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21st International Conference on Sustainable Development 2025

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International Centre for Interdisciplinary Research in Law (ICIRL),

Centre for Research in Social Justice and Policy (CRSJP) at Laurentian University and

Ontario International Development Agency (OIDA) in Canada.

Event Location

University of Ottawa

Faculty of Social Sciences

Social Science Building

Room 4004 and 4006

120 University Private,

Ottawa, Ontario

CANADA.

Conference Co-chair



Dr. Henri Pallard, LL.B., Ph.D. Canada.

Emeritus Professor Law and Justice. Director, International Centre for Interdisciplinary Research in Law Laurentian University, Canada.

Dr. Henri Pallard is the Director of the International Centre for Interdisciplinary Research in Law and Professor emeritus in the Department of Law and Justice, Laurentian University, Sudbury (Ontario), Canada. He is broadly interested in the relationship between culture and human rights as it manifests itself in both western and non western cultures.

From 1994 to 2005, he was the Director of Persons, Culture and Rights (Personne, culture et droits), an international North/South research team which was funded by the International Francophone University (Agence universitaire de la Francophonie). During this period, he worked closely with researchers and academics from Morocco, Tunisia and Egypt distilling the cultural issues underlying the interpretation and implementation of human rights, the rule of law and democracy in North Africa.

From 2010 to 2016, he was the Associate Director, Poverty, Homelessness and Migration, at Laurentian University, which received a \$1 million grant from the Social Sciences and Humanities Research Council of Canada (SSHRC). Working in partnership with First Nations and northern communities, this five-year project examined the underlying causes of poverty, poor housing, homelessness, and out-migration in northern Ontario. For its outstanding work under its Director of SSHRC, it received the SSHRC Impact Partnership Award. Dr. Pallard is the executive editor of the OIDA International Journal of Sustainable Development.

Conference co-chair



Dr. Robert Taylor, Ph.D. USA.

Professor of Environmental and Earth Studies
Department of Earth & Environmental Studies,
Montclair State University,
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Dr. Taylor is a Professor of Organizational and Urban Sustainability in the Department of Earth & Environmental Studies and Coordinator of the M.S. in Sustainability Science - Sustainability Leadership. A member of the Doctoral Faculty mentoring PhD students in environmental management.

Areas of Expertise:

Working with communities and companies to design sustainability projects to enhance development, encourage new business formation and business plans in green technology, increase employment and reduce poverty, develop plans for climate change adaptation for cities, and develop strategies for food security and mobility that reduce the carbon footprint of cities.

Current Projects in Sustainable Development:

Consultation for U.S. Department of Labor's Occupational Network for Career Development for Sustainability Specialists.

Recently awarded a Grant of \$195,000 from the United States Department of Defense for the project "Actionable Decision-Making for Flooding Events utilizing a small UAV Platform with LiDAR and Hyperspectral Instruments." This Grant is designed to establish student training programs and community projects using Aerial Drones for Environmental Research and Analysis.

Conference Co-chair



**Dr. Neville Hewage, Ph.D.
Canada.**

Former Adjunct Professor,
Research Fellow at the
International Centre for
Interdisciplinary in Law
Laurentian University, Canada.
Program Director, Ontario
International Development
Agency, Canada.

Dr. Neville Hewage obtained his B.Sc. (General Science) from the University of Colombo, Sri Lanka, M.Sc. (Industrial Environmental management) from the University of Abertay Dundee, United Kingdom, M.Sc. (Biology) and Ph.D. (Human Sciences) from Laurentian University, Canada. Dr. Hewage was an Adjunct Professor and Research Fellow at the International Centre for Interdisciplinary Research in Law, Laurentian University, Canada. He is also a Program Director of the Ontario International Development Agency, which provides sustainable development programs, research in human development, international security and governance. Dr. Hewage is also a Senior Policy Analyst at the Ontario Centre for Policy Research, Canada. In addition, Dr. Hewage also obtained MIPIS (Masters in Infrastructure Protection and International Security) from the Norman Patterson School of International Affairs of Carleton University, Canada. Dr. Hewage is a member of the Law Society Ontario and is licensed to provide legal services in Ontario, Canada. Dr. Hewage is the Managing Editor of the OIDA International Journal of Sustainable Development. The Journal is indexed in DOAJ and SCOPUS.

Book of Abstracts

Ref: 001/CAD/25

Developing Green Campus Paradigm for Higher Education Institutes in Pakistan

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Abstract

Higher Education Institutes across the world play pivotal role in transfer of knowledge from one generation to the other generation and within the same generation. These institutes also conduct innovative research on the challenges and opportunities faced by societies, thereby providing future direction for the scarcities and communities. The United Nations emphasized over Education for Sustainable Development (ESD) as early in 1992 in Rio De Janeiro World Conference on Environment and Development. Various assessment methods were accordingly developed for measuring the sustainability in the teaching & learning, research and operations higher education institutes. Sustainability was included as a major component of the World Universities Ranking Systems. With the new era of sustainable development goals of UN (UN-SDGs) to be achieved during 2015-30, the role of higher education institutes became even more important. The teaching and research focused highly on achieving the SDGs. However, the emphasis over education for sustainable development (ESD) and Education for sustainable development goals (ESDGs), remained limited in the developing countries, in terms of curriculum, research and community engagement. In this paper, a holistic approach for ESD has been adopted in view of the best practices across the world. On the teaching & learning side, the attributes like curriculum, teaching & learning, research and students' and Teacher involvement focus have been assessed. On the operational side, the use of renewable energy, green transport, sustainable waste management and green procurement have been assessed. A questionnaire survey was administered to the faculty and staff of public sector universities of Pakistan, followed by Focus Group Discussions (FGDs). The results were also assessed with Smart PLS. The results have shown that there is neither integrated approach for ESD, nor specific offices have been established to implement and monitor the Green Campus Initiatives (GCI). The support from senior management in this context is also very low. Mapping of the education and research with the SDGs is also not adopted in most of the universities in Pakistan. There is no specific budget for the implementation of GCI in HEIs. Though a large number of HEIs in Pakistan have applied for green campus ranking, yet their positions at the global level is very low. There is no dedicated funding from HEC and Federal Government of developing Green Campuses. The engagement of the universities with the societies for promoting the SD is yet in the embryonic stage. It is recommended that a Green Campus Task Force may be established at the HEC level, to develop the capacity of the relevant human resource in universities for implementation of GCI. The private sector and business community may be engaged in generating resources to this end.

Keywords: *Green Campus, Higher Education Institutes, Pakistan, Sustainable Development, Universities*

Promoting Sustainable Development through Rural-Urban Interdependency in South Africa

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Abstract

This paper explores the potential for rural-urban interdependency to promote sustainable development in South Africa. Due to the exponentiate rapid urbanisation process, urban centres are bound to play a pivotal role in uplifting large segments of society. Evidently, the process leads to the unjust concentration of resources in urban areas. Clearly, the post-apartheid decentralisation framework has financially and institutionally set to advance principally metropolitan municipalities and neglects rural areas that are typically governed by district and local municipalities that share jurisdictions. This framework inadvertently perpetuates the practice of spatial inequalities, separations, and disparities within the system of local government. While rural areas remain crucial for food security, biodiversity conservation and cultural heritage preservation, the framework hinders equitable development and aggravates the challenges stemming from urban-rural interplay. This study which is based on comprehensive desktop review, examines the interconnections between rural and urban areas, highlighting opportunities for mutually beneficial collaboration. In addition, it argues that empowering small towns and rural municipalities to develop their communities, lessens the burden of rapid urbanisation, minimises rural-to-urban migration, and simultaneously addresses regional disparities socially and economically. The fundamental pursuit of spatial transformation in South Africa is also aligned with the United Nations Sustainable Development Goals (SDG) Agenda 2030. SDGs 10 and 11 provide for the reduction of inequalities, and the creation of sustainable cities and communities, respectively. The 2030 Agenda calls for a just, equitable, tolerant, open, and socially inclusive world in which the needs of the most vulnerable are met. The achievement of all these essential variables will lead to equal access to public infrastructure, basic amenities, and essential services and ensure that through social inclusion and cohesion, socially vulnerable groups have increased opportunities to enjoy their livelihoods too. Even though the urban local governments are ideal sites for socio-economic development, they still face infrastructure backlogs and economic challenges that hamper their immediate and long-term potential to cater to the entire urban population. There is a need to address urban and rural challenges in a balanced manner through achieving sustainable development that bridges the gap between urban centres and rural areas. Small towns also play a vital role in promoting the economic development of the surrounding rural areas. Through the lens of SDGs 10 and 11, the paper analyses potential strategies for strengthening rural-urban interdependency, including a revitalised policy and governance paradigm which epitomises coordinated rural-urban development. Such drastic measures require efficient policy reforms that discourage segregated rural-urban development while promoting sustainable development in an equally supportive and complimentary manner. South Africa must foster economic development by promoting regional economies of scale and agglomeration, increasing productivity and prosperity, strengthening urban-rural linkages by addressing social and spatial disparities, and promoting territorial cohesion and complementarities in both growing and declining areas.

Keywords: Economic development, rural-urban interdependency, South Africa, spatial equity, sustainable development.

Determinants of Non-Motorized for Sustainable Transport Planning in Kota City, Rajasthan, India

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Abstract: Sustainable transportation is safe, convenient, and efficient in terms of economic and energy usage, while also minimizing environmental impact. Most cities' transport systems are no longer viable due to a lack of natural resources such as oil reserves, which is increasing the number of deaths and injuries caused by motor vehicle accidents and traffic congestion. Carbon emissions into the atmosphere contribute to environmental degradation in the form of quality flaws that impair mobility in general. Today, major city transport systems have a bad reputation due to traffic congestion, accidents, a lack of access to public transport, and carbon emissions to the atmosphere of space, which contribute to environmental pollution and an imbalance in terms of quality of life in general mobility, emphasis non-motorized transport (NMT) resurgence across the world.

The Kota city, Rajasthan, India chosen for further detailed investigation to plan for a sustainable non-Motorized transport system. The study focusses on the challenging parameters of walking and cycling on routes, visualized through an Integrated Route Characteristic Model by employing Fuzzy Logic and Geospatial Technology. The routes are analyzed using Global Walkability Index and Bicycle Compatibility Index, by user opinion through Fuzzy Logic to predict the overall Walking and Bicycle riding qualities of these routes by employing MATLAB Software. Thus, the research study aims to assess the potential of integrating Pedestrian and Bicycle network towards safe mobility. Based on the findings, the study evolved an Integrated Route Characteristic Model and recommended planning guidelines and strategies for promoting sustainable NMT system Kota Region.

Keywords: Non-Motorized Transport, Walkability, Cycling, Fuzzy Logic, Integrated Route Characteristic Model, Sustainable Transport.

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Evaluation of the Role of the Department of Planning Monitoring and Evaluation: Water and Sanitation in South Africa

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Abstract: This paper seeks to evaluate the impact of the Department of Planning, Monitoring and Evaluation (DPME) in South African's Government Department. DPME is one of the South African Government establishments, brought in the year 2010, with the aim to ensure continuous improvement in service delivery in South African government department through performance monitoring and evaluation. Planning, monitoring, and evaluation are some of the finest ways to make sure a project is carried out according to the plan and produces the desired results and effects. As previously mentioned, the Department of Planning, Monitoring, and Evaluation's objective is to enable, affect, and promote efficient planning, monitoring, and evaluation of government programs targeted at enhancing outcomes, the impact on society, and the delivery of services. The focus of this article will be on the water supply, which is a common municipality service delivery in particular municipalities. Qualitative research approach will be employed. Data gathering will be based on yearly reports, observed reports on the water supply in the localities, and even quick conversations with the locals.

Keywords: *Department; Planning, Monitoring and Evaluation; Projects; Water and Sanitation; Service Delivery*

Ref: 005/CAD/25

Urban Physics and Outdoor Thermal Comfort for Modelling Urban Energy Dynamics: A Case of Lucknow City, India.

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Abstract: The United Nations' World Urbanization Prospects, 2018 reports that the population in urban areas will increase by 70% by 2050. It is clearly evident that more than half the world's population is already living in urbanized areas. Due to this phenomenal trend, load on non-renewable resources multiplied manifold which leads to temperature increase and climate change. Intergovernmental Panel on Climate Change (IPCC) has elevated the fact that the climate is changing in the system. As a consequence thermal environment of urban systems also affects the physical wellbeing of residents. Thus, a growing interest has been observed in community wellbeing and human health concerning urban microclimate. Owing to this research tendency, outdoor thermal comfort is now given priority as an important urban planning pivotal control parameter for future smart cities. Researchers have been made an attempt towards a more sustainable built environment, using renewable energy resources to ease the energy loads in cities to curb these effects. These experimental studies greatly contribute to reduced energy usage of buildings and balanced outdoor thermal comfort around those buildings by showing improved temperature uniformity. Urban Physics is an action science aimed at to understand the behaviour of human settlements and to develop new knowledge by using the established theories of disciplines and the interactions of different entities, which include spatial organization of anthropogenic activities, transfer of heat and mass, energy interactions aiming at to improve the health and comfort of people, ecology and environment, socio-economic conditions of people over the defined urban space leading to the sustainable development of the urban system.

Researchers after having extensive study of literature about entities of Urban Physics, the interaction of entities and bearing parameter of Urban Physics, and found that energy and mass are the two most important parameters, which decide the functions of any system. Knowledge "the metaphysical resource" helps in increasing the efficiency of the system. Keeping the aforesaid knowledge, Lucknow City, India has been chosen as study region for further detailed investigation. Urban Heat Islands (UHIs) and outdoor thermal discomfort are critical challenges confronting urban sustainability, especially in rapidly urbanizing regions in Lucknow City. This study leverages the interdisciplinary framework of Urban Physics to evaluate the intricate interplay of urban morphology, localized heat dynamics, and energy fluxes under evolving climatic and energetic constraints. The research study aims to conceptualize Urban Physics as a domain, explore its control parameters, and develop an integrated model for Urban Energy Dynamics to support sustainable urban planning. The methodology is a rigorously structured, multi-scalar approach, integrating advanced geospatial and computational techniques. Local Climate Zone (LCZ) mapping, conducted using the World Urban Database and Access Portal Tools (WUDAPT) framework and ArcGIS tools, establishes the spatial typologies of urban clusters.

UHI intensity is quantified using high-resolution meteorological and remote-sensing data, coupled with Computational Fluid Dynamics (CFD) modeling for spatiotemporal heat flow analysis. Spatial overlays link UHI hotspots with demographic and activity-exposure patterns, revealing critical zones of thermal vulnerability. Additionally, Outdoor Thermal Comfort indices are derived using Artificial Neural Networks (ANN) and Universal Thermal Climate Index (UTCI) algorithms, enabling precise evaluation of microclimatic interactions. Researchers have made an attempt to evolve a comprehensive Urban Energy Dynamics model, integrating thermal comfort indices, LCZ dynamics, and energy demand metrics to simulate microclimate-energy interactions at an unprecedented spatial resolution. This model delivers actionable insights for policymakers to address UHI mitigation through adaptive zoning, energy-efficient design, and climate-responsive urban planning. Beyond technical advancements, the research emphasizes equity-driven resilience planning, addressing the socio-environmental implications of UHI impacts on vulnerable communities. By pioneering the application of Urban Physics for sustainable urban development, this work bridges critical knowledge gaps in urban climatology and energy systems, offering a replicable recommendation for fostering climate-resilient cities. Based on the findings, the study concludes with planning guidelines to promote climate responsive planning navigating towards sustainable urban development.

