Table 7. Based on the results, respondent 3 thinks that transportation hub (a_1) is the most probable alternative with a weightage of 0.69818. On the other hand, the second potential alternative is a hospital (a_3) and the third potential alternative is a shopping mall (a_2). This preference of respondent 3 is similar to that of respondent 2, whereby both have a similar perspective in placing the economic condition of local communities as the most important criterion in keeping the sustainability of both economic and social aspects [40–42], thus the selected alternative is a transportation hub.

Table 7. The priority of criteria and alternatives from respondent 3.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	3rd	0.12476	0.72330	0.09024	0.07081	0.00883	0.20589	0.02569
f_2	1st	0.56517	0.70768	0.39996	0.08346	0.04717	0.20886	0.11804
f_3	2nd	0.20462	0.70144	0.14353	0.08532	0.01746	0.21324	0.04363
f_4	4th	0.07713	0.64339	0.04963	0.07377	0.00569	0.28284	0.02182
f_5	5th	0.02833	0.52370	0.01483	0.17211	0.00487	0.30420	0.00862
Sum				0.69818		0.08403		0.21779
Ranking of alternatives			1st		3rd		2nd	

4.3.4. Best Alternative Selected by Respondent 4

Respondent 4 thinks that access to public transport (f_3) is the most important criterion when deciding on the redevelopment of the abandoned airport. According to Table 8, the weightage of accessibility to public transport (f_3) is 0.50294, as rated by respondent 4. The economic condition of local communities (f_2) has the second-highest weightage of 0.24601, followed by building materials (f_1), with a weightage of 0.14295. These criteria are followed by the weights of type of land use (f_4) and comfortability (f_5), 0.07990 and 0.02820, respectively, which are ranked at number 4 and 5. Based on Table 8, hospital (a_3) is the most probable alternative as decided by respondent 4 with a weightage of 0.72867. The alternatives are then arranged in the order of transportation hub (a_1), with a weightage of 0.21875 and shopping mall (a_2), with a weightage of 0.05259. Although respondent 4 expressed concern about accessibility to public transport, the best alternative for the redevelopment according to them is the hospital. The result appears to be based on the accumulative analysis of the other criteria. The hospital can enhance the land value of the building by looking at the provided demand. It was found that communities contribute to the sustainability of the hospital [43].

Table 8. The priority of criteria and alternatives from respondent 4.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	3rd	0.14295	0.21137	0.03022	0.05294	0.00757	0.73569	0.10517
f_2	2nd	0.24601	0.21137	0.05200	0.05294	0.01302	0.73569	0.18099
f_3	1st	0.50294	0.22116	0.11123	0.05151	0.02591	0.72733	0.36580
f_4	4th	0.07990	0.23659	0.01890	0.05592	0.00447	0.70750	0.05653
f_5	5th	0.02820	0.22673	0.00639	0.05751	0.00162	0.71577	0.02019
Sum				0.21875		0.05259		0.72867
Ranking of Alternatives			2nd		3rd		1st	

4.3.5. Best Alternative Selected by Respondent 5

Based on Table 9, building materials (f_1) with a weightage of 0.50710 is the most important criterion for redeveloping an abandoned airport, as rated by respondent 5. Type of land use (f_4) has a weightage of 0.25111, ranked at number 2, followed by the economic condition of local communities (f_2), with a weightage of 0.13636. In addition to this, the weightage of accessibility to public transport (f_3) is 0.07695, whereas that of comfortability

(f_5) is 0.02848. According to respondent 5, transportation hub (a_1) has the highest weightage from the synthesised results, as tabulated in Table 9. It is the most probable alternative for project redevelopment with a weightage of 0.64441. Apart from that, the weightage of the hospital (a_3) is 0.29760 with a ranking of 2. Lastly, shopping mall (a_2) is the least suitable potential alternative from the view of respondent 5.

Table 9. The priority of criteria and alternatives from respondent 5.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	1st	0.50710	0.70695	0.35850	0.05760	0.02921	0.23545	0.11940
f_2	3rd	0.13636	0.23545	0.03211	0.05760	0.00785	0.70695	0.09640
f_3	4th	0.07695	0.70098	0.05394	0.06296	0.00484	0.23606	0.01816
f_4	2nd	0.25111	0.71577	0.17974	0.05751	0.01444	0.22673	0.05693
f_5	5th	0.02848	0.70695	0.02013	0.05760	0.00164	0.23545	0.00670
Sum				0.64441		0.05799		0.29760
	Ranking of Alternatives			1st		3rd		2nd

4.3.6. Best Alternative Selected by All Respondents

Table 10 shows the synthesised result of AHP on the alternatives when considering the five criteria of function for redeveloping the abandoned airport. The ranking of the alternatives is concluded by considering the opinions of the five potential decision-makers. The results show that the ranking order of the alternatives from the ones with the most potential to those with the least is the transportation hub (a_1), hospital (a_3), and shopping mall (a_2). The result presented in Table 10 is the rank of alternative without considering cost, i.e., a decision based on function only. The result of the value-based decision, which considers both function and cost, is presented in Table 11 and further explained in Section 4.3.7.

Table 10. The priority of criteria and alternatives from all respondents.

	f_1	f_2	f_3	f_4	f_5	Sum	Ranking
Transportation hub (a_1)	0.11061	0.18485	0.10005	0.09551	0.01563	0.50665	1st
Shopping mall (a_2)	0.02196	0.07384	0.01765	0.08419	0.00687	0.20451	3rd
Hospital (a_3)	0.05228	0.09823	0.09322	0.03585	0.00926	0.28884	2nd

Table 11. The priority of alternatives based on cost criteria.

	c_1	c_2	Sum	Loss	Ranking
Transportation hub (a_1)	0.428571	0.444444	0.873016	0.253968	1st
Shopping mall (a_2)	0.428571	0.444444	0.873016	0.253968	1st
Hospital (a_3)	0.142857	0.111111	0.253968	0.873016	3rd

4.3.7. Criteria of Cost

Initial cost (c_1) and operational and maintenance cost (c_2) have been identified and considered in value-based decision making for the redevelopment of an abandoned airport. In this research, the transportation hub was assumed to be similar to the shopping mall structural design and have similar operational and maintenance cost. Hence, the initial costs of a transportation hub and shopping mall range from USD542.42 to USD723.22 per m^2 , whereas the hospital involves costs of USD843.76 to USD1165.19 per m^2 [44]. Additionally, according to Lin [2], the monthly operational and maintenance cost for the transportation hub and shopping mall is USD8.288 per m^2 . On the other hand, the total expenditure on public hospitals in Malaysia in 2017 was USD3,830,812,978.30 [38,45,46]. According to the Ministry of Health of Malaysia [47], the total number of official beds in Malaysia was 42,302, with an average size of 204 m^2 per bed. Hence, the operational and maintenance cost of a

hospital is estimated at USD32.615 per m² per month. For the AHP matrix and weightage calculations, the alternative with the lower cost was preferred. Based on Table 11, hospital (a₃) has the greatest loss of 0.873016. Hence, transportation hub (a₁) and shopping mall (a₂) will be of greater potential by considering the criteria of cost only.

4.3.8. Integrated Perspective on AHP Model

The most valuable alternative for redeveloping the abandoned airport is selected by considering the criteria of function and cost. Besides that, value is defined as the function of the building over its life cycle cost [8]. The alternative will only be accepted when the value is more than 1 while the alternative with a value of less than 1 will be rejected. Referring to Table 12, the transportation hub (a₁) is selected as the most valuable alternative with the highest value of 2.754932 as compared to others. On the other hand, based on the result shown in Table 10, the hospital (a₃) is ranked above the shopping mall (a₂) when considering the criteria of function only. However, when the cost is taken into consideration, a shopping mall (a₂) will be more valuable than a hospital (a₃) as the alternative for redeveloping the abandoned airport. Table 12 shows that the value of the hospital (a₃) is 0.456892 while the value of the shopping mall is 1.112002, which is more than 2 times higher than that of the hospital. This is because the cost of owning a hospital is extremely high compared to that of a shopping mall. Hence, the proposal of the government to build the hospital on the abandoned site is rejected as the value of the hospital is lower than 1. Figure 7 illustrates the value of the alternatives based on the scatter plot. It shows that the alternatives located above the baseline are valuable for project redevelopment. Keeping the sustainability of a building is a challenge, and it needs the support of its surroundings, particularly the local communities as the users of the building [40–42]. Thus, it is necessary to investigate the demand on the building use to be able to predict the revenue or benefits that can be obtained to be able to develop a valuable building. With this finding, it can be concluded that value-based decision making becomes necessary to apply in selecting the most suitable alternative, particularly in the development of a project [18,48].

Table 12. The priority of alternatives based on cost and function criteria.

