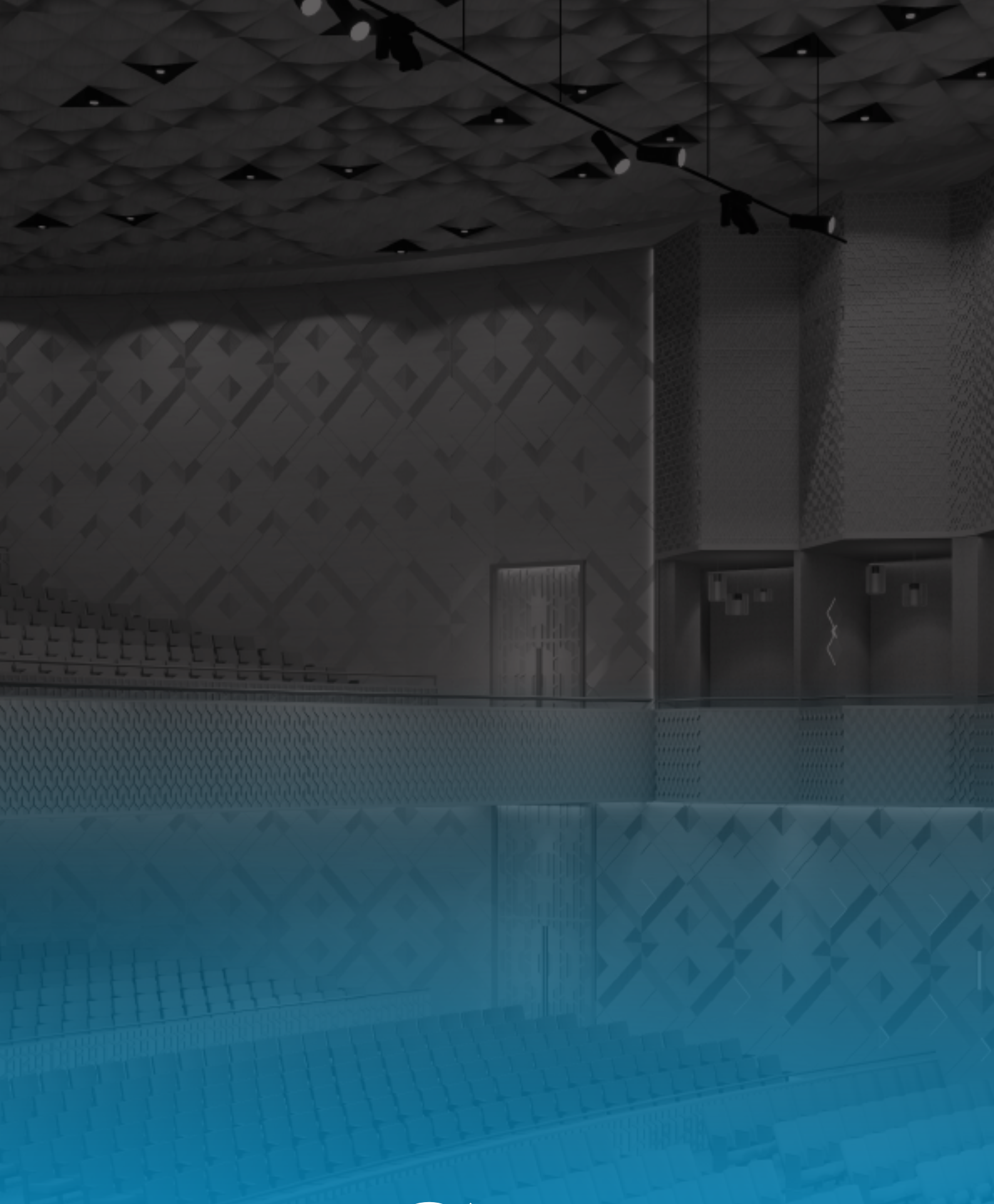
SNR 2nd 2025 RCREE
المؤتمر الدولي الثاني
لاستدامة الموارد الطبيعية

Qassim University جامعة القصيم
كلية الأعمال و الاقتصاد
College of Business and Economics

Booklet



SNR 2nd 2025 RCREE

المؤتمر الدولي الثاني
لاستدامة الموارد الطبيعية

The 2nd International Conference on Sustainability of Natural Resources (ICSNR)
Rational Consumption of Resources and Expenditure Efficiency

26 - 27 January 2026

Main objective

The conference discusses the latest scientific approaches and future trends in environmental, economic, technical, and societal framework for resource sustainability, rationale consumption, and the efficiency of expenditure.