Keywords: Urban Physics; Local Climate Zones (LCZs); Outdoor Thermal Comfort; Urban Heat Island; Urban Energy Dynamics model; Sustainable Urban Development

Resilience of Coastal Communities to Climate Change, in Thiruvananthapuram Region, Kerala State, India

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Abstract: Climate change poses a significant threat to coastal communities worldwide, particularly those in developing countries. The Indian coastline, amongst the world's most vulnerable to climate change impacts, spans over 7,500 km with almost 3.5% of the world's population residing within 50 km of the coast. People living in the coastal region in India are continually experiencing the adverse impact of climate change, such as extreme temperatures, changes in precipitation, sea-level rise giving rise to coastal flooding and erosion, increased risk of drought, and more, leading to loss in the productivity of fisheries, agriculture and aquaculture. Coastal communities are often disproportionately affected by climate change due to their geographic vulnerability and reliance on marine resources. The population living in coastal areas, the infrastructure, and the economies are at risk from storm tide flooding, shoreline erosion, and sea level rise. This climate-induced phenomenon is a direct consequence of ongoing environmental changes. Erosion, a natural geological process shaped by forces like wind and water, continues to play a significant role in shaping landscapes over millions of years. As sea levels rise, the increased frequency of coastal flooding further underscores the vulnerability of coastal areas, necessitating a thorough assessment of the potential impacts on communities and ecosystems. Coastal districts of India being diverse in nature are under constant vulnerability to hazards. High population density, low nearshore bed slope, low coastal elevation, high erosion rates, built-up areas, and roads near the coastline are some of the factors contributing to very high vulnerability in coastal districts of Kerala.

Keeping the aforesaid knowledge in mind Thiruvananthapuram Municipal Corporation, having a coastline length of 27.40 km has been selected for the detailed investigation. The research study aims to assess the differential impact of climate change. This coastline has experienced different issues in the last two decades, especially storm tides, flooding, and coastal erosion, with an eroded area of 650 acres from the mainland affecting the livelihood of coastal communities. The district-wise statistics indicate the maximum shoreline erosion is in the Thiruvananthapuram district, with 23% of its coastline being vulnerable. The study deliberates analytical tools such as Shoreline Detection-Digital Shoreline Analysis System (DSAS), and Socio-Economic and Infrastructure vulnerability by employing weighted overlay analysis to generate the Composite Vulnerability Map (CVM) using Geospatial techniques. Based on the results of the findings, the study explores the high-risk vulnerable zones, to evolve policy framework through spatial interventions which can aid resilience spatial planning in the study region. The study concludes with integrated climate-adaptive livelihood strategies towards the resilience of vulnerable coastal communities for inclusive climate adaptation

Keywords: Coastal Communities; Climate Change; Coastal Erosion; Coastal Vulnerability; Community Resilience; Inclusive Climate Adaptation.

Trade Facilitation and Non-Tariff Barriers at Regional Economic Community Level of The African Union

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Abstract

Non-Tariff Barriers (NTBs) remains a serious hurdle towards facilitation of free trade on the regional as well as continental level. Non-Tariff Barriers (NTBs) refer to restrictions that result from prohibitions, conditions, or specific market requirements that make importation or exportation of products difficult and/or costly. NTBs arise from different measures taken by governments and authorities in the form of government laws, regulations, policies, conditions, restrictions or specific requirements, and private sector business practices, or prohibitions that protect the domestic industries from foreign competition. Some countries use NTBs as an economic strategy to control the level of trade they conduct with other countries. When making decisions on the NTBs to implement in international trade, countries base the barriers on the availability of goods and services for import and export, as well as the existing political alliances with other trade partners. From the African Union (AU) perspective, NTBs had become a hurdle to intra- African trade. African countries seek to increase intra-African trade through the implementation of the African Continental Free Trade Area (AfCFTA). The parties to that agreement are negotiating the specific timeframes in which they will reduce their tariffs for intra-African trade. Meanwhile, reducing the significant burden of onerous NTBs also remains a critical cost factor for any business operating on the African continent. The AU and its Regional Economic Communities (RECs) need to find a way to address the manner in which NTBs are to be applied from the regional or continental intra-trade. The AU must find a positive way to progressively eliminate tariffs and NTBs to allow for smooth facilitation of intra-African trade. The paper seeks to establish how NTBs hampers smooth facilitation of intra-trade from the regional economic communities of the AU. The paper will further argue on the methods implemented by the AU through AfCFTA to address trade barriers affecting smooth facilitation of intra-African trade.

Keywords: African Union, Export, Import, Intra-Trade, Non-Tariff Barriers, Regional Integration.

Modelling Strategic Management for Communal Property Associations (CPAs) revitalization in Land Reform Program: A case of North-West Province in the Republic of South Africa

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Abstract

The South African land reform program, especially the redistributive and restitution initiatives, has enabled property acquisition via Communal Property Associations (CPAs). The lack of strategic management frameworks has resulted in the failure of numerous CPAs and the forfeiture of significant productive assets. This research sought to provide a strategic management framework to rejuvenate CPAs in the North-West Province. A concurrent mixed-method study methodology was utilised to collect data via surveys from 272 randomly selected CPA respondents and through four focus group sessions held throughout five district municipalities. Critical findings demonstrate that strategic management elements (SME) exert a considerable and favourable effect on governance accountability (GA) [$\beta = 0.445$; $t(3) = 7.529$, $p < 0.000$], whereas GA substantially influences CPA sustainability (SUS) [$\beta = 0.346$; $t(3) = 3.127$, $p < 0.000$]. The correlation between SME and SUS [$\beta = -0.021$; $t(3) = 0.189$, $p < 0.000$] was substantial, underscoring the interconnection between strategic management and sustainable governance. Nevertheless, SME and financial management (FM) were determined to be statistically non-significant, indicating that financial resources alone are inadequate for CPA success in the absence of strong governance structures. The study suggests that governance accountability is essential for CPA sustainability, highlighting the necessity for strategic oversight. The government is advised to establish a governance framework inside CPA organisations to guarantee sustained viability and efficient management. These findings offer practical guidance for policymakers and stakeholders in rejuvenating CPAs to improve their role in the land reform initiative and rural economic development.

Keywords: Communal, CPAs, governance, land, sustainability

Effect of Climate Change Adaptation Strategies on Arable Crops Production Efficiency in Odeda Local Government, Nigeria

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Abstract

The effects of climate change on agriculture has become a crucial challenge in many parts of the world, particularly in Sub-Saharan Africa. Climate change affect agriculture in several ways, one of which is its direct impact on food production. This study examined the effect of climate change adaptation strategies on arable crop production efficiency in Odeda local government area of Ogun state. Simple random sampling technique was used in selecting a total of 120 arable crops farmers drawn from the list of extension blocks of the State. The objective of the study are to identify the climatic change adaptation strategies used by arable crop farmers; examine the effect of climate change adaptation strategies used by the arable crop farmers; determine the knowledge of farmers on the climate change adaptation strategies and examine the factors that influences the choice of climate change adaptation strategies used by the farmers. Data was collected through the use of interview schedule. The data was then analyzed using both descriptive and inferential statistics such as frequency counts, percentage, mean, chi-square and correlation analysis. The results revealed that above half (56.7%) of the farmers were male, with a mean age of 46.73 years. Most of the farmers (76.7%) were married, (43.0%) of the farmers had limited formal education. The mean farming experience and household size were 11 years and 5 person respectively. The respondent indicated that they were employed high level of climate change adoption strategy more occasionally with overall grand mean ($\bar{X}=2.11$) with the highest mean ($\bar{X}= 2.79$) corresponds to the frequent utilization of the multiple crop type or varieties strategies. The study revealed that majority of the Farmers (62.76%) have high knowledge of climate adaptation strategies and factors influencing the choice of climate change adoption strategies used was suitability to local climatic condition (86%) and non-availability of resources (finance and technology) with life is (97%) was a major constraints to the climatic change adoption strategies. Both the chi-square and the correlation analysis revealed that there is a strong positive($r=0.65$ $p<0.05$) correlation between the knowledge of farmers on climate change adoption strategies and adoption strategy adaptation strategies adopted by arable crop farmers. The study concluded that the climate change adaptation strategies have positive effects on arable crop production with average yield of 3 to 4 tonnes per hectare. The study recommends that affordable resources, including financial aids, technology and climatic resilient crop varieties be provided for crop farmers.

Keywords: Coping strategies; Impact, Productivity; Shock; Yield.

Evaluation of Residents' Satisfaction with Housing Quality in Staff Quarters of Southwest Nigerian Universities

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Abstract:

The quality of housing in staff quarters has a significant impact on residents' well-being and productivity. While there is existing research on housing satisfaction in general, studies specifically focused on staff housing in universities are scarce. This study analyzed housing characteristics in senior staff quarters of selected universities in Southwest Nigerian, with a view to inform the design of senior staff housing for LAUTECH, Ogbomoso, Oyo State.

This research adopted a mixed-method approach to assess housing satisfaction in staff quarters across Universities in Southwest Nigeria. Primary data collection in form of questionnaires, interviews, and observations were used. This was complemented by secondary data that came from institutional records and reports. Four universities—University of Ibadan (UI), Obafemi Awolowo University (OAU), Federal University of Technology Akure (FUTA), and University of Lagos (UNILAG), were randomly selected. A total of 350 questionnaires were randomly administered. Descriptive statistics of frequency counts, percentages and mean were used to assess socio-economic variables influencing residents' perception of housing quality, building typologies and the overall housing quality in the study area respectively. Factor analysis was conducted to identify key factors contributing to residents' satisfaction that include Natural lighting, Security, and Accessibility. Additionally, a case study approach was utilized to inventorize the existing University staff housing issues that includes maintenance, construction materials and layouts.

Findings indicated that female respondents constituted 60.9%, with the 41-50 age group representing 32.6%. A significant proportion of respondents (80% at FUTA, 61.5% at UI) were married, with educational qualifications distributed between master's degrees (37.5%) and PhDs (37.2%) across the Universities. In terms of housing types, 49.5% of respondents resided in duplexes while 38.8% lived in four-bedroom units. Structural integrity was rated "Very Good" by 51.1%, with high satisfaction levels reported for 87%, layout (90%), and ventilation (89.5%). The mean value of water supply satisfaction was highest at UI (0.8) and OAU (1.0), but electricity drew mixed responses, particularly at FUTA with value of (2.8). Natural lighting (0.90), Security (0.88), Accessibility (0.80) and Privacy (0.7) were the top key factors contributing to residents' satisfaction as revealed by results from the Factor analysis applied. The case study approach utilized to inventorize the existing University staff housing issues revealed that poor maintenance, outdated construction materials, and scattered layouts were the factors hindering the functionality and satisfaction of respondents in most Universities staff quarters despite the provisions of essential facilities.

The study concluded that elements such as good Accessibility, adequate Security, timely Maintenance and inclusive Privacy are pivotal to staff satisfaction in housing provision for staff of Universities. It is therefore recommended that University staff housing design should incorporate flexible unit sizes, dedicated workspaces, reliable water supply systems, alternative energy solutions such as solar power with timely and adequate maintenance. .

Keywords: (Housing Satisfaction, Housing Quality, Nigerian Universities, Staff Quarters, Southwest Nigeria)

A Review of Generative AI's Impact on Workforce Transformation and Future Skill Requirements

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Abstract: The Fourth Industrial Revolution (4IR) is characterized by rapid advances in artificial intelligence (AI), automation, and digital transformation, which reshape industries and workforce dynamics. Generative AI (GAI), a subset of AI, has emerged as a disruptive tool capable of producing text, art, music, and code, thus automating creative and decision-making processes. While GAI boosts productivity and creativity in a variety of industries, it also poses issues like as job displacement, skill mismatches, and ethical concerns. This study explores the influence of Generative AI (GAI) on workforce transformation, focusing on the introduction of AI-driven job positions and the growing demand for vital skills required for workers to remain competitive in the rapidly evolving labor market. Using a literature review methodology, this study summarizes existing research on AI's impact on workforce adaption, policy responses, and emerging labor market trends. The findings emphasise the importance of continual learning, reskilling initiatives, and interdisciplinary education programs in closing the AI skills gap. Furthermore, the study emphasizes the necessity of governmental actions for mitigating the risks of AI-induced job displacement and ensuring fair access to AI-driven opportunities. This study adds to the larger discussion on responsible AI adoption, equitable workforce adaption, and sustainable policy options in the era of 4IR by providing insights into AI's role in changing labor markets and skill development.

Keywords: AI Policy and Governance, Fourth Industrial Revolution, Future Skills Development, Generative AI, Workforce Transformation.

Job motivation and satisfaction: Implication on employees' retention in agro-allied industries in Oyo State, Nigeria

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Abstract: Increased employees' turnover in any organization does not only affect the organizations liabilities but also has implications on other business areas. For any agro-allied industry to experience growth and sustainability there is a need to motivate employees in order to increase the strength of retention. This study determined job motivation and satisfaction implications on employees' retention in agro-allied industries in Oyo State, Nigeria. A two-stage sampling procedure was used to select 183 respondents for the study. Data were obtained and analyzed using descriptive statistics while Chi-square, Pearson's Product Moment Correlation (PPMC), and Regression statistics were used to test the stated hypotheses. The results reveal that 80.3% of the respondents were male, 55.0% were married. Overall, 64.5% of the respondents were highly satisfied with their jobs. Results of correlation reveal significant ($p \leq 0.05$) relationship between years of experience ($r = 0.00$), job satisfaction ($r = -0.21$), motivational strategies ($r = -0.07$) and their job retention. Student-T test statistics reveals a significant ($p \leq 0.05$) difference between respondents motivational strategies ($t = 88.15$) and job satisfaction ($t = 88.15$) in the study area. The study concluded that job motivation and satisfaction influences the retention of employees on their job. The study recommended that management of agro-allied industries should create and implement a flexible work plan to enhance their employees' retention on the job.

Keywords: Satisfaction, motivational strategies, job retention, employees and industries

**Ensuring equity and accessibility of universal health coverage of Climate Changed Marginalized Population:
Establishing linkage system with GOVT. Health Care and Family Planning Services for
the Bede Community in Bangladesh**

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Background: About 750,000 Bede people, locally known as “river gypsies” in Bangladesh. Professionally their ancestors were snake charmers and herbal medicine makers but because of climate change, digitalization, and urbanization, most of them are detached from their heritage. The Bede community is a miserable example of early marriage and childbearing, and the non-use of FP methods is a social practice. The Bede couple is not registered in the public family planning system and has not received immunization services. In addition, universal health coverage (UHC) and family planning (FP) services are limited within this community. The Directorate General of Family Planning (DGFP) and Health Services (DGHS), Bangladesh collaborated with the USAID-funded Shukhi Jibon project to increase access to UHC and FP services for this community. The Govt. program implementation is running in the Madaripur district in Bangladesh. All kinds of people get services from the DGHS and DGFP except the Bede community. The members of Bede community were not aware of the Govt. health and family planning services. And there are no service provisions for the Bede communities. There is all over the darkness below the lamp. Besides, the Bede community are living with the other locality, where the whole population are getting all kind of Govt. and Non-Govt. facilities except for the Bede community.