	Cost	Function	Value	Ranking
Transportation hub (a ₁)	0.183908	0.50665	2.754932	1st
Shopping mall (a ₂)	0.183908	0.20451	1.112002	2nd
Hospital (a ₃)	0.632184	0.28884	0.456892	3rd

4.4. Validation of Criteria through Previous Studies

Building materials (f₁), the economic condition of local communities (f₂), accessibility to public transport (f₃), type of land use (f₄), and comfortability (f₅) were chosen as the criteria for redeveloping the abandoned airport and validated through previous studies, as shown in Table 13. The importance of the criteria of function was arranged in the order of f₂ > f₄ > f₃ > f₁ > f₅. The ranking of function criteria, based on average weightage calculated from the weightage in Tables 5–9 for each respondent, is presented in Table 13. Furthermore, the cost of the facilities must be considered in the preliminary stage as the redevelopment of a project is highly influenced by the cost of the facilities [24,30].



Figure 7. Scatter plot for value-based decision making.

Table 13. Validation of criteria through previous studies.

Function	Average Weightage	Ranking	Sources
Building materials (f_1)	0.18485	4th	Building materials are important in deciding alternatives for project redevelopment to ensure green development [15].
The economic condition of local communities (f_2)	0.35692	1st	The socio-economic factor is significantly correlated with project redevelopment as the economic condition can increase redevelopment brings [25,28].
Accessibility to public transport (f_3)	0.21092	3rd	Accessibility of the project site is the key determinant for project redevelopment [15].
Type of land use (f_4)	0.21555	2nd	Type of land use is one of the most important factors affecting project redevelopment as it can affect property values [15,28].
Comfortability (f_5)	0.03176	5th	Comfortability of the building such as control and indoor quality is important for sustainable project redevelopment [27,32].

4.5. Empirical Validation

The most valuable alternative for redeveloping the abandoned airport to improve its economical operational performance was identified based on value-based decision making; a study also confirmed the applicability of value-based decision in enhancing the sustainable performance of buildings [21] [A1]. Empirical validation aims to validate the acceptance of value-based decision making in the industry. An interview session was carried out with an expert who has an industrial background and has expertise in construction project management, value management, and real estate development.

According to the expert, the result of a transportation hub as the most valuable alternative for redeveloping the abandoned airport is accepted. He agrees that among the three alternatives, the transportation hub will be the most valuable alternative because it serves the same function as the abandoned airport which provides transportation services to the local communities. Hence, the initial cost for developing the transportation hub will be lower as compared to the hospital. In addition to this, the expert suggested that the criteria of cost can be divided into two, initial cost and life cycle cost, to enhance the value-based decision-making model [18]. In short, the value-based decision-making model is accepted to be adopted in the construction industry to help the stakeholders to make a decision based on the value of the properties [48].

5. Conclusions

To implement the value-based decision for redeveloping the transportation facilities, the function needs to be compared with the cost of each alternative for the redevelopment. Based on the research, an abandoned airport was chosen to validate the process to select the best value alternative for redeveloping the transportation facilities by considering the criteria of cost and function through the Analytical Hierarchy Process (AHP) Model. The value-based decision helps in enhancing the selection of choices by the project stakeholders. It should be noted that the result depends on the criteria of function and cost found in the preliminary survey and maximises the profit gained from the development by selecting the alternatives with the lowest cost while maintaining the intended function and quality. In addition, the background of research methodology for value-based decision making is outlined, which consists of value-based analysis and multi-criteria analysis. In the value-based analysis, the function of the alternative is divided by its cost. However, in multicriteria decision making, the criteria of function and cost need to be compared to each other to obtain the value for each alternative. In short, the value-based decision-making model was successfully developed from the research. The reliability of the model was validated by an expert and is accepted to be used in the construction industry. In this research, the best-value alternative is selected by averaging the results from each potential decision-maker. However, to improve value-based decision making, mutual agreement among the decision-makers shall be achieved. Hence, future research is required on the selection of the alternatives based on the negotiation support system.

Author Contributions: Conceptualization, Y.R.; methodology, C.U.; validation, R.; formal analysis, B.W.X.X.; investigation, B.W.X.X.; writing—original draft preparation, B.W.X.X.; writing—review and editing, Y.R. and A.-H.M.H.A.-A.; supervision, Y.R. and N.A.W.A.Z.; project administration, A.-H.M.H.A.-A. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the International Research Collaboration UTP-UJB.

Acknowledgments: The authors would like to thank Universiti Teknologi PETRONAS (UTP) and Universitas Janabadra for supporting the research under international research collaboration grant 015ME0-133.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A Details of AHP Matrix

Appendix A.1 Respondent 1

Table A1. AHP matrix on criteria of function.

	f_1	f_2	f_3	f_4	f_5
f_1	1	0.142857	0.166667	0.125	4
f_2	7	1	7	0.125	7
f_3	6	0.142857	1	0.142857	7
f_4	8	8	7	1	7
f_5	0.25	0.142857	0.142857	0.142857	1

Table A2. AHP matrix on alternatives when considering building materials.

	a_1	a_2	a_3
a_1	1	0.166667	6
a_2	6	1	7
a_3	0.166667	0.142857	1

Table A3. AHP matrix on alternatives when considering the economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	0.166667	0.2
a ₂	6	1	6
a ₃	5	0.166667	1

Table A4. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	8	7
a ₂	0.125	1	0.166667
a ₃	0.142857	6	1

Table A5. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	0.142857	7
a ₂	7	1	7
a ₃	0.142857	0.142857	1

Table A6. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	0.166667	6
a ₂	6	1	5
a ₃	0.166667	0.2	1

*Appendix A.2 Respondent 2***Table A7.** AHP matrix on criteria of function.

	f ₁	f ₂	f ₃	f ₄	f ₅
f ₁	1	0.142857	0.333333	0.5	4
f ₂	7	1	8	7	7
f ₃	3	0.125	1	0.5	4
f ₄	2	0.142857	2	1	5
f ₅	0.25	0.142857	0.25	0.2	1

Table A8. AHP matrix on alternatives when considering building materials.

	a ₁	a ₂	a ₃
a ₁	1	5	6
a ₂	0.2	1	5
a ₃	0.166667	0.2	1

Table A9. AHP matrix on alternatives when considering the economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	7	7
a ₂	0.142857	1	6
a ₃	0.142857	0.166667	1

Table A10. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	6	7
a ₂	0.166667	1	7
a ₃	0.142857	0.142857	1

Table A11. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	7	7
a ₂	0.142857	1	6
a ₃	0.142857	0.166667	1

Table A12. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	5	6
a ₂	0.2	1	0.333333
a ₃	0.166667	3	1

*Appendix A.3 Respondent 3***Table A13.** AHP matrix on criteria of function.

	f ₁	f ₂	f ₃	f ₄	f ₅
f ₁	1	0.111111	0.166667	5	7
f ₂	9	1	9	9	9
f ₃	6	0.111111	1	6	6
f ₄	0.2	0.111111	0.166667	1	7
f ₅	0.142857	0.111111	0.166667	0.142857	1

Table A14. AHP matrix on alternatives when considering building materials.

	a ₁	a ₂	a ₃
a ₁	1	7	7
a ₂	0.142857	1	0.2
a ₃	0.142857	5	1

Table A15. AHP matrix on alternatives when considering the economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	6	6
a ₂	0.166667	1	0.25
a ₃	0.166667	4	1

Table A16. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	7	4
a ₂	0.142857	1	0.333333
a ₃	0.25	3	1

Table A17. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	7	3
a ₂	0.142857	1	0.2
a ₃	0.333333	5	1

Table A18. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	2	3
a ₂	0.5	1	0.333333
a ₃	0.333333	3	1

*Appendix A.4 Respondent 4***Table A19.** AHP matrix on criteria of function.

	f ₁	f ₂	f ₃	f ₄	f ₅
f ₁	1	0.142857	0.166667	7	7
f ₂	7	1	0.125	7	8
f ₃	6	8	1	8	8
f ₄	0.142857	0.142857	0.125	1	8
f ₅	0.142857	0.125	0.125	0.125	1

Table A20. AHP matrix on alternatives when considering building materials.

	a ₁	a ₂	a ₃
a ₁	1	8	0.111111
a ₂	0.125	1	0.111111
a ₃	9	9	1

Table A21. AHP matrix on alternatives when considering the economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	8	0.111111
a ₂	0.125	1	0.111111
a ₃	9	9	1

Table A22. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	9	0.111111
a ₂	0.111111	1	0.111111
a ₃	9	9	1

Table A23. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	9	0.125
a ₂	0.111111	1	0.125
a ₃	8	8	1

Table A24. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	8	0.125
a ₂	0.125	1	0.125
a ₃	8	8	1

*Appendix A.5 Respondent 5***Table A25.** AHP matrix on criteria of function.

	f ₁	f ₂	f ₃	f ₄	f ₅
f ₁	1	8	7	8	8
f ₂	0.125	1	7	0.125	7
f ₃	0.142857	0.142857	1	0.125	7
f ₄	0.125	8	8	1	8
f ₅	0.125	0.142857	0.142857	0.125	1

Table A26. AHP matrix on alternatives when considering building materials.

	a ₁	a ₂	a ₃
a ₁	1	8	7
a ₂	0.125	1	0.125
a ₃	0.142857	8	1

Table A27. AHP matrix on alternatives when considering economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	8	0.142857
a ₂	0.125	1	0.125
a ₃	7	8	1