Sub-objectives

- Highlighting the objectives of the Kingdom's Vision 2030 and its interests in the SDGs and the sustainability of natural resources.
- Maximizing the use and sustainability of resources by applying smart consumption efficiency, innovation, technology and artificial intelligence.
- Stimulating sustainability practices to increase the efficiency of exploitation and consumption of resources and renewable energy and enhance Expenditure efficiency.
- Developing Sharia-based environmental ethical frameworks to promote rational consumption practices and achieve good health and well-being.
- Developing green and circular economy frameworks and models to achieve rational consumption of natural resources and environmental sustainability

The Conference's Themes

The First Theme

Saudi Vision 2030 and SDGs for Optimal Utilization of Resources, Renewable Energy and Enhanced Expenditure Efficiency

- The Kingdom's Vision 2030 and SDGs for optimal exploitation of resources and renewable energy and enhancing spending efficiency.
- Efficiency of modern and traditional energy production and uses.
- Infrastructure sustainability, the role of innovation in the services sector, and enhancing spending efficiency.
- Sustainable nutrition between maximizing food production and reducing food waste.
- Sustaining and developing water resources and rationalizing their uses.
- Integrating renewable energy technologies into modern infrastructure (Sustainable Cities: Challenges and Solutions).
- Environmental, socioeconomic impact of renewable energy.
- FDI and its role in exploiting natural resources and creating added value.

The Second Theme

Resource Sustainability and Development of Green and Circular Economy in the Context of Competitive Advantages

- Sustaining resources and developing a green and circular economy in the context of competitive advantages
- Industrial innovation in supporting the transition towards a green economy.
- Circular economy: opportunities and challenges in industrial transformation.
- Policies and incentives to support investments in the transition to renewable energy.
- Sustainability in waste management and exploitation.
- Green supply chain efficiency: sustainable practices to enhance competitiveness.
- The Future of Sustainable Agriculture: New Technologies for Food Security and Resource Sustainability.
- Sustaining career opportunities and maximizing productivity in labor markets while achieving equality and empowering women and girls.
- Policies, procedures, and measures to reduce climate change.

The Third Theme

Environmental Sustainability, Rational Consumption of Natural Resources, Food Development, Transportation and Tourism

- Environmental sustainability, rational consumption of natural resources, food development, transportation and tourism.
- Transitioning to sustainable food systems and eliminating hunger.
- Sustainable transportation and reduced emissions.
- Environmental impact assessment and sustainable development.
- Sustainability and diversity of tourism activities and their economic and development impacts.
- The role of smart technologies in achieving environmental sustainability and preserving natural reserves.
- Circular economy in food, transport and energy.
- Financing and innovation in renewable energy projects for resource sustainability.
- Smart cities and sustainable communities.

The Fourth Theme

Smart Consumption, Innovation, Technology and Contributions of Artificial Intelligence to Enhancing Resource Sustainability

- Smart consumption, innovation, technology, and the contributions of artificial intelligence to enhancing resource sustainability
- Innovative technologies and governance in resource management.
- Artificial intelligence helps rationalize costs and improve expenditure
- Innovation in supply chain and logistics resource management.
- Renewable energy innovations and technologies and storage.
- Cybersecurity in sustainability applications.
- Future technologies and their role in maintaining sustainability.
- Education and training in innovation and green technologies.

The Fifth Theme

Rational Consumption from the Perspective of Sharia and the Environmental Ethical Framework

- Rational consumption from the perspective of Shariah and the environmental ethical framework.
- Principles of rational consumption in Islamic law.
- Resource sustainability from an Islamic perspective.
- Social responsibility of the private sector within the framework of Islamic law.
- Analysis of environmental policies from an Islamic perspective.
- Environmental ethical framework in Islamic law.