Methods: The objective of the assessment was to explore key themes of the Bede community regarding UHC and FP services. Action research was conducted using qualitative approaches at Shibchor of Madaripur district, Bangladesh where the total Bede population were 1600. Among them, 297 married (114 men, 183 women) between the ages of 13 to 39 years were interviewed. Simple random and purposive sampling techniques were applied to the selected person. 18 Key Informant Interviews, 18 Focus Group Discussions, 64 In Depth Interviews as well as observation were done. Data were rearranged through thematic observation. A checklist and open-ended questionnaires were developed for the data collection tools. The interviews were noted and transcribed for data analysis.

Results: As a result of continuous advocacy done by the project, UHC and FP services were made available through the combined action of DGFP and DGHS by organizing satellite clinics, courtyard sessions, etc. Before introducing and implementing the intervention, the people were almost unaware of the FP and UHC services. Almost all the respondents were unaware of SRH and FP services. The mean age at marriage for girls and boys was 13 and 15 years respectively. The mean age at first child for girls was 14 years and 92% of girls already have given birth by the age of 17 years. Two third of respondents (67%) mentioned the current use of modern contraceptives (86% OCP, 14% Condom). Two unskilled Bede women were conducted NVD here. They believed that a grilled placenta saved a newborn baby's life during the delivery period. Still, they have lots of misconceptions and myths about FP methods and general medical treatment.

Conclusion: Continuous advocacy with DGFP and DGHS resulted in introducing this marginalized community to mainstream UHC/SRH/FP services. There need to be more awareness sessions, and engaging community-level stakeholders and leaders, conducting door-to-door visits, uthan-boithok can increase their awareness. Govt. and Non-Govt. stakeholders need to give more emphasis on them. Need a concrete population data set on them and need to explore and assess their knowledge and demand in the SRHR sector. Local-level Govt. will keep separate programs with them to solve their problem. However, further support from the government and stakeholders is required to ensure quality UHC/SRH/FP services and overcome the existing harmful practices and social norms.

Keywords: Accessibility, Climate Change, Equity, Marginalized Population, Universal Health Coverage

Determinants of Utilization of Traditional Adaptation Strategies among Arable Crop Farmers in Odeda Local Government Area of Ogun State, Nigeria.

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Abstract

The susceptibility of arable crops calls for farmers to adapt to climate variability in climate dependent countries. The study assessed the utilization of traditional adaptation strategies by arable farmers in Odeda Local Government Area, Ogun State, Nigeria. Primary data were gathered from 150 arable crop farmers. Data were summarized and presented using frequency counts, percentages and means while Chi-square, Spearman rho and multiple linear regression were employed for analyses. A multistage sampling approach was used to select the respondents through a questionnaire survey. Result showed that the majority of the respondents had a mean age of 40.5 years, 12 year farming experience and 67.3% males. In addition, the majority (92.7%) of the farmers acquired knowledge on traditional adaptation strategies from parents/guardian and friends/neighbours (72.7%). Results show that the most utilized strategies at pre-planting were; late/ early planting ($\bar{x}$ = 2.66), fragmented planting ($\bar{x}$ = 2.48) and wetting of nursery ($\bar{x}$ = 2.38). At the production phase, the respondents utilized various adaptation measures to adapt to climate variability. These include; planting of early maturing varieties ($\bar{x}$ = 2.59), control of pest and diseases ($\bar{x}$ = 2.56), application of manure ($\bar{x}$ = 2.55), multiple cropping ($\bar{x}$ = 2.53), use of early warning signs ($\bar{x}$ = 2.51), use of shades and shelter at nursery ($\bar{x}$ = 2.47), changing of quantity of land under cultivation ($\bar{x}$ = 2.44), increased wetting ($\bar{x}$ = 2.41), mulching ($\bar{x}$ = 2.41) and varying of planting periods ($\bar{x}$ = 2.29). In addition, selective harvesting ($\bar{x}$ = 2.42) and early /late harvesting ($\bar{x}$ = 2.40) were employed by the respondents as adaptation measure of climate change at harvesting phase. Furthermore, at the storage phase, sun drying ($\bar{x}$ = 2.52), gourd storage ($\bar{x}$ = 2.47), packaging ($\bar{x}$ = 2.47) and drying under roof/ air drying ($\bar{x}$ = 2.43) were also utilized to preserve harvested crops and adapt to climate variability. Result further showed that inadequate capital ($\bar{x}$ = 2.77), poor storage facility ($\bar{x}$ = 2.62) and lack of irrigation facility ($\bar{x}$ = 4.47) were the major constraints encountered by the respondents. In addition, the study shows that newspapers (32%), extension agents (34%), radio (49.3%) and television (42.7%) were the least sources of knowledge of adaptation. Results of the spearman rho correlation showed a significant relationship ($p < 0.05$) between constraints (r = 0.516) and utilization of traditional adaptation strategies. In addition, perception (β = 0.423, t = 3.432) and constraints (β = -1.537, t = 6.23) were the major determinants of farmers' utilization of traditional adaptation strategies. The study recommended the need to strengthen agricultural extension services, particularly in rural areas, to ensure dissemination of up-to-date adaptation strategies to reduce vulnerable to the effect of climate variability.

Keywords: Agriculture; Climate change; Determinants; Sustainability; Utilization.

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Rural Feeder Roads and Socio-economic Development of Rural Communities in Ondo North and Central Senatorial Districts, Nigeria

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Abstract: The role of rural feeder roads cannot be overemphasized in rural economy. The rural communities in Nigeria are known to be the bedrock of food production and supplies to urban areas. This is because most food items come from rural settings as larger percentage of rural residents are farmers who produce most of the foods consumed by urban dwellers. Essentially, smooth movement of people and their produce is largely depended on good roads as this tends to enhance accessibility to opportunities and provisions for both rural and urban residents, especially the traders and commuters. However, the needed accessibility to markets, hospitals, health centres, maternity, schools etc. has continued to elude the rural dwellers as a result of poor feeder roads across the rural communities of Ondo State, particularly the Northern and Central zones of the state. The poor condition of rural feeder roads is negatively affecting sales of farm products and price, vehicular movement, access to modern social facilities and other potentials of socio-economic development. The rural communities we contribute meaningfully to the social, cultural and economic development, if rural development is taken as priority by government at different levels. Most of the resources derived from agriculture, which lie in abundant quantity in rural communities. There is no much infrastructural development putting in place in rural area and this neglect has brought mass exodus of rural dwellers and in turn has made the rural area qualitatively and quantitatively depopulated, and progressively less attractive for socio-economic investment. In terms of level of economic development, quality of life, access to opportunities, facilities and amenities, standard of living and general viability, the gap between the urban and rural areas in Nigeria is very wide.

Flowing from the foregoing, the study examines the effect of poor rural feeder roads on income and socio-economic development of rural dwellers in Ondo North and Central Senatorial districts with the intention of making strong recommendations for grading, construction and maintenance of the existing rural feeder roads in the State. The research adopts the use of structured questionnaire and in-depth interview to elicit needed information for the study. The generated data will be analysed with the use of descriptive and inferential statistical tools, which include simple percentage, charts, tables and chi-square analysis. The findings of the study will not only improve sales and income level of rural dwellers but will also enhance prompt and regular maintenance of rural feeder roads by the appropriate authorities for sustainable development.

Keywords: Agriculture, Development, Economy, Road, Rural Communities

Role of Indigenous Knowledge in Climate Change Adaptation in Ogoni Rural Communities, Nigeria

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Abstract

Indigenous and local knowledge (ILK) plays a vital role in climate change adaptation, particularly among small-scale farmers in Africa. In the Ogoni region of Rivers State, Nigeria, ILK provides crucial strategies for environmental management, agriculture, and water conservation. This study examines the application, perception, and challenges of ILK in mitigating climate change impacts in Eleme, Khana, Tai, and Gokana Local Government Areas. Using purposive sampling, 36 indigenous farmers from six communities were surveyed. Data collection involved questionnaires and qualitative analysis through thematic and ATLAS software. Findings reveal that seasonal planting (30.56%) and irrigation (22.22%) are the most commonly practiced indigenous adaptation strategies. Farmers recognize ILK's effectiveness, with 47.22% considering it highly effective in mitigating climate change impacts. However, 33.33% remain unsure, highlighting a knowledge gap. While some communities still practice traditional spiritual responses, such as rainmaking (19.44%) and sacrifices (16.67%), modernization has led to a decline in these rituals (55.56%). Modernization has had mixed effects on ILK, with 44.44% perceiving it as beneficial, while 38.89% remain uncertain about its impact. Constraints to ILK adoption include poor sensitization (11.11%), reluctance among farmers (5.56%), lack of farming resources (5.56%), and poor transmission of knowledge to younger generations (5.56%). A significant portion (44.44%) is unsure of the specific challenges affecting ILK integration. The study underscores the need for policy reforms to integrate ILK with formal climate strategies, promote knowledge transfer, and enhance farmer education. Strengthening ILK documentation and encouraging hybrid adaptation models that blend traditional and modern practices could enhance climate resilience in Ogoni communities.

Keywords: Climate change adaptation, environmental management, Indigenous Knowledge (IK), Ogoni communities, sustainable agriculture

Impact of Land Use Types on the Spatial Heterogeneity of Extreme Heat Environments in Jaipur City, Rajasthan, India

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Abstract

Rapid urbanization has been accompanied by the construction of large amounts of impervious surfaces, artificially built environments, and transportation systems and has further resulted in extreme heat events in urban core areas, which are much warmer than the surrounding areas. Urbanization strongly correlates with land use land cover (LULC) dynamics, which further links to changes in land surface temperature (LST) and urban heat island (UHI) intensity. Each LULC type influences UHI differently with changing climate, therefore knowing this impact and connection is critical. Local climate changes due to urbanization are epitomized by the UHI, which is characterized by temperature differences between urban and rural areas. The UHI is a critical factor for energy consumption and air quality, resulting in higher peak electricity demand in summer because of air conditioning, increased emissions of primary pollutants associated to power production, and increased generation of ozone. However, planners need a better understanding of the relationship between the UHI and land-use patterns to reduce the UHI and promote more sustainable urban development. Keeping the aforesaid knowledge in mind, Jaipur City, Rajasthan State has been chosen as study region for further detailed investigation. The study has been carried out on two levels viz., one is City level and another at Planning zone level to get better understanding of the existing scenario of the study region. At City level, Spatial Autocorrelation followed by multiple regressions using ArcGIS software has been established. Multiple regressions using geographically weighted regression tool gave a mix of parameters which are affecting the temperature and thermal comfort of the study city. On the other hand, at planning zone level, the land uses considered are commercial, residential, and industrial level which had a dominant land use among the different land use compositions. Fishnet analysis with grid size of 250m by 250m was run leading to different sets of factors contributing to UHI in the Jaipur Municipal Corporation. The findings of this research also provide important insights for city planners, urbanist and policy makers to examine urban climate resilience through the lens of land use dynamics and UHI intensity in the system. Based on the results and findings, recommendations were made at city level as well as at the planning zone level. This research study demonstrate that it is possible to reduce temperatures in residential and urban areas through judicious siting of green areas to navigate towards sustainable urban development.

Keywords: UHI; Land Surface Temperature; Urban Energy; Land Use Planning; Sustainable Development.

Bridging the Gap: Unpacking the Role of Social Workers Towards Sustainable Development

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Abstract

As the world deals with complex social, economic, and environmental challenges, social workers play a vital role in promoting sustainable development. The influence of the social work profession on sustainable development is still little understood, despite their vital contributions. This paper aims to bridge this knowledge gap by unpacking the role of social workers in advancing sustainable development. We explore the relationship between social work and sustainable development, emphasizing the special advantages and difficulties faced by the field. Case study approach was used to examine specific projects or organizations that integrate social work with sustainability. We found important areas where social workers may contribute significantly, such as community-led development, environmental justice, and human rights advocacy, by critically examining the body of current research and case studies. Our results highlight how crucial it is to incorporate social work concepts into sustainable development programs to improve the welfare of people, communities, and the environment.

Keywords: community-led development; environmental justice; human rights; social work; sustainable development.

Stormwater Management and Drainage System at EtheKwini Municipality Durban South Africa

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Abstract: Stormwater management and drainage systems play a crucial role in mitigating flooding, reducing pollution, and ensuring sustainable urban water management. In eThekweni Municipality, Durban, South Africa, rapid urbanization, climate change, and inadequate drainage infrastructure have exacerbated stormwater-related challenges, leading to increased flooding, erosion, and water quality degradation. This study assesses the effectiveness of the existing stormwater management and drainage systems in eThekweni Municipality by analysing hydrological patterns, drainage capacity, and the impact of extreme weather events.

The research utilizes **Geographic Information Systems (GIS)**, hydrological modeling, and field surveys to evaluate stormwater infrastructure performance, identify flood-prone areas, and propose sustainable drainage solutions. Findings indicate that outdated infrastructure, poor maintenance, and land-use changes contribute to increased surface runoff and localized flooding. The study recommends adopting nature-based solutions such as green infrastructure, permeable pavements, and improved drainage network designs to enhance urban resilience against stormwater challenges.

This assessment provides valuable insights for policymakers, urban planners, and water engineers to improve stormwater management strategies, reduce flood risks, and enhance sustainable water governance in eThekweni Municipality.

Keywords: Stormwater Management, Drainage Systems, eThekweni Municipality, Flood Risk, GIS, Urban Water Management

Assessing the Geotechnical Challenges Posed by Soft Marine Sediments

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Abstract: Soft marine sediments pose significant geotechnical challenges in coastal and offshore engineering due to their low shear strength, high compressibility, and poor bearing capacity. In coastal cities like Durban, South Africa, where extensive port activities and urban expansion occur, understanding the behaviour of these sediments is crucial for sustainable infrastructure development. This study assesses the geotechnical properties of soft marine sediments in Durban's coastal and harbour areas, focusing on their impact on foundation stability, settlement, and soil improvement techniques.

The research involves field investigations, laboratory testing, and numerical modeling to evaluate the engineering characteristics of these sediments. The findings highlight issues such as excessive settlement in foundations, instability of offshore structures, and challenges in dredging operations. To mitigate these challenges, potential solutions like soil stabilization, deep foundations, and geosynthetic reinforcements are explored.

This study provides valuable insights for geotechnical engineers, urban planners, and policymakers to enhance the safety and sustainability of infrastructure projects in marine environments. The results will aid in designing resilient structures that can withstand the complexities of soft marine sediments in Durban and similar coastal regions

Keywords: Soft Marine Sediments, Geotechnical Challenges, Coastal Engineering, Soil Stability, Durban, Marine Infrastructure

Digital trade and regional integration

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Abstract

The detailed examination of such a subject will be carried out on the basis of a fundamental problem, which will thus serve as a guideline in the presentation of the ideas which should underlie the approach. This concerns the question of the links between digital trade and regional integration, particularly Regional Trade Agreements. In other words, how the standards or rules of the GATT and the WTO make it possible to understand the dynamics of inclusive and sustainable development, in favor of developing countries and least developed countries (LDCs) in the French-speaking world, notably through regional integration through digital trade, and specifically at the level of Regional Trade Agreements?