Table A28. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	7	8
a ₂	0.142857	1	0.125
a ₃	0.125	8	1

Table A29. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	8	8
a ₂	0.125	1	0.125
a ₃	0.125	8	1

Table A30. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	8	7
a ₂	0.125	1	0.125
a ₃	0.142857	8	1

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Value-Based Decision to Redevelop Transportation Facilities

by Turnitin Sipil 5

Submission date: 18-Mar-2025 11:39AM (UTC+0700)

Submission ID: 2561885043

File name: 5.pdf (3.12M)

Word count: 11252

Character count: 64781

Article

Value-Based Decision to Redevelop Transportation Facilities: A Case Study of an Abandoned Airport

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Abstract: Value-based decision making is the consideration of function and cost in the decision to select the highest possible option. Reviews to previous studies showed that there is a lack of consideration of the criteria of value in the decision-making process. Hence, this research aims to identify the criteria for redeveloping transportation facilities based on function and cost. The ultimate goal of this research is to select the best value alternative for project redevelopment. An abandoned airport was chosen as the case study to evaluate the decision made by the government to invest in the project of transforming the abandoned airport into a hospital that aims to cater to the increasing demand for healthcare. A quantitative and qualitative approach was applied through literature review, survey, and interview to experts in the area of transportation facilities development. Statistical descriptive analysis was used to analyse the first survey, which was to investigate the critical factors under the category of function. The second survey was conducted to select the most valuable alternative for the redevelopment by utilising the Analytical Hierarchy Process (AHP), and it was found that the transportation hub is the most valuable alternative for redeveloping the abandoned airport. The result was then validated by an expert from the industry, and it can be concluded that the value-based decision-making model can be used in enhancing the decision of the redevelopment of transportation facilities by considering both function and cost.

Keywords: value; transportation facilities; redevelopment; urban land use; decision making



Citation: Xian, B.W.X.; Rahmawati, Y.; Al-Aidrous, A.-H.M.H.; Utomo, C.; Wan Abdullah Zawawi, N.A.; Rafliis. Value-Based Decision to Redevelop Transportation Facilities: A Case Study of an Abandoned Airport. *Sustainability* **2021**, *13*, 4959. <https://doi.org/10.3390/su13094959>

Academic Editor: Neil Ferguson

Received: 28 January 2021

Accepted: 20 April 2021

Published: 28 April 2021

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1. Introduction

Redevelopment is a process of land use development to revitalise the urban space through physical, economic, and social indicators [1,2]. It is necessary for redeveloping urban areas since the global population continues to grow larger with the ageing infrastructure and abandoning of urban manufacturing sites [3]. Lots of consideration need to be taken into account during the decision-making process for the redevelopment. Thus, it is essential to consider multiple criteria that affect redevelopment such as technological, economic and environmental [4]. Changes in lifestyle, policies, and environmental condition are some criteria that may change the productivity of a facility in improving the land value, which may lead to the closure of facility and its abandonment.

Transportation facilities are one of the most important infrastructures in a country. They serve as a hub that connects different locations and allow travelling between different locations to be done effectively and efficiently. Moreover, they can help to connect the cities in a country and allow development to progress at a higher rate. It is necessary to understand how transportation facilities will affect the development of a country. Therefore, it is important to determine transportation facilities' efficiency and relate their performance to a country's development in all categories [5]. Furthermore, for a transportation facility, it

is highly crucial to understand whether it has achieved its targets and potential in terms of sustainability and economic performance. By evaluating its performance, relationships can be established between transportation facilities and their potential development concerning operational cost, the number of users, and location [6,7]. This is important in determining methods with which a transportation facility can be redeveloped to increase its economic viability and achieve the ultimate goal of connecting different parts of cities within urban and rural areas [7]. Redevelopment of an abandoned transportation facility is necessary. The selection of a valuable alternative for redevelopment that is able to increase the productivity of the property to enhance the land value becomes vital.

Value can be defined as the function of a facility over its life cycle cost [8]. It is significant to stress the value of redevelopment to maximise the profits and advantages by the stakeholders through redevelopment for long-lasting serviceability. In line with value engineering, the intended functions of the facilities shall be achieved at the lowest life cycle cost [9]. Therefore, in this paper, value-based decision making will be used as an approach to decide the best value alternative for redeveloping transportation facilities by considering the criteria of value. The value of the properties can be improved by identifying and eliminating the superfluous cost through value-based decision [9]. In the research, a value-based decision-making model will be developed to select the best value alternative for redevelopment that may support the government in investing their budget for redevelopment. This research could help the developers or stakeholders to plan and make a more accurate decision on redeveloping the existing transportation facilities based on the value.

Kapit Airport (KPI) was chosen as the case study in this research. The Kapit is the largest division in Sarawak, Malaysia with a total area of 38,934 km² [10]. It consists of three administrative districts which are Kapit, Song, and Belaga. The current total population of Kapit is about 120,000 people. Rajang River is the main transport link connecting the division to other towns. Figure 1 presents the location of Kapit Airport in Malaysia. In addition to this, the economy in Kapit is based mainly on agriculture, the timber industry, coal mining, and oil palm plantation [10,11]. According to Chia [12], Kapit Airport was built in the 1970s with a total length of 427 m of runways. It was operated by Malaysian Airlines using Twin Otter aircraft which connected the local communities to Sibu, Kuching, and Belaga [12,13]. Additionally, the land is owned by the Federal Lands Commissioner. The abandoned airport is situated at a strategic location which is 1.5 km from the main town and it is next to the residential area. However, because of the financial crisis in 1997 and low demand, Malaysia Airlines decided to stop its operation in March 1998 [12]. The airport now has been abandoned for more than 20 years. Recently, with the COVID-19 outbreak, Deputy Health Minister II has proposed to utilise the abandoned airport to construct a new public hospital to fulfil the rising demand for healthcare in Kapit [14].

Any infrastructure facility that does not have good economic performance will not be able to sustain its operation and hence it would affect people that depend on it. Various types of redevelopment evaluation should be done to improve a transportation facility's performance if necessary [15,16]. This can ensure its longevity and stability of operation. An accurate redevelopment evaluation can make sure that transportation facilities' economic and function parameters are being fulfilled [5,17]. Currently, there is a lack of an evaluation model that can assess sustainability from the economic and functional performance perspective of an infrastructure [18]. Hence, there is a need to develop an evaluation model that can support the redevelopment decision and assess both economical and functional attributes of an infrastructure facility. A thorough and accurate evaluation will allow the policymakers to make effective decisions on the future development of their country [19].

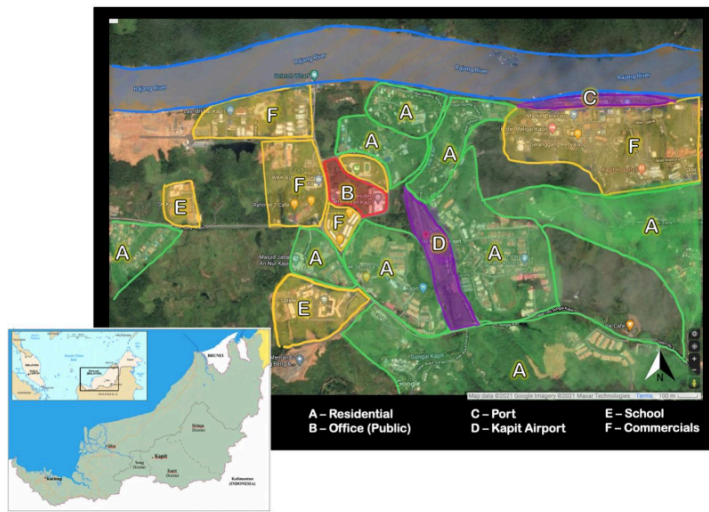


Figure 1. Location of Kapit Airport and the surroundings.

It can be concluded that this paper is needed to enhance the decision for redeveloping the transportation facility. The evaluation process should not be based on criteria of function only, but it needs to include the criteria of cost since the lack of considerations for the “value” of investment for redeveloping property has become the obstacle for sustainable development [18]. Hence, because of the necessity of decision making for redeveloping the valuable transportation facilities, the cost of each alternative needs to be taken into consideration too.

2. Literature Review

A value-based decision is a unique approach in selecting the best alternative that considers the criteria of both function and cost. Reviews to previous studies related to the implementation of value-based decision as well as project redevelopment have been conducted to build the conceptual model. Reviews on both criteria of function and cost also being further explored to strengthen the conceptual model of this research.