Good health and well-being

- Good health and welfare
- Rational consumption and finding alternatives in health care.
- Employing modern technologies to improve consumption in the health field.
- Experiences and lessons learned for the sustainability of health services.
- Environmental sustainability as a means to improve the quality of life.
- Cultural and social influences on consumption and health

Committee

The Supervisory Committee of The 2nd International Conference on Sustainability of Natural Resources (ICSNR) Rational Consumption of Resources and Expenditure Efficiency

1. **Dean of the College of Business and Economics**

   Chairman

2. **Supervisor of Knowledge Exchange and Scientific Events Administration**

   Member

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   Member

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   Member

5. **Director of the Sustainable Development Center**

   Member

6. **Director of General Directorate of Information and Communication Administration**

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7. **Supervisor of Public Relations and Beneficiary Services Administration**

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    Member

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    Assistant Professor, College of Engineering, Department of Civil Engineering, Member

Speakers

Dr. Abdulaziz Aldhehayan

Dr. Abdullah Almohaimeed

Dr. Petru DUMITRIU

Mr. Ihsan Zakri

Dr. Aiman Albarakati

Dr. Yousef Aloraini

Prof. Sami Al-Ghamdi

Mr. Abdulaziz Altwaijri

Mr. Abdulaziz Al-Badr

Mr. Abdulaziz Al-Sayegh

Agenda

Agenda

Day One

Monday, 26-01-2026

Session 1

Session Chair: Dr. Abdullah Alghafees

10:35 AM -11:10 AM

An Academic Vision for Shaping a Sustainable Future

Prof. Sami Al-Ghamdi, Dr. Aiman Albarakati

Session 2

Session Chair: Dr. Fahad AlOfan

11:15 AM -12:00 PM

Sustainability Creates Value: Corporate Sustainability Strategies

Dr. Yousef Aloraini, Mr. Abdulaziz Altwaijri, Mr. Abdulaziz Al-Badr, Mr. Abdulaziz Al-Sayegh

Session 3

Session Chair: Eng. Abdulrahman Alaiyeadi

12:35 PM - 1:10 PM

Entrepreneurship and Sustainability

Dr. Abdulaziz Aldhehayan, Dr. Abdullah Almohaimeed

Dhuhr prayer

Agenda

Day One

Monday, 26-01-2026

Session 4

Session Chair: Dr. Aayad Aleid

1:15 PM - 2:00 PM

Advancing Sustainability through Public, Private, and Academic Collaboration

Prof. Sami Al-Ghamdi, Dr. Aiman Albarakati, Mr. Abdulaziz AlBadr, Mr. Ihsan Zakri

Session 5

Session Chair: Dr. Rana Alhomedan

2:05 PM - 2:35 PM

The United Nations and Sustainability Initiatives – International Cooperation

Prof. Petru Dumitriu

Agenda

Day Two

Tuesday, 27-01-2026

Track One

Session Chair: Dr. Nassar Saleh Alnassar

Saudi Vision 2030 and Sustainable Development Goals for Optimal Use of Resources, Renewable Energy, and Enhancing Spending Efficiency

8:30-8:45

Exploring The Adoption of Artificial Intelligence in Palm Farming for Sustainable Agricultural Practices

Soliman Aljarboa

8:45-9:00

Recycling Agricultural Waste as an Approach to Resource Sustainability and Localization of Innovative Industries (Recycling of Palm and Date Waste in Saudi Arabia as a Model)

Amar Houtia

9:00-9:10

Multi-Objective Optimization for Low-Cost Solar Desalination System

Abdullah Alghafis

9:10-9:30

Discussion

Agenda

Day Two

Tuesday, 27-01-2026

Track Two

Session Chair :Dr. Fahad AlOfan

Resource Sustainability and the Development of the Green and Circular Economy in the Context of Competitive Advantages

9:30 -9:40

Integrating Green HRM for Sustainable Performance: A Strategic Framework for the Circular Economy

Abdullah Mobarak Bindawas

9:40-9:50

Behavioural and Cultural Factors Influencing Energy Consumption in Buraydah›s Houses

Mohammed Alghafis

9:50-10:00

Greening the Saudi economy: The role of education in promoting innovation in clean energy technologies

Alamzeb Aamir

10:00 – 10:20

Discussion

Agenda

Day Two

Tuesday, 27-01-2026

Track Three

Session Chair: Dr. Leenah Almuhanna Abalkhail

Environmental Sustainability, Rational Use of Natural Resources, and the Development of Food, Transport, and Tourism

10:20-10:30

Measuring Community Awareness of the Carbon Footprint in the Eastern Province of Saudi Arabia

Ohood Al-Eid

10:30-10:40

Development of a Green and Circular Economy in Saudi Arabia by Resource Sustainability

Fatima Mansour Alkhammash

10:40-10:50

The Sustainable Fashion Industry and Its Impact on the Environment

Mashael Ali Salah Alfaez

10:50-11:00

Biosynthesis of Silver Nanoparticles from Some Filamentous Fungi and Its Application on Medical Textiles