Thus the problem of method is at the heart of any scientific work as it is true that the method sheds light on the hypotheses and determines the conclusions, our approach will be ordered with a few exceptions around the use of the analytical and exegetical but also comparative method. It is understood as the analysis, interpretation and explanation of the rules of law, particularly those contained in the various legal texts of the GATT and the WTO. As for the expected results, the exception of Article 24 of the GATT requires a failure to take into account mixed RTAs in WTO law and a calling into question of the preferential triptych: Preference, non-reciprocity and discrimination.

Keywords: GATT, LDCs, Regional Integration, RTAs, WTO

Enhancing the Role of Participatory Land Use Planning in Building Community Resilience to Climate Change

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Abstract

In the IGAD region, arid and semi-arid lands (ASALs) constitute 70% of the land mass. These lands are frequently undervalued and mismanaged, leading to significant land degradation and conflicts, which in turn exacerbate local communities' vulnerability to climate change. The lack of clear land use plans has further deteriorated rangeland conditions in most of the cross-border areas. To address these pressing issues, the IGAD Land Governance Unit initiated participatory land use planning in selected areas of the Mandera/Somali cluster. This paper underscores the critical role of such planning processes in fostering community-led climate resilience initiatives.

The participatory land use planning approach was grounded in the Woreda Participatory Land Use Planning (WPLUP) Manuals, specifically designed for Ethiopia's pastoral and agro-pastoral regions. These manuals provided a framework for comprehensive socioeconomic data collection and analysis. The process was significantly enhanced by the integration of the LandPKS mobile application, which facilitated efficient biophysical and land capability classification. Local communities were actively engaged in identifying and analyzing key land use challenges and discussing viable solutions to bolster climate resilience.

The findings from this participatory approach revealed five distinct Land Capability classes, ranging from II to VIII, based on the degree of limitation and severity of and validated by the local community and other stakeholders. Classes II to IV were deemed suitable for agriculture and livestock production, despite facing moderate to severe limitations. Conversely, Classes VI and VIII were identified as more appropriate for non-agricultural uses such as wildlife conservation, forest protection, and ecotourism, due to significant soil depth limitations. Key outcomes of this planning process included heightened community awareness and participation, improved coordination, strengthened trust between local governments and communities, and an increased appreciation for participatory land use planning. Following the classification, the community cleared and prepared 15 hectares of land infested by *Prosopis juliflora* for agricultural activities under class I. The immediate outcome showed the effectiveness of using integrated *Prosopis* management as way for access to and use of land for vulnerable communities when it links with the government policy and programs. However, several challenges were noted, including low participation of women and limited technical and financial capacity to conduct the participatory land use planning process. To scale up these efforts, it is essential to raise awareness about the importance of women's inclusion, enhance capacity building for climate resilience, and develop harmonized regional guidelines on participatory land use planning. The participatory land use planning approach not only addressed immediate land degradation issues but also laid the groundwork for long-term sustainable land management practices. By involving local communities in the planning process, the initiative ensured that the solutions were tailored to the specific needs and conditions of the region. This community-driven approach fostered a sense of ownership and responsibility among the residents, which is crucial for the successful implementation and sustainability of the land use plans.

In conclusion, the participatory land use planning initiative in the IGAD Somali/Mandera Cluster serves as a model for other regions facing similar challenges. By prioritizing community involvement, leveraging technology, and addressing both immediate and long-term land management needs, the initiative has made significant strides in building climate resilience and promoting sustainable development. However, to achieve broader impact, it is critical to address the identified challenges and scale up the efforts through regional collaboration and capacity building initiatives.

Keywords: Climate change, community resilience, land use, participatory, planning

The Impact of Maize on Engine Efficiency: A Comprehensive study

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Abstract: The utilization of maize as a fuel source for engines has garnered significant attention due to its potential to mitigate environmental concerns and reduce dependency on fossil fuels. This abstract presents a comprehensive overview of the research conducted on the use of maize in enhancing engine efficiency.

Firstly, the composition of maize-derived biofuels, particularly ethanol, is outlined, highlighting its renewable nature and reduced greenhouse gas emissions compared to conventional fuels. The production process, from cultivation to conversion, is discussed, emphasizing the importance of sustainable agricultural practices to ensure the environmental viability of maize-based fuels.

Furthermore, to conduct this study, the impact of maize cultivation on land use, food security, and socio-economic factors is addressed. While concerns regarding land competition between food and fuel production persist, the adoption of sustainable agricultural practices, such as crop rotation and conservation tillage, can mitigate these challenges and promote rural development.

Finally, prospects and challenges in the field are discussed, including the development of advanced biofuel technologies, the integration of renewable energy systems, and the implementation of policy frameworks to support sustainable bioenergy production.

In conclusion, the utilization of maize in improving engine efficiency presents a promising pathway towards achieving energy security, environmental sustainability, and rural development. However, addressing key challenges, such as land use competition and economic viability, requires coordinated efforts from policymakers, researchers, and industry stakeholders to realize the full potential of maize-based biofuels.

Keywords: Maize, Biofuels, Engine Efficiency, Ethanol, Biodiesel, Sustainability, Agricultural Practices, Economic Viability, Policy Frameworks

Assessment of the future Environmental Carrying Capacity for Sustainable Development in Kochi City, Kerala State, India

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Abstract

Globally, ecological overshoot is becoming increasingly prevalent, making biocapacity enhancement crucial for resolving these growing environmental demands. Most of prior research, however, has concentrated on assessing environmental carrying capacity (ECC) while neglecting the potential effects of population growth, land cover dynamics, and carbon footprint. ECC is a critical factor for urban environmental sustainability, as it determines the maximum number of people, species, and activities that the environment can sustain over a given period of time. Urbanization is accelerating, with the global urban population projected to reach 70% by 2050. In India, like the global scenario, the urban population is projected to increase from 31.16% in 2011 to an estimated 40.76 per cent by 2030, which can intensify the pressure on ecological resources. Developing cities within the ecological and resource limits can help achieve a sustainable transition over the years. The ECC tool, when integrated into spatial planning strategy, can provide a vital framework for sustainable development by combining resource availability, waste assimilation, and ecosystem resilience in planning. Exceeding environmental carrying capacity triggers resource depletion, climate change, pollution, health risks, loss of biological diversity, and destruction of habitats, compromising ecosystem resilience thereby increasing the likelihood of irreparable harm. Therefore, considering the future ECC in planning is critical for the city's long-term development. Case studies from developed countries demonstrate the incorporation of ECC into urban planning through zoning, environmental impact assessment, and sustainability indicators. According to studies, ECC is used in European and North American cities to regulate resource usage, pollution levels, green space planning, and the promotion of environmental justice. On the contrary, the use of ECC in spatial planning efforts in developing countries is in its early stages, hampered by policy loopholes, data unavailability, and short-term development goals. For developing nations like India which are at the crossroads in terms of accelerating their economies, incorporating ECC into spatial planning is crucial for striking a balance between growth and environmental sustainability for building long-term urban resilience.

For this study Kochi, a rapidly developing coastal metropolitan city located in the Vembanad-Kol backwater system of Kerala state, which is representative of the maladies of uncontrolled development with environmental constraints in southern India, have been chosen as study area. Being developed as a smart city in this region, as well as having various development initiatives under the AMRUT mission, both of which are flagship programmes of the Government of India, the economic growth in Kochi has considerably accelerated infrastructure growth and land use changes in the system. However, this urban expansion is resulting in significant environmental cost, worsening pollution levels, groundwater loss, encroachment of wetlands etc., weakening Kochi's natural defences and compounding threats such as urban flooding and coastal erosion. Thus, there is inevitable requirement for employing an ECC-based approach to spatial planning in this eco-sensitive study region.

The study tried to assess the Environmental Carrying Capacity (ECC) of Kochi using spatial analysis through urban sustainability lens, integrating sensitivity and vulnerability concerns. Geo-spatial technology (GIS) is employed for spatial analysis to map urban expansion trends and to explore ecologically sensitive areas, allowing for the estimation of land development pressures. Given India's complex urban fabric, a comprehensive list of ECC control parameters refined to justify local environmental factors, socio-economic conditions, and data availability. Furthermore, the causal relationship between urban development and ECC in the transforming urban system is established using spatial and statistical tools. The extensive study and systematic review of various city master plans in India highlights ECC integration gaps and their urban sustainability implications in development plan preparation process. The study demonstrates that Kochi's present urban expansion and population growth (BAU scenario) will soon overshoot its environmental carrying capacity in near future, if unplanned. Regulatory frameworks exist in the Kochi Master Plan, but ECC is not fully integrated into urban planning as a regulatory tool, with economic priorities often sidelining ecology in the system. The research study thus proposes a replicable Integrated Spatial Planning Framework (ISP-F) for other high-growth cities with comparable environmental contexts, offering a strategic avenue towards balancing urban growth with ecological wholeness. Based on the results, the study calls for a dynamic, data-driven ECC approach for spatial planning in Kochi City to enable regulation of development intensity, land use optimization, and environmental risk minimization towards long-term resilience navigating for Sustainable Urban Development. The study findings facilitate the potential for the decision makers including policymakers, planners, and environmentalists to enhance local land use practices, thereby integrating ECC approach for spatial planning and their associated consequences meriting further study.

Keywords: Environmental Carrying Capacity, Environmental Sensitivity, Integrated Spatial Planning Framework, Sustainable Urban Development, Urban Planning.

Factors affecting effective implementation of performance management system in South African Municipalities

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Abstract

The institutional framework for implementing performance management system in the Gauteng Province's Johannesburg and Tshwane Metropolitan Municipalities is covered in Chapter Three. Chapter 7 of the Constitution of 1996 establishes three categories for local government, specifically, local municipalities (Category B), districts (Category C), and metropolitan areas (Category A). Provincial municipalities, also known as metropolitans in each region, have sole jurisdiction over local government and legislation, according to the 2017 reports of the Statistics South Africa. They are found in significant, densely populated regions with stable, intricate, and varied economies. It is argued that the district municipalities are responsible for planning and allocating resources among the local municipalities and cooperating with other branches of government. The study used a literature and document review to compile information on performance management systems in South African municipalities. The study used secondary data to compile information. No interviews and questionnaires form part of the study, hence there was no human interaction recorded. This statement meets the requirements of research ethics as information is compiled from the sources available in public domain. The information was assessed through document analysis. The aim of the study is to explain what are the factors that may hamper the effective implementation of performance management system at local governance level. The study identifies various challenges linking to performance management such as training, commitment from higher management, awareness, cultural change, to state a few. Based on the findings, the article suggests various interventions to improve the implementation status quo of performance management systems.

Keywords: Municipalities, performance management, qualitative, South Africa.

Creating an Organizational Culture Conducive to the Achievement of SDG5 in South African Municipalities

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Abstract: Equality was introduced to South Africa in 1994 with the first democratic election. However, almost 30 years later, South African municipalities are still struggling to attain gender equality despite numerous laws, regulations, and frameworks. The challenges hindering gender equality are cemented in the patriarchal culture of our society, which has a significant impact on the workplace. The objective of the research was “to offer practical actions that are required by the South African Municipalities to effectively implement gender equality”. The qualitative research method was used with data collected through an analysis of relevant literature and documents. Information was analysed with conceptual analysis. The research resulted in a Framework for Gender Equality in South African Municipalities (GEFSAM). The essence of the framework is found in the changes required in municipal workplaces to achieve gender equality. This article focuses on the process required to address the organisational culture of municipalities with the purpose to create organisational cultures that are conducive to the achievement of sustainable development goal 5 (SDG5).

Keywords: Gender equality, sustainable development goals, organisational culture.

Enhancing energy efficiency using thermoelectric generators in Nigeria

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Abstract

Nigeria faces significant energy challenges, including an unreliable power supply, high energy costs, and heavy dependence on fossil fuels. As energy demand continues to rise, improving energy efficiency has become a critical priority. Thermoelectric generators (TEGs) offer a promising solution by converting waste heat into electricity, thereby enhancing energy recovery and reducing overall power consumption.

This study explores the potential of integrating TEGs into Nigeria's energy landscape, particularly in industrial and residential applications where waste heat is abundant. Using computational modeling and experimental data, we analyze the feasibility of harvesting waste heat from industrial processes, power plants, and even traditional cooking stoves. The results indicate that TEG technology can significantly enhance energy efficiency, reduce fuel consumption, and lower carbon emissions. However, challenges such as material efficiency, cost, and thermal management need to be addressed for large-scale implementation.

The findings suggest that incorporating TEGs into Nigeria's energy infrastructure could contribute to sustainable energy development and provide an alternative power source for off-grid communities. This research highlights key policy recommendations and technical advancements needed to accelerate the adoption of TEGs in Nigeria, ultimately promoting energy sustainability and reducing dependence on conventional power sources.

Keywords: Energy efficiency, thermoelectric generators, waste heat recovery, renewable energy, Nigeria

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An exploration of biometric technology to combat online banking fraud and digital identity in the South African Banking Industry

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Abstract

Background: Digital banking and financial technology have received most of the attention over the years, while biometric banking technology has received little to no attention. The study's goal was to use biometric systems to examine the need for simplicity and security in digital banking, retail payment authentication, and financial technology. approach: a 52% response rate was attained by using a quantitative research methodology. A series of surveys was disseminated in order to gather data. Results: The study's conclusions showed that in order to guarantee or improve security for financial business operations, all companies involved in financial activities must completely implement the best security measures or systems available. conclusion: Based on the study's findings, it is advised that companies implement the newest, safest financial transaction methods in order to improve flexibility, security, and creativity.

Keywords: biometric, payments, technology, combat, online banking, fraud, digital identity.

The Use of Radiology in Wildlife Conservation and Veterinary Medicine in South Africa

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Abstract

Radiology plays a crucial role in wildlife conservation and veterinary medicine in South Africa, aiding in the diagnosis, treatment, and management of various animal health conditions. Advanced imaging techniques such as X-ray, ultrasound, CT, and MRI are increasingly being utilized in the assessment of injuries, diseases, and physiological conditions in both captive and free-ranging wildlife species. These technologies enable veterinarians and conservationists to conduct non-invasive examinations, facilitating early disease detection, injury assessment, and reproductive health monitoring. In South Africa, radiology has been particularly valuable in the management of endangered species such as rhinoceroses, elephants, and big cats, assisting in cases of poaching-related trauma, fractures, and dental or skeletal disorders. Additionally, radiographic imaging supports research efforts in wildlife pathology and rehabilitation, contributing to informed decision-making in conservation strategies. Despite its benefits, challenges such as equipment accessibility, financial constraints, and the need for specialized expertise limit its widespread application in remote areas. This paper highlights the importance of radiology in wildlife healthcare, explores its contributions to conservation initiatives in South Africa, and discusses potential advancements and challenges in the field.