2.1. Value-Based Decision Making for Redevelopment

A value-based decision is a structural and analytical process which aims to select an alternative with the lowest cost while having all the required function at the same time maintain its quality and performance [9]. In value-based decision making, desirable benefit and considerable cost are taken into consideration to evaluate the value of the alternatives [18]. According to Pica [20], the value of an investment is defined as the ideal combination of life cycle cost and the function of the goods or services to meet the user’s requirements. A value of an alternative can be obtained by comparing function and cost [21]. An alternative can be determined as a valuable alternative if the function is equal with cost, meaning the value of the alternative is one. A high-value alternative will have value more than once, which means that it gives more functions/benefits than the

cost. In contrast, a low-value alternative has a value of less than one, which means that the functions/benefits received are deficient compared to the expenses. To evaluate the alternatives of the redevelopment, numerical data on both function and cost are necessary. AHP is a suitable approach to select the best alternatives for development by considering the criteria of function and cost [18]. Life cycle cost (LCC) is used as the approach for getting the weight on the cost of each alternative. LCC is the useful economics construct that underlies the entire lifespan of the asset from conception to demolition which includes construction, maintenance, operation, occupation, and end-of-life cost [20,22,23]. The formula for calculating LCC is as follows:

$$LCC = C_{ic} + C_{inst} + C_e + C_o + C_m + C_s + C_d \quad (1)$$

where:

- C_{ic} —Initial cost
- C_{inst} —Delivery and installation cost
- C_e —Energy cost
- C_o —Operational cost
- C_m —Maintenance cost
- C_s —Downtime cost
- C_d —Decommissioning cost

2.2. Reviews to Previous Case Studies of Decision Making in the Redevelopment Project

In this era of urbanisation, redevelopment is vital as the decrease in available space to accommodate the urban sprawl and new construction. Urban redevelopment is a process of revitalising an existing developed area [16]. Moreover, redevelopment aids in optimising urban land use [24]. It is necessary to evaluate and identify the impacts of redevelopment based on multiple criteria such as technical, economic, social, and environmental indicators [3,4,25–27]. However, effective decision support is required to minimise the uncertainties and risks when solving the challenges in construction project information flows [4]. In addition to this, there is a lack of focus on technical and design aspects, as well as the effects brought about by redevelopment towards cultural, social, economic, and environmental sustainability during the redevelopment process [27]. Therefore, several recent studies [3,4,15,16,25,28,29] have recommended that a new model shall be developed or revise the existing techniques to make a more reliable decision for redevelopment. It has been found that several case studies are being conducted by researchers around the globe. Each of the case studies is discussed in the following subsections. The case studies were also reviewed to investigate the suitable and potential criteria for developing the conceptual model of this research. The criteria are further discussed in Section 2.3.

2.2.1. Old Equipment Repair Factory in Vilnius

The redevelopment of an old equipment repair factory in Vilnius was evaluated based on three alternatives which were the renovation of the existing building to adapt to current needs while maintaining or slightly altering the original object and its previous defined function (a_1), renovating the building into loft-type housing while maintaining its architectural-urban expression (a_2), and demolition of the current building and implementing a new construction project (a_3) [4]. The selection of the alternatives was based on a list of parameters that can be grouped under economic, environmental, and technological aspects. The criteria were analysed by using the initial decision-making matrix while the Weighted Aggregated Sum Product Assessment method with grey numbers (WASPAS-G) was applied to prioritise the results. To reach a reliable decision, the redevelopment project was then validated by using Multiple Criteria Decision Making (MCDM) and Building Information Modelling (BIM) techniques. The results showed that a_2 is the best alternative, followed by a_3 and a_1 .

2.2.2. Pier Arts Centre in Scotland

Pier Arts Centre (PAC) was being assessed after its renovation based on technical, social, and economic sustainability pillars [27]. Social and economic impacts of PAC were assessed through statistical analysis as well as a quantitative and qualitative method based on a list of indicators whereas the environmental impacts were evaluated using energy benchmarking and modelling. The renovation of PAC had indicated that redevelopment brings positive impacts to local social, cultural, and economic development [27].

2.2.3. Villages in the City (ViCs) in Shen Zhen

China underwent rapid urbanisation due to its massive economic reformation which led to the need for urban land redevelopment in the so-called “villages in the city” (ViCs) [15]. The poor infrastructure and disorganized built environment of ViCs affected sustainable development. Residents of ViCs near the redevelopment projects were interviewed to evaluate the effect of indirect displacement related to the rising housing prices and rents after redevelopment [29]. It was found that the location of the land and its existing rent were the main influencers for redeveloping industrial sites [15].

2.2.4. Abandoned Railway Lines in Italy

There are more than 7500 km of disused railways in Italy and the railway line which is about 16.5 km between the city of Pinerolo and the Pellice Valley was selected for redevelopment purposes [30]. The best alternatives for the revitalisation of the abandoned railways based on the environmental and socio-economic impacts and the performances of each alternative were evaluated by using a value tree. The listed alternatives were greenway, rail-banking, an extension of the urban railway service, old station recovery, and no action [30]. The results showed that the best solution was to requalify the disused railways as a greenway which converts the abandoned railways into a green corridor [30].

2.3. Criteria for Redevelopment Decision Making

Based on the previous studies, there are four main criteria with a list of sub-criteria. The impacts of redevelopment and the factors affecting redevelopment are evaluated based on these criteria. Therefore, they can be used as a reference in this study in developing the value-based decision-making model, as summarised in Table 1.

3. Methodology

The research flow is shown in Figure 2. This research starts with identifying and analysing the criteria for the redevelopment of transportation facilities. Reviews of previous studies have been conducted to identify the possible criteria for the redevelopment. A pilot study through an interview with experts was also conducted in the preliminary stage to evaluate the feasibility of research and the criteria for the redevelopment. Then, a questionnaire was prepared based on the identified criteria from the grounded theory. The first survey aims to identify and prioritise the most important and relevant criteria of function for the redevelopment of transportation facilities. A primary survey was administered to the stakeholders of transportation facilities in Malaysia. The data collected were analysed through a scatter plot analysis of mean and standard deviation to prioritise and select criteria for redeveloping the abandoned airport. In addition to this, potential decision-makers for the second survey were also identified from this primary survey. From this first survey, the top 5 criteria of function were selected to be the main criteria in the decision-making model which are further proceeded with AHP in the second survey.

Table 1. Main criteria for redevelopment decision making.

Criteria	Justification	Sub-Criteria	Source
Economic	Redevelopment is vital to enhance the capability of building to improve the land value, thus, economic criteria are considered. The previous study showed different main considerations of the criteria under the economic rubric.	Investments	[4]
		Net present value	[4]
		Payback period	[4]
		Profitability	[4,25,26]
		Rental prices/property values	[15,28]
		Depreciation and interest rate	[24]
		Market volatility	[24]
Environmental	The environmentally friendly building is vital for the sustainable living of occupants and reduces the negative impacts on the environment. It was found that some criteria need to be considered.	Tax incentive	[25]
		Gross operating surplus	[28]
		Energy efficiency by class	[31,32]
		Carbon dioxide emissions	[4,27,33]
		Waste prevention	[4]
		Green development	[25,30,34]
		Type of contamination	[25]
Technological	Previous studies found that some technological criteria also need to be considered in supporting the redevelopment project to be effective and efficient in reaching the goals.	Total energy use	[28]
		Stormwater pollutant loading	[28]
		Total water demand	[28]
		Project preparation and coordination	[4]
		Construction work duration	[4,30]
		Level of service/safety/comfort	[16]
		Building lifetime/age	[4,15,24,26]
Social	During the literature review, it was also found that social factors are necessary, whereby some of the criteria support the improvement of economic development.	Building adaptation to current needs	[28]
		Location	[7,26,35]
		Floor-to-area ratio/floor level	[15,26,29]
		Land use	[28]
		Connectivity	[16,28,29]
		Building materials	[15,29]
		Households in poverty	[28]
Social		Population in zero car households	[28]
		Tourism rate	[30]
		Physical activity	[25]

In the second step, a qualitative approach was adopted. A pairwise comparison between each criterion and alternatives was conducted through the second survey. Five potential decision-makers with the background of developer, contractor, and politician have been selected to answer the questionnaires. On the other hand, the initial cost as well as operational and maintenance cost for each of the alternatives were obtained through online resources and validated by the expert. The local priorities for the alternatives based on function and cost were derived from the data collected through the Analytical Hierarchy Process (AHP). AHP was chosen as the method in selecting the best alternative for the redevelopment since there are multiple decision criteria considered in the selection. This method is applicable for a single decision-maker, however, this study involved 5 respondents as decision-makers, and the result from each decision-maker is compared for further analysis. The best valuable alternative for redeveloping the abandoned airport was synthesised through the AHP model and finally validated by an expert. The AHP method is considered a systematic method that presents several issues in the form of a hierarchy [36]. The AHP method has been used in this research due to the need to involve experts in the investigated issue, and not only basing outcomes on specific research data and analysis [37].

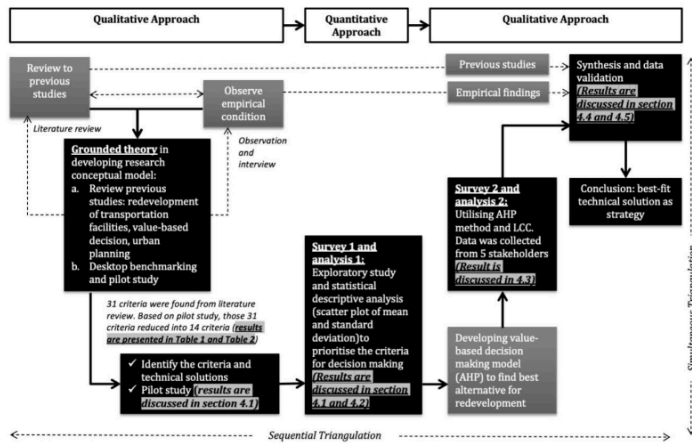


Figure 2. Research flow chart.