Amal Al-Mousa

11:00-11:20

Discussion

Agenda

Day Two

Tuesday, 27-01-2026

Track Four

Session Chair: Dr. Ghadi Mohammed Alnafesah

Smart Consumption, Innovation, Technology, and the Contributions of Artificial Intelligence to Resource Sustainability

11:20-11:30

Impact of Social Responsibility of Moroccan Universities on Student Well-Being

Rachid ELKACHRADI

11:30-11:40

Techno-economic assessments of zero-effluent discharge for achieving industrial circular economy

Nuhu Mu'azu

11:40-11:50

Adoption of Digital Twins in Healthcare Through TPB Model Within Society 5.0: A Structural Equation Modelling Approach to Achieving SDG3

Kokila

11:50-12:10

Discussion

Agenda

Day Two

Tuesday, 27-01-2026

Track Five

Session Chair: Prof.Fahad Abdulrahman Al Yahya

Rational Consumption from a Sharia Perspective, Environmental Ethics, and Good Health and Well-Being

1:00-1:10

ESG and the SDG14 impacts on nations including muslim countries: Managing the Seas and Oceans

Khaliq Ahmad

1:10-1:20

Role of Green Intellectual Capital on Sustainable Performance: Mediating Role of Reflective Moral Attentiveness

Yasir Hayat Mughal

1:20-1:30

Deep Learning in e-Health Service Sustainability: Predicting Patient No-Shows

Adel Alti

1:30-1:50

Discussion

Closing Session

Chair of the Supervisory Committee

2:00-2:15

Recommendations and Proposed Policies

Future Roadmap

Abstracts

Exploring The Adoption of Artificial Intelligence in Palm Farming for Sustainable Agricultural Practices

Dr. Soliman Aljarboa[1]

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Abstract

Artificial Intelligence (AI) is rapidly transforming agricultural practices, offering innovative solutions to enhance efficiency, sustainability, and productivity. This study explores the adoption of AI in palm farming by employing a qualitative approach, using semi-structured interviews with stakeholders to identify factors influencing AI implementation. Grounded in the Unified Theory of Acceptance and Use of Technology (UTAUT), the research examines four core determinants—Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions—while also uncovered additional factors through the interviews. These include Financial Barriers, Data Privacy Concerns, Data Availability, and Trust and Acceptance of AI, which significantly impact adoption rates. By extending the UTAUT model, the study provides a more comprehensive framework for understanding AI integration in agriculture.The study offers actionable recommendations, advocating for financial incentives, policy support, and farmer education programs to drive AI adoption. These insights contribute to advancing sustainable agricultural practices, ensuring that AI-driven innovations support long-term efficiency and resilience in palm farming.

Keywords

AI, palm farming, qualitative study, technology adoption, UTAUT model

Recycling agricultural waste as an input to resource sustainability and localization of innovative industries (Recycling palm and date waste in Saudi Arabia as a model)

Dr. Amar Houtia[1]

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Abstract

The study aims to shed light on agricultural wastes as a neglected national wealth in Arab countries, including palm and date wastes in the Kingdom of Saudi Arabia, and to focus on the importance of recycling them in the sustainability of resources and the preservation of the environment, and to create promising investment opportunities for the localization of innovative industries, while presenting examples of them from the ground. It was concluded that palm trees represent sustainability and development in themselves, and recycling their waste is one of the effective means to sustain soil fertility, reduce environmental pollution, positively add to untapped economic opportunities, and develop local industries in various fields, such as food, health, fiber, fertilizers, fodder and energy, which will contribute to the establishment of innovative projects, increase job opportunities, and enhance national income and returns of farmers and investors. This calls for promoting innovation in the treatment of agricultural waste and deepening public awareness of its importance as a basic economic resource that yields significant returns, contributing to achieving Vision 2030.

Keywords

Agricultural Waste, Palm Waste, Recycling, Resource Sustainability, Innovative Industries.

Multi-Objective Optimization for Low-Cost Solar Desalination System

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Abstract

Freshwater scarcity, driven by population growth, necessitates the exploration of alternative water sources. Since only a tiny fraction of freshwater is readily accessible in surface water bodies, ocean desalination is a viable solution. This study optimizes the design and evaluates the thermal performance of a solar still desalination system integrated with a flat plate collector (DS-FP). Using a MATLAB-based numerical model, the research balances maximizing the DS-FP system›s efficiency against minimizing its overall cost. The multi-objective imperialist competitive algorithm (MICA) identified an optimal DS-FP design, which was then compared to existing literature. Results demonstrate significant improvements in efficiency and total cost with the optimized design.