Keywords: Radiology, Wildlife Conservation, Veterinary Medicine, South Africa, Diagnostic Imaging

Sustainable Future with the Development of a Secure Mini-bus Taxi Pick-up System for Children going to and coming from Schools

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Abstract: Today's children are the future of any society. Ensuring their future sustainability is very critical especially these days when their trips going to school and coming from school has become dangerous due to insecure taxis used for transport. The taxi business coupled with increased population has brought up various security issues. A particular group of taxi clients that is more susceptible is children in need of taxi to and from schools. Children's safety has been reported as a concern in South Africa, children frequently go missing leaving parents devastated. It has been reported in other studies that public transportation is not safe in South Africa especially in urban areas. Various methods have been conducted in an effort to ensure that children are safe when using taxis and taxi applications, however, the methods can tend to be inadequate as the children still go missing. In this research paper, an application is developed that will improve children's safety when using the taxi application systems. The Design Science research method has been adopted in this research and various data collection methods have been used. Furthermore, it details the business, functional and non-functional requirements. The proposed application will include the biometric technology to improve safety of children as it is known that the safety of women and children in South Africa is a huge concern. The application is implemented in the mobile app and the desktop app which allows the child and the driver to scan their fingers in departure and destination. The steps towards evaluation of the system by a group of participants are also highlighted. The change to the use of the system leading to possible safer environment for future generation in the course of gaining education is a step in the right direction working towards a sustainable future.

Keywords: mini-bus taxis, school children, single passenger taxi, biometrics, design science.
systems

Regulation of Fornication and Adultery (*zina*): What Malaysia can Learn from International Law to Enhance the Achievement of Millennium Development Goals

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Abstract

Islamic law forbids fornication and adultery (*zina*) and fornication is punishable with 100 lashes and adultery is punishable with death by stoning (*rajm*). Islamic law is elevated by the Constitution that declares it as the state religion. The Federal government of Malaysia has delegated Islamic matters to be under the legislative competence of individual states. Some states such as Kelantan has retained stoning as punishment for adultery and 100 lashes as punishment for fornication. On the contrary, the state of Perak has done away with the punishment of stoning and replaced it with 1 year imprisonment. Hence there is no uniformity on the regulation of *zina* in Malaysia. Malaysia can learn some lessons from international law which has decriminalised fornication and adultery. Punishment for *zina* contributes to the perpetuation of many social ills such as child marriages, violation of the right to life, reproductive rights, the right to health and many more. It contributes to retaining the cycle of poverty amongst females and is an anathema to the achievement of millennium development goals. International maintains that everyone has a right to choose when to have sex, when to have children and to fall in love out of free will and volition. The punishment for the Islamic *hudud* crime of *zina* is not in synch with modernity that is grounded on the universality of human rights.

Keywords: punishment of adultery and fornication (*zina*), perpetuation of social ills, anathema to sustainable development

Denial of Reproductive Rights in Senegal as an Enemy of Sustainable Development: What can Senegal learn from South Africa and the International Law?

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Abstract

The rate of clandestine abortions is on the rise in Senegal because women are afraid of the law enforcement agencies. This fear is attributable to article 305 of the Penal Code which makes it categorically clear that anyone who induces abortion is guilty of a criminal offence. The Criminal Code prescribes the penalty that ranges from one year to five years behind the bars for anyone who is found guilty of inducing abortion. This prohibition extends to medical practitioners, pharmacists, herbalists or anyone who disseminate information about contraceptives and abortion. Criminalization of abortion not only escalate maternal deaths of women putting to bed but also forces women to carry unwanted pregnancies even when they realise that would be detrimental to their economic situation and their development in general. The South African legal framework is quite liberal and commensurate well with the international human rights standards and there is a lot that can be learned by Senegal from the South African experience.

Keywords: Abortion, Contraceptives, Reproductive Rights in Senegal

Evidence in *Zina* Cases as a Form of Discrimination against Women in Pakistan

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Abstract

Islamic law regards fornication and adultery (*zina*) as a very serious offence and unlawful (*haram*) and attracts a severe punishment to any transgressor. *Zina* can be proven by confession of the culprit or by a testimony of at least four Muslim male witnesses. Women are not allowed to testify as witnesses in *zina* cases and the findings of this paper is that the exclusion of women from testifying in *zina* cases constitutes an unfair discrimination against women and this is not in line with international human rights. The standard of proof is higher to women if compared to their male counterparts and this constitutes discrimination against women. This is because pregnancy of an unmarried woman is used as evidence of fornication (*zina*), and this led to a situation where a woman is convicted for committing *zina* while her accomplice is acquitted for lack of evidence. Biologically a man cannot be impregnated by anyone, and he can only be convicted of *zina* if he confessed or when there is testimony of four male witnesses. Common sense dictates that it is not easy if not impossible to get the testimony of four witnesses who saw actual penetration during sexual intercourse. The current evidentiary requirements in *zina* cases are a clear violation of human rights of women.

Keywords: Fornication and adultery (*zina*), testimony in *zina* cases, pregnancy as proof of *zina*, discrimination against women

Punishment for Committing the *hudud* crime of fornication and adultery (*zina*) as a form of assault

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Abstract

This study seeks to investigate the Islamic punishment for committing the *hudud* crime of fornication and adultery (*zina*). According to the tenets of Islamic law, fornication is punishable with 100 lashes and adultery is punishable with death by stoning. South Africa is a country where numerous languages, cultures, religions and ethnic groups are allowed to thrive in one geographical territory. Since South Africa treaded on the path of progressive countries that respect human rights and thereby decriminalizing fornication and adultery (*zina*). The findings of the study are that Islamic punishments of those Muslims who have committed *zina* constitutes assault and are not likely to pass constitutional muster in South Africa. The latter mentioned punishments also conflict with reproductive rights and are more likely to perpetuate the cycle of child marriages. This is because in a quest to avoid *zina* Islamic law permits and tolerates child marriages.

Keywords: Fornication and adultery (*zina*), assault

Exclusion of traditional leaders from decision-making in local government: What can South Africa Learn from Lesotho and the United Kingdom?

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Abstract

The current legislation that regulates Municipalities in the country permits traditional leaders to be members of the Municipal councils of municipalities under their jurisdiction. However, there are just mere spectators or observers in their own show because they are not allowed to participate in the decision-making process through voting. This is more likely to have a negative impact on the realization of sustainable Development because traditional leaders are excluded from participating meaningfully in the taking of crucial decisions that touch communities under their constituencies. This study will make a comparative study of Lesotho and United Kingdom (UK) to see what can be learned from their experiences. The rationale for the suggestion is that in Lesotho Chiefs constitutes part of the municipal councils as full members by virtue of being traditional leaders. Traditional leaders are not elected by the MEC but by other traditional leaders to represent them as an institution of traditional leaders in the municipal council. UK parliament has the House of Lords and the House of Commons. So, the house of lords is constituted by unelected members while the members of the house of commons are elected through political elections. This shows clearly that the unelected traditional leaders have a role to play in decision-making and on the sustainable development of local communities and there is a lot to be learned from their experiences.

Keywords: Exclusion of traditional leaders from decision-making in municipalities, comparison of Lesotho and United Kingdom

Ukuthwala Custom: Exploring African Epistemologies to Solve Some Societal Problems

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Abstract

This paper seeks to explore the African cultural epistemologies behind the custom of ukuthwala and find out its potential whether it is still relevant in our modern society. The paper finds out that it is still relevant and can solve the following individual circumstances, namely: (a) to fast track marriage negotiations where timing is an issue, (b) when a woman is faced with a dilemma of having met a man she truly loves more than the current lover in her life, (c) to speed up marriage negotiations in response to peer pressure, (d) to force the hand of parents if the suitor is too poor to afford lobolo, (d) to circumvent parental opposition to the match. The above shows the beauty of the practice of ukuthwala and that it does not constitute a violation of human rights if there is an agreement. However, the influence of colonialism led to the distortion of many indigenous cultures and ways of life. The negative forms of ukuthwala that does not involve the consent of a woman is a violation of human rights. Any culprit will be punished severely and is prone to the criminal charges of rape, human trafficking, and assault.

Keywords: *ukuthwala*, African cultural epistemologies, human trafficking, rape, and assault

Feminist Reflections on the Exclusion of Women from the Acquisition of Land and from Participating Actively as Members in Traditional Courts

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Abstract

Section 3 together with section 11 (3) (b) of the Black Administration Act 38 of 1927 serves as the genesis of the dilemma of the legal exclusion of women from actively participating in customary decision-making forums. Section 3 excluded women from customary decision-making forums and was complemented by section 11 (3) (b) of the same Act which declared women as the perpetual minors for the rest of their lives. Eventually this became part and parcel of the living customary law. Marital power of a husband was eventually abolished in South Africa and the progressive legislative developments were made to bring about the equality of both men and women. Despite the presence of the pieces of legislations advocating for the equality of both sexes, women continue to be excluded from the acquisition, control and the ownership of land. In nearly three decades of our constitutional democracy that is founded on, inter alia, the value of equality and non-discrimination, women are still poorly represented and generally excluded from traditional forums responsible for taking decisions pertaining to the distribution of land. Women continue to be discriminated against in the traditional courts despite the presence of progressive legislative developments advocating for their representation in traditional councils. Patriarchy remains deeply rooted in traditional courts and in many instances, women are regarded as gossips that are not taken seriously and are excluded from participating as members of traditional councils. In view of the plight of women regarding access, control and ownership of land and their exclusion in traditional decision-making forums, this remains a feminist issue. In view of the already mentioned discrimination against women that persists despite the presence of the progressive legislation, broad awareness campaigns are essential to enlighten the public about women's land rights more generally. These campaigns can be conducted via television, radio, print media and internet to inform the public about women's rights to land and access to traditional courts, distributing such information in local languages. This would ensure that such campaigns effectively include and reach the marginalised and illiterate women.

Keywords: Exclusion of women from land acquisition and decision making, traditional courts

Road Network Vulnerability and Risk Management for Flood Resilience in Kochi City, Kerala State, India

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Abstract

Transportation networks are the backbone of human movements and activities in urban systems. Maintaining road network topological integrity in facing disturbances is critical for providing basic transport functionality. Extensive research study has already been devoted to road network resilience assessment using topological information of physical roads as it is the most accessible and complete data source, especially the road network connectivity in the face of flood-induced large-scale inundation. Functionality loss such as heavy congestion can also lead to transportation network failure. More importantly, these two types of failures are often compounded during disasters such as flooding and further exacerbate the impact of flooding on transportation resilience. Traffic congestion occurs daily but the transportation network still functions to meet people's travel needs. We propose that a road meets operation requirements as long as the quality of its links to speed or travel time, satisfies an acceptable threshold. This paper incorporates the link reliability concept into the road travel performance using the link quality threshold to offer new perspectives on network resilience measurement. Transportation reliability is commonly studied from three perspective: connectivity reliability, capacity reliability, and travel time reliability. Travel time reliability relates to the characterization of the travel time variation. An important aspect of reliability is to determine if a trip can be completed within an expected time, such as mean degree travel time with several degrees of variation. Disruptions in road network can significantly impact traffic flow, necessitating the identification and mitigation of vulnerable components. It is critical to understand transportation system behaviour in facing non-recurring congestion induced by the extreme weather, so that city planners and operations managers, and analysts can better manage the traffic in urban areas during natural disasters.

Keeping the aforesaid knowledge in mind, researchers have chosen Kochi region for further detailed investigation. The research study investigates the vulnerability of Kochi Municipal Corporation's urban road network to flood hazards, evaluating the impacts on traffic flow and associated socio-economic and environmental changes. Kochi's coastal geography, dense population and unplanned urbanization make it highly susceptible to climate hazards, within a significant portion of city's land lying within floodplains, necessitating a comprehensive study to develop network model for vulnerability assessment and risk management. The research aims to assess existing road, traffic conditions, identify critical and vulnerable road segments under flood conditions, analyse unreliability by modelling spill over effects on secondary road networks to quantify social and environmental impacts. The study makes an attempt to develop Network Vulnerability Index (NVI) through simulation by employing PTV Visum software, based on the critical links explored, then capacity analysis would be carried out. Further, pollution level of the critical links and spill over links explored through CALINE and AERMOD models. Finally, the study evolves a Spatial Interaction Network Model and propose planning interventions for risk management towards flood resilience. The results move us closer to better understanding transportation network resilience behaviour in different link quality conditions. The findings of this research also provide important insights for city planners and traffic operators to examine transportation network resilience through a reliability and stability lens. Based on the findings the study concludes with planning strategies to enhance resilience of flood-disrupted dynamic transportation network, through the lens of link reliability and stability.

Keywords: Road Network Vulnerability, Traffic reliability, Link stability, Urban flooding, Spatial Interaction Network Model, Transportation network resilience.

Understanding Multidimensional Barriers to Sustainable Development Goals in Vietnam's Construction Industry: Insights from a Rough Set Theory Approach

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Abstract

This study presents a groundbreaking application of Rough Set Theory (RST) to systematically identify and analyze the multidimensional barriers to achieving sustainable development goals (SDGs) within Vietnam's construction industry. The construction sector in Vietnam, a rapidly growing economy, faces numerous challenges that hinder the adoption of sustainable practices. Recognizing the complexity and imprecision inherent in the data surrounding these challenges, this research leverages RST to provide a robust framework for classification and analysis.

RST is particularly well-suited for handling uncertain and vague information, making it a great tool for analyzing the complex barriers to sustainability. Through this innovative approach, the study categorizes various development states and identifies critical barriers- both core and non-core - that impede progress toward sustainability. Key obstacles highlighted include financial constraints, technological limitations, and significant gaps in stakeholder awareness. These barriers collectively pose substantial challenges to the implementation of sustainable practices within the construction industry, thereby stalling the sector's alignment with broader sustainability goals.

Employing the LEM2 algorithm, the research formulates evidence-based decision rules that offer actionable strategies tailored to the unique challenges of each identified development state. This algorithm facilitates the extraction of meaningful patterns from the data, allowing for the development of targeted interventions that address specific barriers. By focusing on the unique characteristics of Vietnam's construction sector, the study provides insights that are both contextually relevant and practically applicable.

The findings of this research underscore the potential of RST to enhance data-driven decision-making processes. Policymakers and industry stakeholders are empowered to craft targeted interventions that not only address systemic inefficiencies but also promote collaboration and innovation within the sector. This data-centric approach is crucial for aligning Vietnam's construction industry with global sustainability objectives, ensuring comprehensive progress across environmental, social, and economic dimensions.

This study provides a comprehensive framework for identifying and addressing the challenges to sustainable development in Vietnam's construction industry. It enhances understanding of the intricate factors influencing sustainability and offers strategic insights for effective policy development and implementation. Beyond Vietnam, the findings serve as an adaptable model for other regions grappling with similar sustainability challenges, offering valuable guidance for global efforts toward more sustainable construction practices.

In conclusion, through the application of RST, this study not only identifies key obstacles but also proposes practical solutions that can drive the construction industry in Vietnam - and beyond toward a more sustainable future. The findings provide valuable insights for a range of stakeholders, including government policymakers and industry professionals, encouraging a collaborative approach to integrating sustainable practices. More than just an analysis of challenges, this research serves as a call to action, urging all involved in the construction sector to acknowledge these barriers and actively engage in overcoming them. By adopting such an approach, Vietnam's construction industry can improve operational efficiency while also making a meaningful contribution to broader sustainability objectives, striking a necessary balance between economic progress and environmental responsibility.