4. Results

4.1. Pilot Study

A pilot study was conducted with two experts who specialised in project development and transportation engineering. Both experts hold around 20 years of experience. The main purpose of conducting the pilot study is to evaluate the feasibility of the research also to verify the identified criteria from previous studies. Based on the pilot study, 9 criteria were nominated as the function for redeveloping the abandoned airport. The criteria were selected based on the agreement from both candidates whereas if there is any disagreement from any side, the criteria will not be considered. Therefore, only green development, building safety, comfortability, building age, type of land use, accessibility to public transport, building materials, the economic condition of local communities, and the capability to attract tourists were selected as the criteria for redeveloping the abandoned airport in the primary survey. Besides that, both experts have suggested a transportation hub as the alternative for redeveloping the abandoned airport. In addition to this, the experts also proposed to rebuild the airport, shopping mall, hotel, or food court. The results from the pilot study are summarised in Table 2.

Table 2. Results from the pilot study.

No.	Criteria Required for Redeveloping The Abandoned Airport	Expert (A)	Expert (B)
1.	Green development	Strongly agree	Agree
2.	Design complexities	Disagree	Agree
3.	The time required for the construction work	Neutral	Neutral
4.	Building safety	Agree	Neutral
5.	Comfortability	Neutral	Agree
6.	Building age	Agree	Agree
7.	Location	Disagree	Disagree
8.	Floor-to-area ratio and floor level	Disagree	Disagree
9.	Type of land use	Strongly agree	Strongly agree
10.	Accessibility to public transport	Agree	Agree
11.	Building materials	Neutral	Strongly agree
12.	The economic condition of the local communities	Agree	Agree
13.	The capability of the property to attract tourists	Neutral	Agree
14.	Ability to facilitate outdoor activities by the local communities	Disagree	Agree
The suggestion of alternatives for redeveloping the abandoned airport.		• Hotel	• Rebuild the airport
		• Transportation hub	• Shopping mall
		• Food court	• Transportation hub

4.2. Survey 1: Prioritising the Decision Criteria

Survey 1 aims to collect data from the stakeholders and potential users to prioritise the criteria and potential alternatives for redeveloping the abandoned airport. A Likert scale was used to capture the perspective of respondents on their agreement to the criteria of function to be considered in redeveloping the abandoned airport. This is necessary for achieving research objectives. A total of 86 responses were obtained from the primary survey. Referring to Figure 3a, 73% of the respondents have an educational level of bachelor's degree and 12% of the respondents are at SPM level. Besides that, the percentage of the respondents having a master's degree and diploma are equal at 5%. Only 2% of the respondents completed their studies up to doctorate level, whereas 3% of the respondents selected others. Additionally, in Figure 3b, 36% of the respondents have a background of studies in education followed by 22% with a background in engineering studies. Next were the fields of study of business and finance, accounting, and quantity surveying at 7%, 6%, and 3% respectively. Twenty-six percent of the respondents have academic qualifications in other fields such as construction and property management, operation management, economics, and medicine.

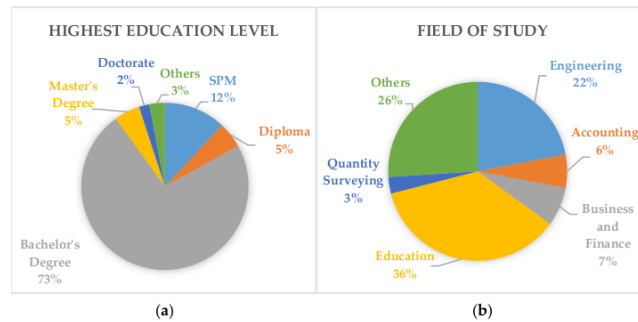


Figure 3. Respondents' background I: (a) Education level; (b) Field of study.

From the survey, the mean and standard deviation of each criterion are calculated; afterwards, they are plotted in the scatter plot of mean and standard deviation. The scatter plot of mean and standard deviation analysis was used to rank the criteria of function. The scatter plot analysis is presented in Figure 3, the axis (x) is the mean value, and the ordinate (y) is the standard deviation value. The top five rankings of the criteria were chosen as the main criteria of function for redeveloping the abandoned airport. Referring to Figure 4, the analysis showed that all criteria fall under Region 3 which indicates that all criteria have a high mean and high standard deviation. Therefore, the criteria in this region with lower standard deviation were prioritised first. Based on Table 3, building materials have the highest mean of 4.3953 and the lowest standard deviation of 0.8849, hence, it is the most important criteria for project redevelopment decision making. Besides, accessibility to public transport is ranked after building materials with a mean of 4.3837 and a standard deviation of 0.8966. Building safety and economic condition of local communities share the same mean of 4.2907. However, the standard deviation of economic condition of local communities is lower than the building's safety, as illustrated in Figure 4. This indicates that the economic condition of local communities is more important than the building's safety for project redevelopment decision making. Hence, the economic condition of local communities is selected as the third main criterion for redeveloping the abandoned airport. In addition to this, comfortability is chosen as the fourth main criterion because of its lower standard deviation as compared to other criteria. Lastly, the type of land use is selected as one of the main criteria with a mean of 4.1395 and a standard deviation of 0.9476 which is slightly higher than the standard deviation of comfortability of 0.9258. Based on the result, the five criteria of function that are included in the AHP decision-making model are building materials, the economic condition of local communities, accessibility to public transport, type of land use, and comfortability.

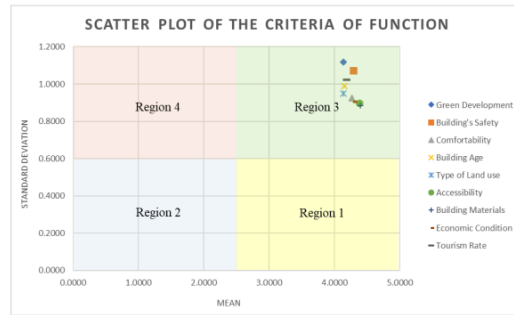


Figure 4. Scatter plot of the criteria of function.

Table 3. Ranking of the criteria.

Criteria	Mean	Standard Deviation	Ranking
Green development	4.1395	1.1184	9
Building safety	4.2907	1.0723	8
Comfortability	4.2674	0.9258	4
Building age	4.1512	0.9884	6
Type of land use	4.1395	0.9476	5
Accessibility to public transport	4.3837	0.8966	2
Building materials	4.3953	0.8849	1
The economic condition of local communities	4.2907	0.9057	3
Ability to improve tourism rate	4.1860	1.0234	7

Five potential alternatives which are to rebuild the airport, transportation hub, food court, shopping mall, and hotel were listed in the survey form. The respondents were asked to arrange the listed alternatives from the most to the least suitable potential alternatives. They were also allowed to suggest potential alternatives for redeveloping the abandoned airport. Figure 5 shows the ranking of potential alternatives from the stakeholders. It shows that 49.4% of the respondents have chosen to rebuild the airport as their first choice followed by turning it into a transportation hub at 27.7%. On the other hand, none of the respondent selected a hotel as their first choice of alternative. In short, the most potential alternative can be arranged in the order to rebuild the airport followed by a transportation hub, food court, shopping mall and hotel. Respondents also suggested redeveloping the abandoned airport into mixed development which consists of residential and commercial components, car parts, eco-friendly park, entertainment hub and theme park. However, the alternative of rebuilding the airport was rejected because the government has decided to build a new airport in another part of Kapit—Tunoh. In addition to this, on 4 July 2020, Deputy Health Minister Datuk Aaron Ago Dagang suggested building a new hospital in Kapit [14]. According to Borneo Post [14], the new hospital was proposed to be constructed at the abandoned airport site for a long-term plan to cater to the increasing demand for healthcare by the local communities. Therefore, the alternative of rebuilding the abandoned airport was replaced with plans for a hospital. Moreover, the food court can be classified under both transportation hub and shopping mall, too. Based on the majority rating preference of the stakeholders and decision from the government, three potential alternatives for redeveloping the abandoned airport are a hospital, transportation hub, and shopping mall.

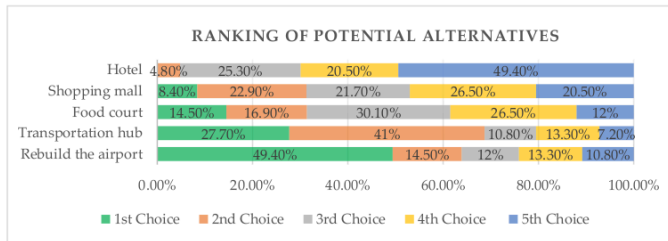


Figure 5. Ranking of potential alternatives.