Keywords

Multi-objective optimization, Renewable energy, Solar desalination, Low-cost, Sustainability, Clean energy.

Integrating Green HRM, for Sustainable Performance: A Strategic Framework for the Circular Economy

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Abstract

The research aims at assessing the impact of green HRM practices on green innovation, organizational culture and sustainable organizational performance. In this model the mediation of green innovation and organizational culture is also evaluated for the impact of green HRM practices on sustainable organizational performance. Overall, the research outlines a green innovation c framework to implement these elements supported by the principles of the circular economy and sustainable development goals. For this study, primary data will be collected to perform quantitative analysis using SMART PLS software for structural equation modeling. The study is expected to establish that green HRM practices, green innovation and organizational culture has a positively significant relationship with each other and sustainable organizational performance. Further, green innovation and organizational culture are expected to play an important moderating role in the interaction of these factors. This paper is expected to suggest that organizations can use the proposed framework to initiate sustainability transformation in human resource planning as well as long-term green HRM practice. Consistent with the eighth and thirteenth Sustainable Development Goals, namely, Decent Work and Economic Growth and Climate Action, respectively, the study responds to the critical need for sustainability in growing Organizations and contributing to Organizational Resilience in the circular economy.

Keywords

Green HRM practice, green innovation, organizational culture, sustainable organizational performance, circular economy, Sustainable Development Goals

Behavioural and Cultural Factors Influencing Energy Consumption in Buraydah›s Houses

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Abstract

Saudi Arabia has massive fossil fuel energy consumption due to A/C operation in the summer period, contrary to Climate Change and economic considerations. This paper aims to identify this problem and address this wrongfulness by investigating the behavioural and cultural aspects in relation to thermal comfort and their relationship to objective measurements of temperature in the context of a hot-arid climate. Case studies of 10 single-family houses in central arid region of Al-Qassim were monitored for two weeks in the extreme summer season of 2020. External temperatures ranged from 25.2°C at night to over 44°C during the day, with indoor temperatures controlled by A/C (1925°-C). However, 60% of residents kept windows closed and relied on heavy curtains, often using artificial lighting during the day. Despite cultural practices such as head covering for environmental reasons, these houses lacked external shading or solar panels. The study highlights that residents› behavior, such as avoiding opening windows, contributes to energy consumption, raising questions about how behavior and culture influence comfort and sustainability. The study suggests that «smart» design must go beyond technology by incorporating passive cooling strategies, climate-responsive architecture, and energy-conscious habits. It calls for design approaches that reduce dependence on mechanical cooling through improved building orientation, passive techniques, and awareness of occupant behavior. These strategies can contribute to conserving energy resources and advancing natural sustainability in Saudi Arabia.

Keywords

Energy Consumption, Behavioural Influence, Cultural Context Sustainability, Thermal Comfort

GREENING THE SAUDI ECONOMY: THE ROLE OF INVESTMENT IN PROMOTING INNOVATION IN CLEAN ENERGY TECHNOLOGIES

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Abstract

This research investigates the role of education in promoting innovation in clean energy technologies to support the greening of the Saudi economy. It explores how educational initiatives, policies, and institutional frameworks contribute to the development and adoption of sustainable energy solutions. The study mixed-methods approach, combining a review of existing literature with an analysis of educational policies, innovation indicators, and clean energy advancements in Saudi Arabia. Data collection was furnished via survey questionnaires and interviews, which were conducted with major stakeholders, including educators, policymakers, and industrialists. The research found that investment in specialized research programs and education develops innovation in clean energy technologies. Industry-academia collaborations, state-level incentives, and curriculum integration of sustainability concepts play a significant role in promoting a skilled workforce capable of driving the green transition. The research adds to the discourse on sustainable economic transformation by linking education to technological innovation in clean energy. It offers insights into how educational policies can be strategically designed to align with Saudi Arabia's Vision 2030 sustainability goals.

Keywords

Green economy, clean energy technologies, innovation, Saudi Arabia, sustainable development.