Keywords: Construction Industry, LEM2 Algorithm, Multidimensional Barriers, Rough Set Theory (RST), Sustainable Development.

Empowering Sustainable Agriculture: Digital Twin Technology and Solar-Powered Smart Irrigation for Enhanced Productivity and Inclusivity

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Abstract

To address the complications in modern agricultural practices, such as operation and maintenance, high costs, misuse of water and chemicals, limitations of covered land, and lack of control and monitoring in the agricultural process, this research project proposes a system that utilizes "digital twin" technology. The current proposal answers the question: **How can we improve the impact of technology in agriculture and its future accessibility?** It aims to promote sustainable development in agriculture by introducing and simplifying the adoption of recent technologies, particularly among small farmers

The focus is on utilizing renewable energy sources, such as solar power, to reduce costs and minimize environmental impact. Additionally, the project aims to install a new irrigation system that adjusts irrigation water and fertilizer application. It will also enable remote control and monitoring of crop conditions for farmers, especially those who are geographically distant from their fields. By implementing these technologies, the project aims to expand agricultural areas and improve productivity in previously deserted regions.

Practically, contrary to the requirements of the central pivot work method, the proposed irrigation system employs a new design technique to operate the pivot and move it in bi-direction ways to accommodate different land sizes and shapes. Moreover, the system utilizes sensors, cameras, a communication module, and an intelligent control module with a computer vision program to manage the entire agricultural process. The moving parts of the system integrate a solar energy system as their primary power source. This innovative approach harnesses solar power to operate the system's various components, reducing reliance on external energy sources.

This project transcends borders and aims to empower women in agriculture globally, with a special focus on women in my country, Sudan, and around the world. For example, while women represent 29% of the farming sector in Europe, they make up 43% in Africa and 45% in central and western Asia. In Sudan, 49% are involved in the irrigated agriculture sector, while in rural areas the percentage reaches up to 54%. For instance, given the economic crisis in Sudan and females who lost family members in war, these kinds of projects will empower women to take control of their futures by fostering self-sufficiency and promoting sustainability. The project envisions an intersection between the concept of accessibility of technology to all people with different backgrounds and economic standings, sustainability, and the promotion of solar energy. This has the potential to strengthen the future of agriculture, drive economic recovery, and support the implementation of progressive policies.

Keywords: digital twin, farm management, irrigation techniques, sensing networks, smart agriculture

The perceived effect of soil degradation and coping strategies among arable crop farmers in Atisbo Local Government of Oyo State

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Abstract

Soil degradation is on the increase worldwide, especially in the countries within the tropics. Mis-management of arable areas by farmers and grazing areas by livestock owners are the major causes of soil degradation. However, effective management of lands would reduce environmental pressure. The study was therefore designed to determine the perceived effect of soil degradation and coping strategies among arable crop farmers in Atisbo Local Government of Oyo state. The objectives of the study are to determine the causes of soil degradation, arable crop farmers' perceived effect of soil degradation, coping strategies practices adopted in controlling soil degradation and constraints facing the farmers in adopting the coping strategies practices. Arable crop farmers in Atisbo LGA constitute the study population. Multi-stage sampling technique was used in selecting a total of One hundred and twenty-eight (128) respondents drawn from four (4) towns out of seven towns in Atisbo local government area through random sample. The instrument used in data gathering was questionnaire. Data gathered were analyzed using frequencies, percentages, mean, Chi-square and Pearson product moment correlation. The major finding revealed that majority (91.4%) of the respondents was male, with a mean age of 44.77 years. Majority (80.5%) of the respondents was married, 64.1% of them had formal education. The mean farming experience and household size were 12.5 years and 8 person respectively. Majority of respondents (86.8%) agreed that soil degradation result in loss of grazing pasture for farm animals and 87.5% of the respondents agreed that crop rotation is an important practice that helps to maintain soil fertility and controls weeds, pest, and diseases. The study revealed that majority (60.2%) of the respondents reported high level of perceived effect of soil degradation. Some of the constraints identified by the respondents were inadequate finance (82.0%), lack of incentive (77.3%), and unfavourable land tenure system (68.8%) in the study area. The major coping strategies were mulching, crop rotation and bush fallowing to effect soil degradation. However, chi-square revealed that religion ($\chi^2 = 8.918$, $P < 0.05$) and education qualification ($\chi^2 = 8.019$, $P < 0.05$) influenced farmers perceived effect of soil degradation in the area. Based on the finding from the study, it is concluded that farmers actively use coping strategies in controlling soil degradation which revealed that farmers are aware of what happens in their environment. It was recommended that government and non-governmental agencies and community leaders should as a matter of urgency intensify efforts at educating farmers on the need for adequate use of land without hampering the land.

Keywords: Arable crop; Coping; Constraints; Farmers; Soil degradation.

Enhancing Sustainability with the Impact of Organizational Learning on the Change to the Use of Free and Open-Source Software at a South African University

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Abstract: Information Systems development have undoubtedly contributed towards development and sustainability in advanced countries. Development typically can simply be explained as positive change over certain period of time. While change is evident in our daily life, an example of positive change over certain period of time is technological change which has taken humankind from the primitive era to the level of civilization existing today, becoming necessary for organizational survival. If so then, why do people and organization however usually feel reluctant to embrace even positive prospective beneficial change? An example of such change involves the introduction of the Free and Open Source Software (FOSS). FOSS presents certain benefits and freedoms in the use of software. Such include freedom to access and enhance software source code at low or free cost, thereby demonstrating high potential to enhance the impact of ICT in the society, but some higher education institutions are yet to utilize the full benefits of the FOSS phenomena. However, the Tshwane University of Technology (TUT) and some other higher education institutions in South Africa are yet to really embrace and derive the benefits of the FOSS change phenomena. It thus seems like being unable to make sense of the FOSS phenomenon and generally in need some framework or perspective to deal with the change to FOSS. Dealing with change, according to literature and practice, requires a conducive organizational learning and culture. But to what extent is organizational learning being taken into account in the management of technological changes like FOSS at TUT? How then do we facilitate organizational culture and learning to enhance the management of the change to the use and adoption of FOSS at the Tshwane University of Technology (TUT)?

An interpretive research approach which is qualitative in nature is adopted to investigate this problem. A case study of TUT is conducted using questionnaire and interview triangulated with document review. By conducting a case study involving the use literature study, observation, semi-structured questionnaires and interviews, this study uses various theoretical and practical ideas on change management to analyse, explain and plan towards managing the adoption and use of FOSS at the TUT. The findings indicate the need for enhancing organizational learning towards a conducive the organizational culture which will further imbibe the principle of continuous learning by learning from previous problems and continuously adjusting to new effective cultures in the management of technological changes at TUT. Universities in developing countries need to adopt both single-loop learning that promotes “doing things better” perspective as well as double loop learning that promotes “doing things differently” perspective. This implies the need for management to encourage, participate, monitor and evaluate learning progresses and direct the attendant change as appropriate. The study concludes that the benefits of the organization could be enabled with properly managed change initiative enhanced by a conducive organizational learning and culture at the University in which the management, staff members and students have various roles to play. Proactive actions and decisions need to be taken for universities in developing countries not to be left out of sustainable development. This will include seriously striving to benefit from the open-source initiatives saving costs and enabling learning through the openness of software programming codes, thus encouraging in-house development of information systems. And critical to this is continuous “learning and doing” leading to entrenched organizational learning culture to effect “small wins” in using Information Systems for competitive advantage towards enabling sustainable development.

Keywords: FOSS, Open Source Software, Organizational learning, Information systems development, programming tools, sustainable development.

Prison Security in the Fourth Industrial Revolution

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Abstract: This conceptual and predictive paper explores the contemporary dynamics and challenges in prison security, with specific focus on technologies. The paper thus examines how fourth industrial revolution technologies are or can be used to improve prison security. Whilst technological innovations used to securitise prisons were introduced in the 1970s to promote safety and security, modern day devices are also used to improve rehabilitative processes, administrative workflows and the overall digitisation of information. The focus of this paper is however on the safety and security aspects in the contemporary and in the context of the fourth industrial revolution. Technology generally brought about radical changes in prison security the world over. One notable innovation in this regard is the electronic locking system. Whilst other technologies are also discoursed, this paper traverses prison security over the various industrial revolutions and problematises on the challenges in the fourth industrial revolution. The paper postulates vast inequalities between rich and poor nations, economic underdevelopment, resource constraints, and lack of political will as some of the modalities that constrain the techno-securitisation of prisons. Although the paper makes several recommendations on how to deal with the challenges, the authors also extrapolates a few fourth industrial revolution technological applications as a way of imagining prospects for prison security. The fourth industrial revolution is generally characterised by artificial intelligence (AI), 5th Generation technologies (5G), robotics, Virtual Reality, Internet of things, smart software's, big data analytics, and gamification, among many other applications. The research uses a conceptual and predictive methodology. Desktop which draws from literature and fictional sources (movies), was preferred. This qualitative approach uses inductive reasoning in data analysis and synthesis.

Keywords: Prison Security; Industrial revolution; Safe custody; Robotics; Technology.

What if Pigs Could Fly? Separating Myth from Possibilities through Fourth Industrial Revolution Technologies and Applications in Law Enforcement

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Abstract: This conceptual and imaginative paper explores the “what if” question in relation to migrating from myths to possibilities in the context of how fourth industrial revolution technologies and applications can enhance law enforcement efforts in combating organised crime, religious extremism and crime in general. The paper argues that industry captains and political principals are not reimagining contemporary digitalisation fast enough to give law enforcement a competitive edge over the criminal underworld, which is perpetually looking for ways to outsmart the police by also using advanced technologies. To counter the problem, police managers and political principals have to overcome the “not possible syndrome” and be more open to what fourth industrial revolution technologies could bring in terms of operational efficiencies, that is if they dare to imagine, do pilot testing, and implement what is traditionally perceived to be impossible. This paper extrapolates the “what if” question by daring into uncharted terrains that may not have been explored using fourth industrial revolution technologies and applications to combat crime and promote sustainability. The paper thus gives recommendations on what can be done to migrate from the myth “it is impossible” to reimagining the possibilities that fourth industrial revolution technologies and applications can bring aboard, as a way to enable creativity and innovation in combating crime. The research uses an imaginative methodology, making it qualitative desktop that draws from literature. In essence, the research combines parts of critical design with new materialist epistemologies and practice-based research to ignite imagination, challenge traditional assumptions, and to inspire alternative narratives on technologies, this to harness “out of the box thinking” about the fourth industrial revolution.

Keywords: Law Enforcement; Fourth Industrial Revolution; Artificial Intelligence; Crime Prevention; Technologies and Applications.

Emerging Trends in the Geographical Information System: Possibilities for Crime Prevention and Sustainability

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Abstract: Law enforcement agencies use the Geographical information System to digitalise their investigative operations as part of crime prevention. This technology has transformed maps into advanced digital investigative platforms that are used for solving the crime problem. The technology has capabilities that harness physical, societal and economic geographies, from urban planning and environmental monitoring to logistics and self-driving cars, which features align with the fourth industrial revolution. This conceptual paper interrogates whether law enforcement agencies are abreast with these emerging trends that enable understanding and interactions with the contemporary world, from a human, geographical and crime combating perspective. The paper thus interrogates at challenges in relation to how law enforcement agencies embrace the use of the Geographical Information System and makes recommendations on how to overcome some of the problems to increase efficiency in fighting crime and to promote sustainability. The research is qualitative desktop and uses inductive inferences in the analysis and synthesis of data collected from literature.

Keywords: Geographical Information System; Technology, Crime Mapping, Crime Investigation; Sustainability; Fourth Industrial Revolution.

Extending Offender Reform and Reintegration to Capacitate Law Enforcement and Sustainability Using 4IR Instruments: A New Approach to Combating Global Organized Crime

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Abstract: This paper talks to how law enforcement agencies can tap into offender reform spaces as a way to recruit and reintegrate rehabilitated offenders to help in combating global organised crime, which poses threats to economies, state security and human sustainability. The paper argues that training in and applying fourth industrial revolution technologies and applications prior and post the release could enable such initiatives. This approach could also help in reducing offender unemployment, thereby contributing to poverty alleviation and reducing recidivism, whilst promoting sustainability at both the individual rehabilitated offender level and in society. As a point of discourse, the authors argue that although law enforcement agencies have been infiltrating, gathering intelligence and profiling crime syndicates, there is little evidence on rehabilitated offenders having been deployed for such functions. Thus, there is little evidence to substantiate the use of fourth industrial revolution technologies and applications in this regard. The paper hypothesis different scenarios on how the technologies and applications can be deployed to ensure that rehabilitated offenders become drivers in combating crime, by tapping into the insights of those that have intimate knowledge on organised crime. This paper traverses from problems caused by global organised crime to how states and police agencies can enable situations where rehabilitated offenders can become useful in fighting crime. The research adopted qualitative desktop.

Keywords: Offender Reform; Rehabilitation; Reintegration; Recidivism; Technology; Fourth Industrial Revolution; Global Organised Crime; Sustainability.

Investigation of the Vandalism of the Cell Phone Towers: Perspectives of the Closed-Circuit Television

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Abstract: The paper focuses on the usage of the closed-circuit television to investigate vandalism of the cell phone towers. Vandalism of the cell phone tower causes the loss of the network connectivity to the mobile users. In the same breath, the cell phone service providers suffered financially in the restoring the vandalised cell phone towers. Cell phone towers are costly because they are built up with the metals. Furthermore, cell phone towers need fuel such as diesel to operate. In most cases criminals commit this type of crime with the intention to steal fuel and metals. However, the law enforcement agencies together with cell phone service providers can use technological aspects such as CCTV to combat vandalism of the cell phone towers. The purpose of the paper is to determine the value of the Closed-circuit television in the investigation of the cell phone tower vandalism. The CCTV surveillance operators process images of the suspects for the investigation process. The challenges and the benefits of using CCTV in the investigation of the cell phone tower vandalism interrogated in this paper. The non empirical study used to focus merely on the literature sources. The researcher reviewed the literature that focuses on forensic science and technology, policing technology and security management. The study reveals that crime investigators lack the knowledge in the use of CCTV to investigate the vandalism of cell phone towers. The paper recommended that crime investigators need to attend the training related to CCTV as identification techniques.