4

4.3. Evaluation of Best Alternative Using AHP

The second survey was conducted to collect data from five decision-makers. It aims to prioritise and select the best value alternative for redeveloping the abandoned airport. Five main criteria of function and three potential alternatives were selected from a primary survey for pairwise comparison through a questionnaire. In the first section of the second survey form, the criteria of function were compared to each other with a scale of 1–9. In the second section, each alternative was compared to each other based on the five different main criteria. The five main criteria are building materials (f_1), the economic condition of local communities (f_2), accessibility to public transport (f_3), types of land use (f_4), and comfortability (f_5). Besides that, the initial cost (c_1) and operational and maintenance cost (c_2) for each alternative were identified as the criteria of cost. Three alternatives were proposed which are transportation hub (a_1), shopping mall (a_2), and hospital (a_3). The decision hierarchy model is presented in Figure 6.

A value-based decision is a decision-making process that considers the criteria of both function and cost. In the AHP model, the weight of each criterion of function was calculated from the responses given by respondents as mentioned above. For getting the weight of the criteria of cost, the authors used LCC to calculate the cost as data for comparison and calculating the weight. Finally, it was used to evaluate the value of each alternative as further discussed in Section 4.3.8. Data for cost were obtained from [14,38]. In addition to this, the demographic profiles of five potential decision-makers are discussed and demonstrated in Table 4. The responses of each decision-maker are discussed in Sections 4.3.1–4.3.5. Furthermore, in Section 4.3.6, the synthesis of the responses from all the decision-makers based on criteria of function for each alternative is discussed. On the other hand, the analysis of criteria of cost for each alternative is shown in Section 4.3.7. Lastly, the integrated perspective on the AHP model based on criteria of function and cost is synthesised and discussed in Section 4.3.8.

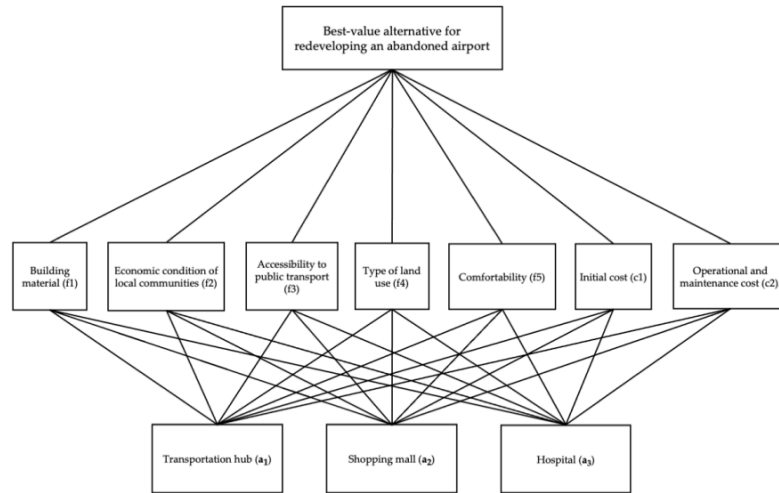


Figure 6. Decision hierarchy model for project redevelopment.

Table 4. The profile of the respondents.

Respondents	Years of Work Experience	Occupation	Job Title
1	16–20 years	Developer	Director
2	16–20 years	Politician	Member of Parliament
3	Less than 5 years	Contractor	Project Coordinator
4	More than 20 years	Contractor	Director
5	More than 20 years	Developer	Director

All the respondents had been to Kapit and were familiar with the demographic of Kapit and its development. Four out of five respondents had work experience of more than 15 years. The occupations of the respondents include developer, contractor, and politician. In addition to this, three of the respondents are directors of organizations while the other two respondents are a member of parliament and a project coordinator. They were chosen as potential decision-makers as they are highly experienced in property development and construction. The backgrounds of each decision-maker are presented in Table 4. The details of calculation and analysis on the AHP decision making for each respondent are presented in Appendix A.

4.3.1. Best Alternative Selected by Respondent 1

Based on the opinion of respondent 1, type of land use (f_4) is the most important criterion for redeveloping the abandoned airport with a weightage of 0.51713 followed by the economic condition of local communities (f_2), with a weightage of 0.24571, as shown in Table 5. The third most important criterion is accessibility to public transport (f_3), followed by building materials (f_1) and comfortability (f_5). In addition, the alternatives were compared with each other based on different main criteria. The summary of the data from respondent 1 is shown in Table 5. From the results, respondent 1 feels that a

shopping mall (a_2) is the potential alternative for redeveloping the abandoned airport by considering the criteria of function only with a total weightage of 0.60717. The choices are then followed by transportation hub (a_1) and hospital (a_3) with a weightage of 0.26628 and 0.12655, respectively. Ability to improve the land value is becoming important in redeveloping buildings [39]. Looking at the location of the abandoned airport, which is surrounded by residential buildings, the selected alternative becomes possible since there will be demand for it. The alternative suits the criteria for improving the land value.

Table 5. The priority of criteria and alternatives from respondent 1.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	4th	0.06124	0.23179	0.01420	0.70028	0.04289	0.06793	0.00416
f_2	2nd	0.24571	0.07870	0.01934	0.69444	0.17063	0.22685	0.05574
f_3	3rd	0.14248	0.72640	0.10350	0.06189	0.00882	0.21171	0.03016
f_4	1st	0.51713	0.23353	0.12076	0.70136	0.36270	0.06511	0.03367
f_5	5th	0.03344	0.25383	0.00849	0.66186	0.02213	0.08431	0.00282
Sum				0.26628		0.60717		0.12655
Ranking of Alternatives				2nd		1st		3rd

4.3.2. Best Alternative Selected by Respondent 2

Referring to Table 6, respondent 2 thinks that the economic condition of local communities (f_2) is the most important criterion for redeveloping the abandoned airport with a weightage of 0.59137. The second most important criterion is type of land use (f_4), followed by accessibility to public transport (f_3), building materials (f_1), and comfortability (f_5). The weights for the criteria are 0.15247, 0.12761, 0.08821, and 0.04035, respectively. Additionally, the alternatives were compared with each other based on different main criteria. Table 6 shows the synthesis of the data from respondent 2. From the synthesized results, transportation hub (a_1) is the most potent alternative as chosen by respondent 2, followed by shopping mall (a_2) and hospital (a_3) with a weightage of 0.70565, 0.22076, and 0.07359 accordingly. The respondent agrees with keeping the building use as a transportation facility, but changes its function into a transportation hub; this is because the respondent is greatly concerned about the economic condition of the local communities. Participation of the local communities becomes crucial in keeping the sustainability of the building, particularly in economic and social aspects. This finding relates to the results found by Chang and Kuo [40], Yeh et al. [41], and Khalil et al. [42].

Table 6. The priority of criteria and alternatives from respondent 2.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	4th	0.08821	0.67939	0.05993	0.24143	0.02130	0.07918	0.00698
f_2	1st	0.59137	0.71164	0.42084	0.22071	0.13052	0.06765	0.04001
f_3	3rd	0.12761	0.69010	0.08806	0.24465	0.03122	0.06525	0.00833
f_4	2nd	0.15247	0.71164	0.10850	0.22071	0.03365	0.06765	0.01031
f_5	5th	0.04035	0.70181	0.02832	0.10097	0.00407	0.19722	0.00796
Sum				0.70565		0.22076		0.07359
Ranking of Alternatives				1st		2nd		3rd

4.3.3. Best Alternative Selected by Respondent 3

Referring to Table 7, the economic condition of local communities (f_2) has the highest weightage of 0.56517. Hence, respondent 3 has rated it as the most important criterion for redeveloping the abandoned airport. Besides that, accessibility to public transport (f_3) is the second most important criterion with a weightage of 0.20462, followed by building materials (f_1), with a weightage of 0.12476. According to respondent 3, type of land use (f_4) is the fourth most important criteria for project redevelopment. However, he had the same opinion as other respondents, whereby comfortability (f_5) is the least important criteria in

decision making for the abandoned airport. The results from respondent 3 are synthesised in Table 7. Based on the results, respondent 3 thinks that transportation hub (a_1) is the most probable alternative with a weightage of 0.69818. On the other hand, the second potential alternative is a hospital (a_3) and the third potential alternative is a shopping mall (a_2). This preference of respondent 3 is similar to that of respondent 2, whereby both have a similar perspective in placing the economic condition of local communities as the most important criterion in keeping the sustainability of both economic and social aspects [40–42], thus the selected alternative is a transportation hub.

Table 7. The priority of criteria and alternatives from respondent 3.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	3rd	0.12476	0.72330	0.09024	0.07081	0.00883	0.20589	0.02569
f_2	1st	0.56517	0.70768	0.39996	0.08346	0.04717	0.20886	0.11804
f_3	2nd	0.20462	0.70144	0.14353	0.08532	0.01746	0.21324	0.04363
f_4	4th	0.07713	0.64339	0.04963	0.07377	0.00569	0.28284	0.02182
f_5	5th	0.02833	0.52370	0.01483	0.17211	0.00487	0.30420	0.00862
Sum			0.69818		0.08403		0.21779	
Ranking of alternatives			1st		3rd		2nd	

4.3.4. Best Alternative Selected by Respondent 4

Respondent 4 thinks that access to public transport (f_3) is the most important criterion when deciding on the redevelopment of the abandoned airport. According to Table 8, the weightage of accessibility to public transport (f_3) is 0.50294, as rated by respondent 4. The economic condition of local communities (f_2) has the second-highest weightage of 0.24601, followed by building materials (f_1), with a weightage of 0.14295. These criteria are followed by the weights of type of land use (f_4) and comfortability (f_5), 0.07990 and 0.02820, respectively, which are ranked at number 4 and 5. Based on Table 8, hospital (a_3) is the most probable alternative as decided by respondent 4 with a weightage of 0.72867. The alternatives are then arranged in the order of transportation hub (a_1), with a weightage of 0.21875 and shopping mall (a_2), with a weightage of 0.05259. Although respondent 4 expressed concern about accessibility to public transport, the best alternative for the redevelopment according to them is the hospital. The result appears to be based on the accumulative analysis of the other criteria. The hospital can enhance the land value of the building by looking at the provided demand. It was found that communities contribute to the sustainability of the hospital [43].