Measuring Community Awareness on Carbon Footprint in the Eastern Province - Saudi Arabia

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Abstract

This study aims to measure societal awareness of the carbon footprint in the Eastern Province of Saudi Arabia by analyzing raw data from a sample of 867 individuals. Several descriptive and quantitative statistical methods were used. The study found that several factors influence people›s carbon footprint awareness, with younger individuals more aware than older people, and those with higher academic qualifications more aware of the environmental issue. Residents in some areas were also more aware of the concept of a carbon footprint than those in others, and membership in environmental associations contributed to greater awareness. Positive attitudes towards the environment and sustainable environmental practices were also found to enhance individuals› understanding of the importance of reducing carbon emissions. The quadruple analysis showed that the most prominent strengths were in support of Vision 2030 for environmental sustainability, while the most prominent weaknesses were low environmental awareness, with opportunities to promote environmental education and sustainability initiatives, as opposed to challenges related to pollution and behavioral challenges. The study recommended the need to intensify environmental awareness, support stringent environmental policies, and promote scientific research and sustainable practices, with the aim of reducing the carbon footprint and achieving environmental sustainability.

Keywords

Environmental Sustainability, Carbon Footprint, Quadrilateral Analysis, Eastern Region.

Development of a Green and Circular Economy in Saudi Arabia by Resource Sustainability

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Abstract

Problem Statement: This study examines Vision 2030 efforts to integrate green and circular economy principles to uphold sustainable economic development and align with global environmental concerns. It also examines how the Kingdom can improve economic growth by increasing resource efficiency, minimizing waste and promoting innovation in energy, water and waste management. It also examines the challenges faced in adopting sustainable practices like oil dependency, infrastructure and regulatory barriers. The objective of the study is to analyze the strategies to gain competitive advantage for sustainability and explore the role of green technology and circular economy principles to evaluate the effectiveness of policy frameworks and international collaborations. Qualitative research methodology is used that also includes comprehensive literature review and analysis of related studies. The main findings of the study show that there are significant opportunities to improve global competitiveness by adopting sustainable practices. The findings also show that the economy can be reshaped through green and circular strategies and long term sustainability can be ensured. The study provides significant insight to policymakers, businesses, and stakeholders. It also provides direction on improving sustainability practices and economic development.

Keywords

Green Economy, Circular Economy, Saudi Arabia Vision 2030, Resource Sustainability, Sustainable Economic Development.

The Sustainable Fashion Industry and its Impact on the Environment

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Abstract

The research aims to determine the size of the environmental impact of the ready-to-wear industry, prepare a proposed technical file for the manufacture of sustainable women›s fashion, and measure the percentage of specialists› opinions towards the proposed technical file, and the research followed the descriptive-analytical method, and the experimental method, and the results were represented in the need of the industry There is a general awareness of the need to reduce waste, use more efficient technologies, and improve resource management, but there are still challenges in large-scale implementation, and a technical file has been prepared for the manufacture of women›s clothing sets that clarifies all stages of the manufacture of sustainable clothing, in accordance with the twelfth goal of the Sustainable Development Goals, which stipulates «responsible consumption and production», and the percentage of specialists approved of all stages of sustainable manufacturing The most important recommendations are to encourage fashion manufacturers to use sustainable fabrics, reduce water and energy consumption, and follow sustainable manufacturing processes.

Keywords

Apparel, Green Fashion, Production, Nature

Biosynthesis of Silver Nanoparticles from Some Filamentous Fungi and Its Application on Medical Textiles

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Abstract

The green synthesis is eco-friendly. The biogenic synthesis of AgNPs using fungi offers, have promise for a range of applications in medical care. In this stydy was used cotton is the most used in textiles. Aspergillus niger (isolated from soil as well as also taken from chicken coops in Riyadh) was treated with silver nitrate to produce AgNPs using aqueous filtering. Two strains of A. niger were used for the synthesis of AgNPs. These NPs were characterized using different methods, including (UV–Vis) spectroscopy, (FTIR) spectroscopy, field emission and (SEM). The (UV–Vis) spectrum of the aqueous medium containing AgNPs showed absorption peaks at around 422 and 446 nm. The energy dispersive spectrum of the synthesized NPs indicated the presence of silver. Cotton fabrics impregnated with different concentrations of biosynthesized AgNPs were evaluated for antimicrobial activity against yeasts satisfying outcome. Study aims to synthesize AgNPs that have been isolate from filamentous fungi in the natural environments of Saudi Arabia and use them to counteract the microbial activity of impregnated textiles, like medical dressings, medical sock for treatment of foot disease and tampons to vaginal disease treatment. we hope these impregnated textiles locally

Keywords

Biosynthesis, AgNPs, , Antimicrobial, Textiles, Aspergillus niger.