Keywords: Cell phone towers, cell phone service providers; crime investigation and crime scene

Cultivating Climate-Ready Minds: Agro-Trainees Awareness and Perception toward Climate Change in South-West Nigeria

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Abstract

The awareness and perception of agro-trainees with respect to climate change is paramount in shaping the future of agriculture in South-West Nigeria. While progress has been made, there is still a need for improved climate education, policy support and practical training to equip future farmers with the skills to combat climate challenges. The study therefore, examined the awareness and perception of agro-trainees to climate change in South-West Nigeria. A multi-stage sampling procedure was used to select 600 Farm Practical Year (FPY) students for the study. A structured questionnaire was used to obtain data from the respondents and analyzed using frequency counts, percentages, means, standard deviation, Chi-square, and Pearson Product Moment Correlation (PPMC). Results reveal that 52% of the respondents were female, 61.3% were Christian, 92.0% were single and 86.0% live off-campus with an average age, CGPA, household size and monthly allowance of 23 years, 3.69, 5 persons and ₦18,266.67 respectively. Internet (90.7%), television (86.0%) and school (84.7%) as the major sources of information on climate change. The major causes of climate change identified by the respondents were ozone depletion (83.3%), bush burning (82.7%) and natural cause (81.3%). The results show that 94.0% of the respondents were aware of climate change as they reported that climate is dynamic and always changing through time ($\bar{x}=3.54$), climate does not mean the same thing as weather ($\bar{x}=3.43$) as well as damage to the ozone layer causes climate change ($\bar{x}=3.37$). The majority (94.0%) of the respondents had favourable perceptions of climate change because they perceived climate to be changing ($\bar{x}=4.55$) as there are observed changes in temperature ($\bar{x}=4.25$) and shift in rainy season's months ($\bar{x}=4.19$). Respondents perceived planting of new crops ($\bar{x}=3.55$), water management to prevent water logging and erosion ($\bar{x}=3.55$) as well as construction of drainage channels ($\bar{x}=3.21$) as effective climate change adaptation strategies. The chi-square result revealed that there is a significant ($p<0.05$) association between religion ($\chi^2=6.71$) and the perception of respondents on climate change. Correlation results revealed a positive and significant ($p<0.05$) relationship between Age, ($r = 0.21$), CGPA ($r = 0.30$), awareness of respondents on climate change ($r=0.27$) and perception of respondents on climate change. The study concluded that religion, CGPA and awareness of climate change are related to the perception of respondents on climate change. Therefore, management should provide students with hands-on experience in climate-smart agriculture.

Keywords: Adaption strategies, Agro-trainees, Awareness, Climate change, Perception

**The evaluation of the development of agricultural extension services in Gauteng province:
What is the status at the district level?**

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Abstract

This study evaluates the status of development of agricultural extension services in three districts of Gauteng province to provide better policy insights. The study is crucial for two reasons: firstly, South Africa has recently adopted a district developmental model to accelerate economic growth and development, and secondly, the existing body of literature pays far too little attention to this niche research area. It employed a mixed method research and random sampling technique to gather primary data from agricultural extension officers in the province. Results show that the sample consisted of 51 (43% females and 57% males black South Africans) extension service personnel from Tshwane (n = 23), Randfontein (n = 11) and Germiston (n = 17), ranging in age from 18 to 59 years (M = 38 years) and with an average provincial ratio of 1 extension officer: 186 farmers. Fifty-seven percent (57%) had undergraduate education with B-Tech as the most prominent qualification, except in Tshwane. Findings also show that the delivery mode of extension service is increasingly diversifying to include platforms such as Facebook, WhatsApp, and Twitter as other platforms for delivery of extension services. But still, it is largely characterised by training, transfer of technology and advisory at the farm production level with less connection to the marketing of agricultural products. Policy considerations for further improvement of agricultural extension services at the district level include gender inclusivity, racial diversity, human resource development through investment in education, increased adoption of the fourth industrial revolution (4IR) technologies, and strategies to close the disjuncture between production and marketing.

Keywords: Agricultural extension, development, policy, Gauteng, South Africa

Guilty Until Proven Innocent? Examining Reverse Onus in South Africa

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Abstract

Reverse onus in South African criminal law presents a fundamental challenge to the presumption of innocence, a cornerstone of fair trial rights under Section 35 of the Constitution. Typically, in criminal proceedings, the prosecution bears the burden of proving the accused's guilt beyond a reasonable doubt. However, in certain statutory offenses, reverse onus shifts this burden, requiring the accused to prove their innocence or a particular defense on a balance of probabilities. This legal mechanism is commonly applied in cases involving firearms possession, drug trafficking, corruption, and financial crimes, where lawmakers argue that it strengthens law enforcement by making convictions easier in situations where proving intent or knowledge is inherently difficult.

Despite its benefits, reverse onus provisions have sparked considerable legal and constitutional debate. Critics argue that such provisions undermine fundamental rights, leading to potential miscarriages of justice. Nevertheless, proponents of reverse onus argue that it is a necessary tool in combating serious and organized crime. In cases where the accused is found in possession of illegal firearms or large quantities of drugs, the expectation that they explain their possession is seen as a reasonable burden. This approach aligns with legal frameworks in other jurisdictions, such as Canada and the United Kingdom, where reverse onus is used in limited circumstances.

The debate surrounding reverse onus highlights a key tension between crime control and individual rights. While it may enhance prosecutorial efficiency, it poses significant risks to fair trial principles. Moving forward, South Africa faces the challenge of ensuring that its laws balance effective law enforcement and constitutional protections. This article examines the legal framework, judicial interpretations, and potential reforms needed to ensure that reverse onus provisions remain both effective and constitutionally compliant.

Keywords: Keywords: Burden of Proof, Constitutional Law, Criminal Justice, Fair Trial, Reverse Onus

The Impact of a Compromised Chain of Custody on the Admissibility of Evidence in South African Criminal Trials

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Abstract

This paper examines the critical role of the chain of custody in South African criminal trials and the consequences when it is compromised. The chain of custody refers to the documented chronological record of the seizure, custody, control, transfer, analysis, and disposition of evidence. Its primary purpose is to ensure the integrity and authenticity of evidence presented in court, thereby upholding the fairness of legal proceedings. South African law, like many common law systems, places a high value on the reliability of evidence. A compromised chain of custody can cast doubt on the reliability and potentially lead to the inadmissibility of evidence.

The paper will explore the legal principles governing the admissibility of evidence in South African criminal courts, with a particular focus on how a broken or incomplete chain of custody affects this admissibility. It will analyze relevant case law to illustrate how courts have dealt with instances where the integrity of evidence has been questioned due to chain of custody issues. Specific attention will be given to the discretion of the court in determining admissibility, considering factors such as the nature of the evidence, the extent of the breach in the chain, and the potential for tampering or contamination.

Furthermore, this paper will discuss the practical implications of maintaining a robust chain of custody for law enforcement officials, forensic experts, and legal practitioners. It will highlight the importance of meticulous record-keeping, secure handling procedures, and clear lines of responsibility in preserving the integrity of evidence. The challenges faced in real-world scenarios, such as the handling of digital evidence or evidence from complex crime scenes, will also be considered.

The analysis will demonstrate that a compromised chain of custody can have severe consequences in South African criminal trials. It can lead to the exclusion of crucial evidence, potentially weakening the prosecution's case or undermining the defense. This can ultimately result in wrongful convictions or acquittals, thereby eroding public confidence in the justice system. The paper concludes by emphasizing the need for strict adherence to the chain of custody protocols to ensure the fairness and accuracy of criminal proceedings in South Africa. It underscores the ongoing importance of training, procedural safeguards, and judicial scrutiny in maintaining the integrity of evidence and upholding the rule of law.

Keywords: Admissibility of Evidence, Chain of Custody , Criminal Law , Criminal Trials, Evidence

Shared Resources, Shared Prosperity: Examining Role of Common Property Systems in Rural India

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Abstract

Empirical Concern and Context: Common property resources (CPRs) play a crucial role in sustaining rural economies, particularly in agrarian and tribal communities. In India, CPRs include community forests, pastures, wastelands, village ponds, and watershed areas, which provide essential resources for local livelihoods. Although state agencies may hold legal ownership, village communities often have de facto access and user rights, making CPRs an integral part of their socio-economic fabric. Given their seasonal and crisis-time importance, particularly for marginalised groups, understanding the economic and social dimensions of CPRs is critical for designing inclusive rural policies.

Literature and Theoretical Framework: Scholars have extensively debated the governance of commons, drawing from Hardin's *Tragedy of the Commons* to Ostrom's *Governing the Commons* (1990), which emphasised community-based management. In the Indian context, studies highlight the complementary role of CPRs and private resources in securing rural livelihoods. However, existing research often overlooks class and caste-based disparities in CPR dependence, especially across agrarian and tribal populations. This paper aims to fill this gap by analysing CPR contributions to employment, income, and social structures.

Methodological Approach: This study employs a micro-level empirical approach, utilizing primary survey data collected from selected villages. A mixed-methods framework integrates quantitative household surveys assessing CPR dependence with qualitative interviews capturing local narratives. The research analyzes CPR contributions to household food security, asset formation, employment, and income diversification. Additionally, it examines how caste and landholding patterns shape CPR access and usage.

Main Arguments and Supporting Evidence: Findings indicate that CPRs serve as a critical buffer for poorer households, particularly during dry seasons and economic distress. Women and children rely disproportionately on CPRs for fuelwood, fodder, and forest produce, reinforcing their role in subsistence economies. The study also highlights significant variations in CPR dependence across landholding classes, with landless and small farmers exhibiting the highest reliance. Additionally, CPRs complement private agricultural resources, supporting livestock-based livelihoods and farm sustainability. Contrary to narratives of common resource degradation, the study finds that strong local governance mechanisms sustain CPRs, challenging simplistic assumptions of inevitable overuse.

Conclusions and International Relevance: This research underscores the need for policies that recognise CPRs as vital socio-economic assets rather than neglected communal spaces. Strengthening community-based governance and integrating CPR management into rural development strategies can enhance sustainability and resilience. Given global concerns over resource commons, climate adaptation, and equitable rural development, these findings offer valuable insights beyond India, particularly for regions with strong communal land traditions in Asia-Pacific and other regions. This study contributes to international discussions on sustainable resource management and rural livelihoods by bridging micro-level empirical evidence with broader debates on commons governance and its role in sustainable development.

Keywords: Agrarian Communities, CPRs, Rural Livelihoods, Sustainability, Village Commons

Industrialisation Through Digitalisation of Fingerprints Taking in Criminal Justice System

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Abstract

Identification through fingerprints is very crucial and it is trusted by law enforcement worldwide. Fingerprints are said to be unique in every individual no person shares the same fingerprint as the other even the identical twins. Therefore, obtaining of fingerprints when police are charging suspects, Department of Home Affairs capturing passports and Identity books, Correctional services admitting offenders, courts transferring offenders to the correctional centres, calls for a thorough and accurate capturing of fingerprints so that the information is correctly stored or correctly conveyed to where it is needed. Using of paper and ink to obtain fingerprints and then transport that paper to the Local Criminal Record centre (LCRC) is not feasible, the process needs to be changed. Problems associated with manually obtaining fingerprints include offenders who can go the whole process of incarceration with clean record, because fingerprints were unreadable during the LCRC capturing. Includes offenders who are charged, released and evade prosecution without being recorded as a wanted or as a suspect in the case. This happens when LCRC finds that the obtained fingerprints (SAP 76) are poorly obtained, and they are unreadable. They return the SAP 76 to the police station for retake, that time, the offender has already been released and cannot be traced because they normally give wrong details. Therefore, the use of digital fingerprint scanners will be a solution. Hospitals and mortuaries need to be part of this industrialisation to minimise fraudulent deaths and false birth registrations. This can be done by utilising digital fingerprint scanners in hospitals to confirm visitation without divulging patient's medical information and to confirm identity of the deceased in mortuaries.

Keywords: Fingerprints, digitalisation, industrialisation, information, digital scanners,

Beyond External Interventions: The Role of Spirituality in Reducing Poverty and Inequality for Sustainable Development

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Abstract

Sustainable development remains elusive as long as poverty and inequality persist at current levels. Conventional poverty reduction strategies primarily focus on external interventions, such as financial aid, resource distribution, skills development, and capacity building. While these measures are essential, they often fail to address the deeper, internal factors that contribute to the persistence of poverty and inequality. This conceptual paper argues that the conditioning of both the wealthy and the poor plays a critical role in sustaining economic disparity. Deep-seated mental frameworks—shaped by cultural, social, and economic conditioning—reinforce cycles of privilege and deprivation, limiting the effectiveness of external interventions. We propose that spirituality, understood as the process of freeing the mind from conditioning, offers a transformative approach to breaking these cycles. By fostering self-awareness and shifting perspectives from self-centeredness to whole-centeredness, spirituality can help individuals transcend limiting beliefs and behaviors that sustain poverty and inequality. Through a literature-based analysis, this paper highlights the potential of integrating spirituality into sustainable development discourse. We argue that addressing poverty and inequality at both external and internal levels is crucial for meaningful and lasting change. Recognizing the role of conditioned mindsets in perpetuating economic disparities opens new pathways for policies and practices that foster genuine inclusivity, empowerment, and long-term sustainability.

Keywords: Mind Conditioning, Poverty Alleviation, Spirituality, Sustainable Development, Transformative Approach

Assess the Sustainability of Underserved Settlements in Jaffna Municipality and Its Urban Fringe

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Abstract

In developing countries, ineffective land-use planning and unplanned development have resulted in the spread of underserved settlements, as seen in Sri Lanka. These settlements have grown to be an important supplement to cities' insufficient formal housing supply, supplying relatively cheap labour to urban areas and contributing significantly to the country's Gross Domestic Product through the informal sector. Their lack of livelihood assets and spontaneously formed spatial patterns, conversely, portray these settlements as the most significant challenges to sustainable urban development. Prioritizing the sustainability of underserved settlements is crucial. Despite the fact that Sri Lanka is working toward the sustainable development goal of "making cities and human settlements inclusive, safe, resilient, and sustainable," only a few studies on the sustainability of underserved settlements have been conducted. This study was carried out in Jaffna Municipality and its urban fringe with the specific objectives of assessing the sustainability of underserved settlements in terms of livelihood assets, and recommending suitable solutions for their sustainability. This study incorporated both primary and secondary data. Due to the lack of an up-to-date public database of underserved settlements, a field survey was conducted at the housing unit level to identify underserved settlements from August 2020 to April 2021. Subsequently, primary data were collected through questionnaire survey with 341 underserved settlements selected using a stratified random sampling technique; direct field observation; focus group discussions with representatives of community-based organizations and ground-level officers; interviews with administrative officers of government institutions, local authorities, academics, and social activists while secondary data were obtained from government departments. The collected data were analyzed using spatial, descriptive as well as inferential statistics, and qualitative methods. SPSS statistical software was used to analyze the data collected via a questionnaire survey, and ArcGIS 10.4 mapping software was used to create maps. The study found a significant relationship between livelihood assets and the sustainability of underserved settlements, as well as that livelihood assets have an impact on the sustainability of underserved settlements. Consequently, this study emphasizes the importance of enhancing underserved settlements' livelihood assets as well as aligning underserved settlements with spatial development and sustainable development goals in order to alleviate problems in underserved settlements and establish cities without underserved areas. Accordingly, this study is expected to be useful for developers, urban planners, and policymakers in prioritizing livelihood asset development.

Keywords: Development, Livelihood Assets, Sustainability, Underserved settlements, Urban fringe

The role of bank subject matters experts in the investigation of fraud in South African Banking Industry

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Abstract

Online banking is offered by the banking industry to give its clients quick and simple access to banking services. Nowadays, the majority of banking services are done online, which leads to concerning fraud every day. The frequency and severity of online banking frauds are rising worldwide, and they harm both banks and consumers. Investigating problems with online fraud detection in South Africa's banking industry was the aim of the study. In the South African context, the study found that the banking industry lacks specialists in online fraud. The results show that banks' detection systems may be inadequate due to a lack of experience with online fraud. From a South African standpoint, the study found that there is a high risk due to a lack of legal regulation. Banks are encouraged to acquire and develop online fraud expertise because the banking industry lacks these specialists. Since online banking technology is advancing more quickly than traditional transactions, rules and guidelines must be updated frequently to reflect the swift advancements in technology. Given the importance of international online banking, the study made recommendations for potential research topics that the banking industry could look into in order to create and improve online fraud detection models and stop online fraud.