Table 8. The priority of criteria and alternatives from respondent 4.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	3rd	0.14295	0.21137	0.03022	0.05294	0.00757	0.73569	0.10517
f_2	2nd	0.24601	0.21137	0.05200	0.05294	0.01302	0.73569	0.18099
f_3	1st	0.50294	0.22116	0.11123	0.05151	0.02591	0.72733	0.36580
f_4	4th	0.07990	0.23659	0.01890	0.05592	0.00447	0.70750	0.05653
f_5	5th	0.02820	0.22673	0.00639	0.05751	0.00162	0.71577	0.02019
Sum			0.21875		0.05259		0.72867	
Ranking of Alternatives			2nd		3rd		1st	

4.3.5. Best Alternative Selected by Respondent 5

Based on Table 9, building materials (f_1) with a weightage of 0.50710 is the most important criterion for redeveloping an abandoned airport, as rated by respondent 5. Type of land use (f_4) has a weightage of 0.25111, ranked at number 2, followed by the economic condition of local communities (f_2), with a weightage of 0.13636. In addition to this, the weightage of accessibility to public transport (f_3) is 0.07695, whereas that of comfortability

(f_5) is 0.02848. According to respondent 5, transportation hub (a_1) has the highest weightage from the synthesised results, as tabulated in Table 9. It is the most probable alternative for project redevelopment with a weightage of 0.64441. Apart from that, the weightage of the hospital (a_3) is 0.29760 with a ranking of 2. Lastly, shopping mall (a_2) is the least suitable potential alternative from the view of respondent 5.

Table 9. The priority of criteria and alternatives from respondent 5.

Criteria	Ranking	Weightage	Transportation Hub (a_1)		Shopping Mall (a_2)		Hospital (a_3)	
f_1	1st	0.50710	0.70695	0.35850	0.05760	0.02921	0.23545	0.11940
f_2	3rd	0.13636	0.23545	0.03211	0.05760	0.00785	0.70695	0.09640
f_3	4th	0.07695	0.70098	0.05394	0.06296	0.00484	0.23606	0.01816
f_4	2nd	0.25111	0.71577	0.17974	0.05751	0.01444	0.22673	0.05693
f_5	5th	0.02848	0.70695	0.02013	0.05760	0.00164	0.23545	0.00670
Sum			0.64441		0.05799		0.29760	
Ranking of Alternatives			1st		3rd		2nd	

4.3.6. Best Alternative Selected by All Respondents

Table 10 shows the synthesised result of AHP on the alternatives when considering the five criteria of function for redeveloping the abandoned airport. The ranking of the alternatives is concluded by considering the opinions of the five potential decision-makers. The results show that the ranking order of the alternatives from the ones with the most potential to those with the least is the transportation hub (a_1), hospital (a_3), and shopping mall (a_2). The result presented in Table 10 is the rank of alternative without considering cost, i.e., a decision based on function only. The result of the value-based decision, which considers both function and cost, is presented in Table 11 and further explained in Section 4.3.7.

Table 10. The priority of criteria and alternatives from all respondents.

	f_1	f_2	f_3	f_4	f_5	Sum	Ranking
Transportation hub (a_1)	0.11061	0.18485	0.10005	0.09551	0.01563	0.50665	1st
Shopping mall (a_2)	0.02196	0.07384	0.01765	0.08419	0.00687	0.20451	3rd
Hospital (a_3)	0.05228	0.09823	0.09322	0.03585	0.00926	0.28884	2nd

Table 11. The priority of alternatives based on cost criteria.

	c_1	c_2	Sum	Loss	Ranking
Transportation hub (a_1)	0.428571	0.444444	0.873016	0.253968	1st
Shopping mall (a_2)	0.428571	0.444444	0.873016	0.253968	1st
Hospital (a_3)	0.142857	0.111111	0.253968	0.873016	3rd

4.3.7. Criteria of Cost

Initial cost (c_1) and operational and maintenance cost (c_2) have been identified and considered in value-based decision making for the redevelopment of an abandoned airport. In this research, the transportation hub was assumed to be similar to the shopping mall structural design and have similar operational and maintenance cost. Hence, the initial costs of a transportation hub and shopping mall range from USD542.42 to USD723.22 per m^2 , whereas the hospital involves costs of USD843.76 to USD1165.19 per m^2 [44]. Additionally, according to Lin [2], the monthly operational and maintenance cost for the transportation hub and shopping mall is USD8.288 per m^2 . On the other hand, the total expenditure on public hospitals in Malaysia in 2017 was USD3,830,812,978.30 [38,45,46]. According to the Ministry of Health of Malaysia [47], the total number of official beds in Malaysia was 42,302, with an average size of 204 m^2 per bed. Hence, the operational and maintenance cost of a

hospital is estimated at USD32.615 per m² per month. For the AHP matrix and weightage calculations, the alternative with the lower cost was preferred. Based on Table 11, hospital (a₃) has the greatest loss of 1,573,016. Hence, transportation hub (a₁) and shopping mall (a₂) will be of greater potential by considering the criteria of cost only.

4.3.8. Integrated Perspective on AHP Model

The most valuable alternative for redeveloping the abandoned airport is selected by considering the criteria of function and cost. Besides that, value is defined as the function of the building over its life cycle cost [8]. The alternative will only be accepted when the value is more than 1 while the alternative with a value of less than 1 will be rejected. Referring to Table 12, the transportation hub (a₁) is selected as the most valuable alternative with the highest value of 2.754932 as compared to others. On the other hand, based on the result shown in Table 10, the hospital (a₃) is ranked above the shopping mall (a₂) when considering the criteria of function only. However, when the cost is taken into consideration, a shopping mall (a₂) will be more valuable than a hospital (a₃) as the alternative for redeveloping the abandoned airport. Table 12 shows that the value of the hospital (a₃) is 0.456892 while the value of the shopping mall is 1.112002, which is more than 2 times higher than that of the hospital. This is because the cost of owning a hospital is extremely high compared to that of a shopping mall. Hence, the proposal of the government to build the hospital on the abandoned site is rejected as the value of the hospital is lower than 1. Figure 7 illustrates the value of the alternatives based on the scatter plot. It shows that the alternatives located above the baseline are valuable for project redevelopment. Keeping the sustainability of a building is a challenge, and it needs the support of its surroundings, particularly the local communities as the users of the building [40–42]. Thus, it is necessary to investigate the demand on the building use to be able to predict the revenue or benefits that can be obtained to be able to develop a valuable building. With this finding, it can be concluded that value-based decision making becomes necessary to apply in selecting the most suitable alternative, particularly in the development of a project [18,48].

Table 12. The priority of alternatives based on cost and function criteria.

	Cost	Function	Value	Ranking
Transportation hub (a ₁)	0.183908	0.50665	2.754932	1st
Shopping mall (a ₂)	0.183908	0.20451	1.112002	2nd
Hospital (a ₃)	0.632184	0.28884	0.456892	3rd

4.4. Validation of Criteria through Previous Studies

Building materials (f₁), the economic condition of local communities (f₂), accessibility to public transport (f₃), type of land use (f₄), and comfortability (f₅) were chosen as the criteria for redeveloping the abandoned airport and validated through previous studies, as shown in Table 13. The importance of the criteria of function was arranged in the order of f₂ > f₄ > f₃ > f₁ > f₅. The ranking of function criteria, based on average weightage calculated from the weightage in Tables 5–9 for each respondent, is presented in Table 13. Furthermore, the cost of the facilities must be considered in the preliminary stage as the redevelopment of a project is highly influenced by the cost of the facilities [24,30].

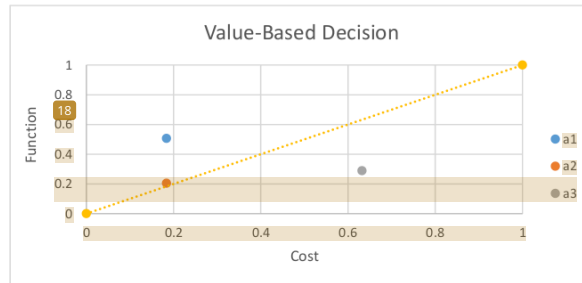


Figure 7. Scatter plot for value-based decision making.

Table 13. Validation of criteria through previous studies.