Impact of Social Responsibility of Moroccan Universities on Student Well-Being

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Abstract

This article explores the impact of the university social responsibility (USR) determinants on student well-being, using Moroccan universities as a case of study. USR includes social, environmental, and ethical practices implemented by universities, aimed at enhancing not only their reputation but also the living and learning conditions of students. The study examines how factors such as ecological commitment, social, ethical governance, and the quality of academic services which influence satisfaction, mental health, and professional integration of students.

The study primarily relies on documentary analysis of institutional reports, academic publications, and official documents from Moroccan universities regarding their USR initiatives. This method allows the examination of policies and actions implemented within these institutions to promote USR, the identification of challenges, issues, and outcomes. Documentary analysis also facilitates extracting contextual and theoretical insights, which will contribute the formulation of hypotheses about the relationship between USR practices and student well-being. By cross-analyzing data collected from documents, case studies and institutional reports, this study seeks to offer insights for improving USR in Moroccan universities, aiming to reinforce student well-being. This study serves as the initial phase of a broader mixed-method project, with a quantitative survey planned to empirically test the proposed hypotheses.

Keywords

University Social Responsibility (USR), Student Well-Being, Moroccan Universities, Social Engagement, University Governance

Techno-economic assessments of zero-effluent discharge for achieving industrial circular economy

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Abstract

The growing industrial demand for freshwater and the tightening of environmental regulations are driving pulp and paper industries to adopt sustainable wastewater management strategies. Zero-effluent discharge (ZED) offers a pathway to align industrial operations with circular economy principles. This study presents a technoeconomic assessment of an integrated ZED strategy for a bleached paper mill, combining in-process modifications with end-of-pipe treatments including ozone pretreatment, dissolved air flotation (DAF), and reverse osmosis (RO). The system has the potentials of achieving 95% water recovery, >95% pollutant reduction, and an 87% decreased in freshwater intake. A 30–50-year economic evaluation demonstrated annual net savings of approximately $150,000, a net present value (NPV) ranging > $1.5 million (at 5% discount rate), an internal rate of return (IRR) of ~18%, a payback period of 5–6 years, and a benefit–cost ratio (BCR) consistently above 1.3. The NPVs remained positive, despite the costs of operational challenges—including membrane fouling, sludge management, and preventive maintenance, even at higher discount rate (8%). These results demonstrates the viability of the ZED approach, and that it is not only technically feasible but also financially sustainable toward achieving paper and mill industrial circular economy, particularly in water-stressed regions such as Saudi Arabia.

Keywords

Circular economy, closed-looped water management, financial viability assessment, sustainable waste management

Adoption of Digital Twins in Healthcare Through Theory of Planned Behaviour Within Society 5.0: A Structural Equation Modelling Approach to Achieving Sustainable Development Goal 3

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Abstract

The field of healthcare is quickly developing alongside the introduction of innovative technologies, including digital twins that provide the possibility to simulate and monitor patient treatment and healthcare systems in real-time. This paper analyses the Theory of Planned Behaviour (TPB) as applied in the use of digital twins in healthcare as a part of the Society 5.0 paradigm. The effects of attitude, subjective norms, and perceived behavioural control on behavioural intention and subsequent adoption were tested using Structural Equation Modelling (SEM). The constructs were robust, as evidenced by the reliability and validity analysis. The findings indicated that subjective norms (0.505) and perceived behavioural control (0.261) had a significant effect on intention, whereas the effect of attitude was smaller (0.106). The behavioural intention was a very strong predictor of adoption (0.749), which further predicted SDG3 (0.660). The model predicted 62.9 per cent of intention, 56.1 per cent adoption, and 43.5 per cent SDG3. The results generalize TPB to digital healthcare and prove that digital twins can help increase efficiency, patient involvement, and long-term health results.

Keywords

ESG (Environmental, Social, and Governance), Sustainable Development, Islamic Values and Ethics, Ocean Sustainability, SDG 18 – Spirituality & Governance.

ESG AND THE SDG 14 IMPACTS ON NATIONS INCLUDING MUSLIM COUNTRIES: MANAGING THE SEAS AND OCEANS

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Abstract

Environmental, Social, and Governance (ESG) is the future agenda, yet the world faces post-normal complexities. Sustainable development must be redefined, especially in Muslim nations, by critically examining its taxonomy, structure, and function.