Function	Average Weightage	Ranking	Sources
Building materials (f_1)	0.18485	4th	Building materials are important in deciding alternatives for project redevelopment to ensure green development [15].
The economic condition of local communities (f_2)	0.35692	1st	The socio-economic factor is significantly correlated with project redevelopment as the economic condition can increase redevelopment brings [25,28].
Accessibility to public transport (f_3)	0.21092	3rd	Accessibility of the project site is the key determinant for project redevelopment [15].
Type of land use (f_4)	0.21555	2nd	Type of land use is one of the most important factors affecting project redevelopment as it can affect property values [15,28].
Comfortability (f_5)	0.03176	5th	Comfortability of the building such as control and indoor quality is important for sustainable project redevelopment [27,32].

4.5. Empirical Validation

The most valuable alternative for redeveloping the abandoned airport to improve its economical operational performance was identified based on value-based decision making; a study also confirmed the applicability of value-based decision in enhancing the sustainable performance of buildings [21] [A1]. Empirical validation aims to validate the acceptance of value-based decision making in the industry. An interview session was carried out with an expert who has an industrial background and has expertise in construction project management, value management, and real estate development.

According to the expert, the result of a transportation hub as the most valuable alternative for redeveloping the abandoned airport is accepted. He agrees that among the three alternatives, the transportation hub will be the most valuable alternative because it serves the same function as the abandoned airport which provides transportation services to the local communities. Hence, the initial cost for developing the transportation hub will be lower as compared to the hospital. In addition to this, the expert suggested that the criteria of cost can be divided into two, initial cost and life cycle cost, to enhance the value-based decision-making model [18]. In short, the value-based decision-making model is accepted to be adopted in the construction industry to help the stakeholders to make a decision based on the value of the properties [48].

5. Conclusions

To implement the value-based decision for redeveloping the transportation facilities, the function needs to be compared with the cost of each alternative for the redevelopment. Based on the research, an abandoned airport was chosen to validate the process to select the best value alternative for redeveloping the transportation facilities by considering the criteria of cost and function through the Analytical Hierarchy Process (AHP) Model. The value-based decision helps in enhancing the selection of choices by the project stakeholders. It should be noted that the result depends on the criteria of function and cost found in the preliminary survey and maximises the profit gained from the development by selecting the alternatives with the lowest cost while maintaining the intended function and quality. In addition, the background of research methodology for value-based decision making is outlined, which consists of value-based analysis and multi-criteria analysis. In the value-based analysis, the function of the alternative is divided by its cost. However, in multicriteria decision making, the criteria of function and cost need to be compared to each other to obtain the value for each alternative. In short, the value-based decision-making model was successfully developed from the research. The reliability of the model was validated by an expert and is accepted to be used in the construction industry. In this research, the best-value alternative is selected by averaging the results from each potential decision-maker. However, to improve value-based decision making, mutual agreement among the decision-makers shall be achieved. Hence, future research is required on the selection of the alternatives based on the negotiation support system.

Author Contributions: Conceptualization, Y.R.; methodology, C.U.; validation, R.; formal analysis, B.W.X.X.; investigation, B.W.X.X.; writing—original draft preparation, B.W.X.X.; writing—review and editing, Y.R. and A.-H.M.H.A.-A.; supervision, Y.R. and N.A.W.A.Z.; project administration, A.-H.M.H.A.-A. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the International Research Collaboration UTP-UJB.

Acknowledgments: The authors would like to thank Universiti Teknologi PETRONAS (UTP) and Universitas Janabadra for supporting the research under international research collaboration grant 015ME0-133.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A Details of AHP Matrix

Appendix A.1 Respondent 1

Table A1. AHP matrix on criteria of function.

	f ₁	f ₂	f ₃	f ₄	f ₅
f ₁	1	0.142857	0.166667	0.125	4
f ₂	7	1	7	0.125	7
f ₃	6	0.142857	1	0.142857	7
f ₄	8	8	7	1	7
f ₅	0.25	0.142857	0.142857	0.142857	1

Table A2. AHP matrix on alternatives when considering building materials.

	a ₁	a ₂	a ₃
a ₁	1	0.166667	6
a ₂	6	1	7
a ₃	0.166667	0.142857	1

Table A3. AHP matrix on alternatives when considering the economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	0.16667	0.2
a ₂	6	1	6
a ₃	5	0.16667	1

Table A4. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	8	7
a ₂	0.125	1	0.16667
a ₃	0.142857	6	1

Table A5. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	0.142857	7
a ₂	7	1	7
a ₃	0.142857	0.142857	1

Table A6. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	0.16667	6
a ₂	6	1	5
a ₃	0.16667	0.2	1

Appendix A.2 Respondent 2

Table A7. AHP matrix on criteria of function.

	f ₁	f ₂	f ₃	f ₄	f ₅
f ₁	1	0.142857	0.333333	0.5	4
f ₂	7	1	8	7	7
f ₃	3	0.125	1	0.5	4
f ₄	2	0.142857	2	1	5
f ₅	0.25	0.142857	0.25	0.2	1

Table A8. AHP matrix on alternatives when considering building materials.

	a ₁	a ₂	a ₃
a ₁	1	5	6
a ₂	0.2	1	5
a ₃	0.16667	0.2	1

Table A9. AHP matrix on alternatives when considering the economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	7	7
a ₂	0.142857	1	6
a ₃	0.142857	0.16667	1

Table A10. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	6	7
a ₂	0.166667	1	7
a ₃	0.142857	0.142857	1

Table A11. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	7	7
a ₂	0.142857	1	6
a ₃	0.142857	0.166667	1

Table A12. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	5	6
a ₂	0.2	1	0.333333
a ₃	0.166667	3	1

Appendix A.3 Respondent 3

Table A13. AHP matrix on criteria of function.

	f ₁	f ₂	f ₃	f ₄	f ₅
f ₁	1	0.111111	0.166667	5	7
f ₂	9	1	9	9	9
f ₃	6	0.111111	1	6	6
f ₄	0.2	0.111111	0.166667	1	7
f ₅	0.142857	0.111111	0.166667	0.142857	1

Table A14. AHP matrix on alternatives when considering building materials.

	a ₁	a ₂	a ₃
a ₁	1	7	7
a ₂	0.142857	1	0.2
a ₃	0.142857	5	1

Table A15. AHP matrix on alternatives when considering the economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	6	6
a ₂	0.166667	1	0.25
a ₃	0.166667	4	1

Table A16. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	7	4
a ₂	0.142857	1	0.333333
a ₃	0.25	3	1

Table A17. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	7	3
a ₂	0.142857	1	0.2
a ₃	0.333333	5	1

Table A18. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	2	3
a ₂	0.5	1	0.333333
a ₃	0.333333	3	1

Appendix A.4 Respondent 4

Table A19. AHP matrix on criteria of function.

	f ₁	f ₂	f ₃	f ₄	f ₅
f ₁	1	0.142857	0.166667	7	7
f ₂	7	1	0.125	7	8
f ₃	6	8	1	8	8
f ₄	0.142857	0.142857	0.125	1	8
f ₅	0.142857	0.125	0.125	0.125	1

Table A20. AHP matrix on alternatives when considering building materials.

	a ₁	a ₂	a ₃
a ₁	1	8	0.111111
a ₂	0.125	1	0.111111
a ₃	9	9	1

Table A21. AHP matrix on alternatives when considering the economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	8	0.111111
a ₂	0.125	1	0.111111
a ₃	9	9	1

Table A22. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	9	0.111111
a ₂	0.111111	1	0.111111
a ₃	9	9	1

Table A23. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	9	0.125
a ₂	0.111111	1	0.125
a ₃	8	8	1

Table A24. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	8	0.125
a ₂	0.125	1	0.125
a ₃	8	8	1

Appendix A.5 Respondent 5

Table A25. AHP matrix on criteria of function.

	f ₁	f ₂	f ₃	f ₄	f ₅
f ₁	1	8	7	8	8
f ₂	0.125	1	7	0.125	7
f ₃	0.142857	0.142857	1	0.125	7
f ₄	0.125	8	8	1	8
f ₅	0.125	0.142857	0.142857	0.125	1

Table A26. AHP matrix on alternatives when considering building materials.

	a ₁	a ₂	a ₃
a ₁	1	8	7
a ₂	0.125	1	0.125
a ₃	0.142857	8	1

Table A27. AHP matrix on alternatives when considering economic condition of local communities.

	a ₁	a ₂	a ₃
a ₁	1	8	0.142857
a ₂	0.125	1	0.125
a ₃	7	8	1

Table A28. AHP matrix on alternatives when considering accessibility to public transport.

	a ₁	a ₂	a ₃
a ₁	1	7	8
a ₂	0.142857	1	0.125
a ₃	0.125	8	1

Table A29. AHP matrix on alternatives when considering type of land use.

	a ₁	a ₂	a ₃
a ₁	1	8	8
a ₂	0.125	1	0.125
a ₃	0.125	8	1

Table A30. AHP matrix on alternatives when considering comfortability.

	a ₁	a ₂	a ₃
a ₁	1	8	7
a ₂	0.125	1	0.125
a ₃	0.142857	8	1

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