SDG 14, Life Below Water, highlights ocean sustainability as crucial for climate regulation, biodiversity, and livelihoods. However, overfishing, pollution, and climate change threaten marine ecosystems. This study explores how governments, businesses, and individuals can enhance ocean sustainability through collaborative initiatives like mangrove restoration while addressing associated challenges. ESG promotes a Green Economy by mitigating climate risks such as pollution, greenhouse gases, and CO2 emissions. Human activities disrupt ecosystems, leading to global warming, habitat loss, and biodiversity decline. Solutions include but not limited to: Sustainable resource management; Clean energy adoption; Water conservation; Recycling and waste reduction; and Sustainable transport.

Muslim nations, rich in resources and still emerging educational pursuit, must integrate both for economic but sustainable progress. The Quran emphasizes managing resources and relationships for holistic development. Values & ethics based upon divine orientation, morality, humanness, and moderation; are central to the Islamic economy. This paper proposes an additional SDG 18, advocating spirituality, values, and culture as guiding principles for ethical leadership, governance, and sustainable development in alignment with humanity and planetary well-being.

Keywords

Digital Twins, Healthcare, Society 5.0, Theory of Planned Behaviour (TPB), Structural equation modelling (SEM), Sustainable development goals (SDG3).

Role of Green Intellectual Capital on Sustainable Performance: Mediating role of Reflective Moral Attentiveness

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Abstract

Background: Manufacturing sector is the major contributor of any country's economy and it's a big source of using natural resources and spreading pollution as well. Sustainability issues are raised due to negligence of human behavior. Objective: The aim of the current study was to investigate the mediating role of reflective moral attentiveness on the relationship between green intellectual capital (green human, relational and structural capital) and sustainable performance (economic, environmental and social) through lens of intellectual capital-based view theory and signaling theory. Methodology: Survey approach was adopted for collecting the primary data from manufacturing sector in Saudi Arabia. Unit of analysis were organizations. Senior managers and human resource directors were the participants of this study. Those organizations were selected which have initiated the green policies in their green shared vision. Non-probability convenience sampling was used for sampling. Partial Least Square-Structural Equation Modeling (PLS-SEM) was used for testing hypotheses. Measurement model and structural models were developed. Internal consistency, reliability, were investigated through factor loadings, item total correlation, Cronbach alpha, and convergent validity were assessed through average variance extracted (AVE) and composite reliability (CR), variance inflation factor, while discriminant validity was assessed through HTMT ratios. Hypotheses were tested through bootstrapping by reporting beta values, confidence interval (C.I), upper limit confidence interval (ULCI) and lower limit confidence interval (LLCI). Results: The findings revealed that all items of the respective constructs met threshold for alpha, AVE, CR, VIF, and loadings. Moreover, all direct effects are found significant and RMA mediated GIC and its attributes and sustainable performance. Implications: The current study have implications for future researchers, scholars, policy makers in manufacturing sector, academicians and managers. The findings of this study would enhance sustainability through indirect role of reflective moral attentiveness and green intellectual capital. Future Directions: This study has contributed to intellectual capital-based view theory and signaling theory by adding moral attentiveness in the framework, Future studies can focus on enhancing operational performance, by incorporating digital leadership, digital culture and environmental corporate social responsibility in the framework.

Keywords

Reflective moral attentiveness, Green intellectual capital (green human, relational and structural capital), Sustainable performance (economic, environmental and social).

Deep Learning in e-Health Service Sustainability: Predicting Patient No-Shows

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Abstract

Healthcare has become a globally significant industry with complex economic structures related to costs and administration. To address these challenges, the integration of eHealth technologies and Artificial Intelligence (AI) is crucial for improving sustainability. This study introduces a deep learning-based approach to optimize eHealth service delivery by improving operational efficiency, reducing costs, and supporting environmental sustainability. The utilization of a Convolutional Neural Network (CNN) model with improved scheduling is applied to predict patient no-shows for hospital appointments, achieving an 18.5% reduction in costs, 18.75% improvement in environmental sustainability, and an 8.24% enhancement in patient experience. These findings demonstrate that deep learning can significantly improve both the efficiency and sustainability of modern healthcare systems.

Keywords

eHealth, Deep Learning, CNN, Healthcare Sustainability, Patient No-Show Prediction, Hospital Appointment