Keywords: biometric, payments, technology, combat, online banking, fraud, digital identity

Underutilization of Fingerprints to Identify Suspects in Business Robbery

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Abstract

The success or failure of any criminal investigation often depends on the searching for and collection of physical evidence left at a crime scene, as well as the proper analysis of that evidence. Identifying criminal suspects by means of fingerprinting has proved to be one of the most effective methods to apprehend persons who might otherwise go undetected and continue their criminal activities, therefore more cases might be solved by means of fingerprints than by any other single type of physical evidence. This article provides a qualitative empirical analysis to determine the maximum level of utilization of fingerprints as a technique to identify suspects in business robbery cases, to find new knowledge that could improve the situation, and suggest ways to apply this knowledge to enhance the performance of crime scene investigators and the prosecution in courts of law. This study adopted a multi-method approach to data collection, with the researchers using a literature review, docket analysis and interviews to collect data within the relevant departments in the Eastern Cape Province. Finds the failure on the CSIs to optimally utilize light sources when searching for fingerprints, fluorescent powders to develop the fingerprints, imprint photograph and lifting valuable prints. Crime scenes are often not properly secured, and evidence is not handled correctly, leading to contamination and destruction of fingerprint evidence. Recommend the providing of regular continuous refresher training and workshops for Crime Scene Investigators (CSIs) on the latest techniques and best practices in fingerprint collection, analysis, as well as utilisation improved technology. This will enhance their skills and knowledge in maximising the relevance of fingerprint evidence.

Keywords: Crime scene, forensic investigation, fingerprints, identification, individualisation, automated fingerprint identification system, fingerprint expert

Exploring the Impact of Traffic Policing for Sustainable Development: The South African Context

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Abstract

South Africa uses multi-approach law enforcement in traffic policing for sustainable development. Traffic policing is one of the most significant functions of law enforcement in South Africa. Each police department has its own rules and regulations. Although the approach is good, it has its own dynamics and challenges. Traffic policing is critical in ensuring road safety, improving compliance with traffic laws, and reducing accidents and fatalities on South African roads. The transportation system in the country is facing many challenges due to population growth, increased migration, poor road safety, and insufficient infrastructure. The government faces a high rate of road accidents, congestion and lawlessness on public roads. Due to the factors mentioned earlier, the country has various law enforcement agencies including the National Traffic Police (NTP), Provincial Traffic Police (PTP), Municipal Traffic Police (MTP), Metropolitan Police Department (MPD) and the South African Police Service (SAPS) with the separation and the duplication of duties or responsibilities. This article aimed to explore the impact of traffic policing in South Africa. The research methodology utilised for this paper was a pure, reliable literature review analysis. The study relied mainly on theoretical, methodical, and thematic literature analysis to conduct non-empirical research. The article aimed to explore the impact of traffic policing in South Africa, examining its effectiveness, challenges, and areas for improvement.

Keywords: law enforcement, motor vehicle, public road, traffic policing

**Exploring the learners' and teachers' challenges related to road safety measures in
Makapanstad Primary Schools**

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Abstract

South African road serves as the lifeblood of South Africa's economy, facilitating the movement of goods and people within the country and across its borders. The extensive road network, including national highways and secondary roads, is essential for road users ranging from motorists driving to work and learners working to attend schools. The purpose of this article is to explore the learner challenges related to road safety measures in the Makapanstad Primary Schools. The assumption of this article is that primary school teachers and learners experience challenges regarding road safety measures despite the South African strengthening law enforcement, implementing stricter road safety regulations, and investing in public awareness campaigns to reduce the high rate of accidents. The safe and efficient movement of teachers and learners is fundamental to a country's social prosperity and roads are essential in facilitating it. With an estimated road accident death rate of 25 deaths per 100 000 people, there is no question that road safety measures need to be prioritised and tackled from a variety of fronts. From a qualitative research standpoint, purposive sampling was used to select teachers and learners in the Moretele district to do a survey and analysis. Semi-structured interviews and observation were conducted with several teachers and learners in the Moretele district. The interviews were recorded and transcribed verbatim. The data were analysed with ATLAS.ti. This article discusses various teachers and learner challenges including traffic law enforcement, compliances, and road users. It was found that there is challenges related to scholar patrol and enforcement of bylaws related to road safety measures. The conclusion is that law enforcement agencies, especially the traffic law enforcement and compliance, vehicle and driver fitness, infrastructural issues, and road user education.

Keywords: Road Safety, Learners, Teachers, Challenges.

**An Evaluation of The Use of Electronic Evidence in the Investigation of Procurement Corruption:
A Case Study of Ethekwini Regional Office**

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Abstract

Procurement corruption has proved to be a problem in South Africa, not only has it managed to manifest itself in the public and private sector but it has a significant negative societal moral decay of South Africa. With the constant advancement in technology during the 21st century, the effective procedural of electronic evidence in the fight against procurement corruption has proven to be more relevant both in criminal and civil platforms. This article focusses on the processes used in the collection of electronic evidence in the investigation of procurement corruption, with an intention to identify adverse elements of electronic evidence which are valuable to the investigation of corruption and provide a perspective on improving methods to ensure admissibility. The electronic evidence is important in the investigation procurement of corruption cases although there are several other types of evidence. It is significant fact that each procurement corruption case is unique and the evidence must be handled differently. The article adopted empirical design and qualitative approach to learn and capture forensic investigators feelings, attitudes that can enable the development of an understanding of the peoples meaning ascribe to their work experiences. The article finding suggests that there is growing significance in electronic evidence as there are now more devices and services like smartphones and cloud storage services from which evidence in an investigation into procurement corruption may be collected. This article suggests that proper planning and preparation process should be sufficiently rigorous to process identified electronic evidence in any procurement corruption crime scenes. The article findings and recommendations further advice forensic investigators to have forensic support where there is a need from digital forensic expertise either local forensic unit and/or external specialists. This will ensure that correct procedures and followed and evidence is admissible in court.

Keywords: Corruption, electronic evidence, investigation and procurement.

Critical Thinking in Sustainability: Conflicting Perspectives

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Abstract

This paper introduces the core themes and objectives of the forthcoming book, *Critical Thinking in Sustainability: Conflicting Perspectives*, authored by Robert W. Taylor. The work explores how critical thinking can be effectively taught through the structured examination of 20 major sustainability issues, each presented with opposing viewpoints. The book's central premise is that sustainability education must move beyond rote learning and engage students in analyzing conflicting data sets, evaluating the credibility of sources, and making informed judgments—skills that are increasingly vital in an era dominated by misinformation and polarized media. The first component of the book emphasizes the importance of these 20 carefully selected sustainability debates, covering topics that represent the most pressing global environmental, social, and economic challenges. Each chapter presents both a "yes" and "no" argument, allowing students to compare evidence, question assumptions, and refine their understanding through structured dialogue. The second component introduces artificial intelligence as a decision-making tool. It explores how students can responsibly integrate AI platforms like ChatGPT to augment their analysis and support their reasoning process while remaining aware of AI's limitations and biases. The final element of the project is its broader educational aim: to promote sustainability literacy among university students by combining critical inquiry, emerging technologies, and interdisciplinary learning. By fostering critical engagement with diverse perspectives, the book aspires to empower students to become thoughtful and informed participants in the sustainability discourse.

Keywords: sustainability, critical thinking, social media, artificial intelligence, conflicting perspectives, sustainability literacy.

Comparative Analysis of Sustainability Reports of Major Cosmetic Companies using Opinion Mining Artificial Intelligence

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Abstract

This study investigates the sustainability policies of four major cosmetics companies—Coty, Estée Lauder, Procter & Gamble, and Shiseido—by conducting a sentiment analysis, also known as opinion mining artificial intelligence, of corporate sustainability reports from 2019 to 2023. The study focuses on waste management, carbon emission reductions, sustainable packaging, and social sustainability, which includes gender equity, inclusiveness, and internal/external communication strategies. Sentiment analysis found a significant emphasis on positive successes, which frequently overshadowed issues, raising questions about openness. Over the past several years, sustainability reporting in the cosmetics industry has undergone a significant transformation. What began as broad statements of intent and commitments has evolved into detailed, data-driven disclosures that emphasize transparency and measurable outcomes. Reports now focus more on aligning with global sustainability frameworks such as the Sustainable Development Goals (SDGs) and providing concrete metrics to track progress, reflecting the growing importance of environmental stewardship in the sector. The findings highlight the need for balanced reporting and the use of powerful artificial intelligence tools to connect sustainability initiatives to global outcomes. The report makes concrete recommendations to improve sustainability practices and responsibility in the cosmetics business, therefore contributing to a greater environmental and social impact.

Keywords: Sustainability, cosmetics industry, waste management, carbon emissions, circular economy.

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Nature-Based Solutions and Corporate Initiatives for Biodiversity and Climate Change Adaptation

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Abstract:

The Kunming-Montreal Biodiversity Framework, the WWF Biodiversity Risk Filter, and the Taskforce on Nature-related Financial Disclosures (TNFD) are all strategies for companies to respond to the preservation of biodiversity and ecosystem services and to develop nature-based solutions to climate change. This paper discusses how corporations are adopting nature-based solutions; the reasons for this approach; the reporting requirements around these initiatives; the natural activities that these initiatives seek to restore and regenerate; and a preliminary analysis establishing criteria for evaluating their success or failure.

Keywords: Biodiversity, Nature-based Solutions, Financial Disclosure, Climate Change

A Systematic Literature Review on Strategic Energy Policy for Enhancing Renewable Energy Investment to Support Economic Growth, Environmental Sustainability, and Energy Resilience in Indonesia

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Abstract

The urgency of transitioning to renewable energy (RE) is intensifying in response to escalating climate change risks, energy security challenges, and volatile global economic conditions. As one of the largest energy consumers in Southeast Asia, Indonesia stands at a pivotal juncture in its efforts to reduce dependence on fossil fuels while meeting growing domestic energy demands. Despite its abundant renewable energy potential, investment and infrastructure development remain significantly below expectations, hindering progress toward national energy objectives. To address these challenges, this study employs a Systematic Literature Review (SLR) of peer-reviewed publications from Scopus-indexed journals published between 2019 and 2024 to examine the impact of renewable energy investment on three critical dimensions: economic growth, environmental sustainability, and energy resilience. Guided by the PRISMA framework and applying structured inclusion and exclusion criteria, 56 high-quality articles were selected for in-depth analysis. The literature is categorized into three thematic areas: (i) Renewable Energy Investment (REI) and Economic Growth, (ii) REI and Environmental Sustainability, and (iii) Energy Resilience and Investment.

Renewable energy (RE) investment plays a vital role in driving economic growth, especially in developing and emerging economies. It supports job creation, technological innovation, and attracts foreign direct investment (FDI), contributing to macroeconomic stability. Studies highlight a strong positive correlation between RE investment and GDP growth, particularly in OECD and BRICS countries, with greater benefits observed in nations with stable governance and regulatory frameworks. Environmentally, while solar and wind energy help reduce emissions, challenges such as biofuel-related deforestation, land use conflicts, and limited lifecycle assessments persist. Green finance and strong environmental governance are crucial to maximizing these benefits. In terms of energy resilience, REI enhances energy security by diversifying sources and reducing reliance on fossil fuel imports. However, high initial costs, weak infrastructure, and limited domestic technology capacity hinder rapid implementation, particularly in developing regions.

Based on these findings, this study proposes a strategic policy framework to accelerate Indonesia's renewable energy transition. Key recommendations include regulatory reforms to streamline licensing, targeted financial incentives such as green subsidies and tax exemptions, investment in local R&D to reduce technological dependence, and the promotion of Public-Private Partnerships to bridge funding gaps and foster innovation. Strengthening community engagement and improving grid infrastructure are also essential to enhance the acceptance and feasibility of RE deployment. Integrating renewable energy investment into national development strategies requires robust monitoring and evaluation mechanisms to support effective implementation and adaptive policymaking. Based on Indonesia's Net Zero Emissions (NZE) target by 2060, a comprehensive policy framework is needed to balance economic growth, environmental sustainability, and energy resilience. A just transition must ensure equitable energy access, capacity building, and support for communities affected by the decline of fossil fuel industries. This review offers valuable insights for policymakers, planners, and investors by contextualizing global best practices within Indonesia's unique socio-economic landscape. With aligned policies, financing, and innovation, Indonesia can realize its renewable energy potential and lead a sustainable energy future in the region.

Keywords: Economic Growth, Energy Policy, Energy Resilience, Environmental Sustainability, Renewable Energy Investment.

The Impact of Fiscal Decentralization, Social Funds and Indicators of Sustainable Development to Indonesian Human Development Index

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Abstract

The Human Development Index (HDI) is an important indicator in measuring the quality of life of a region's people that includes three main dimensions, namely health, education, and income. This study aims to analyze the factors that influence the HDI level in Indonesia, with a focus on disparities between regions and evaluation of development policies. The purpose of this study is to analyze and analyze the development of world literature studies related to the Human Development Index, analyze and analyze how the impact of fiscal decentralization policies, the impact of social fund budget allocations, the impact of sustainable development indicators on the Human Development Index, in Indonesia and in each of the Western, Central and Eastern Regions and the impact of fiscal centralization, social fund budget allocations, and sustainable development indicators on the Human Development Index above and below the national average, Methods used. Qualitative approach with SLR and Bibliometric methods Quantitative approach with panel data research in 2017-2023. Regency/city in Indonesia.

Based on the results of the study using SLR, it shows an increasing trend. Based on the quantitative method, the results obtained are that the fiscal decentralization policy has an effect on the HDI, as indicated by the variables 1) the national Health budget has a positive effect on the HDI, but is only significant in WIT, 2) the Regional Independence Index (IKD) significantly increases the HDI in all regions (WIB, WITA, WIT). 3) Education DAK has a significant effect on the HDI nationally and in WIB and WITA. 4) Health DAK significantly increases the HDI in WIB and WITA. The social fund budget has an effect on the HDI, as indicated by the variables 1) Village Funds have a positive effect on the HDI, nationally, significantly in WIT, but not in WIB and WITA. SDGs have an effect on the HDI, as indicated by the variables 1) the Village Development Index (IDM) significantly increases the HDI in all regions (WIB, WITA, WIT). 2) Average Length of Schooling for Women significantly increases the HDI in all regions.

Keywords: Human Development Index, Fiscal Decentralization, Social Budget Allocation, SDGs.

Determining Factors of Successful Commercial Banks in Implementing Sustainable Finance Policy in Indonesia

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Abstract

This study aims to determine the effectiveness of the implementation of a long-term policy, namely the Sustainable Finance (SF) policy made by the OJK (the Indonesia Financial Services Authority), especially in the initial phase of implementation. This study tries to answer whether an increase in bank's perception of SF policy will be followed by a positive attitude towards the policy. Furthermore, this positive attitude will also be followed by proper actions to implement policy. This study also looks at whether the size of the bank's business moderates the bank's perception of the bank's attitude and the bank's attitude towards the bank's actions to implement sustainable financial policy. This research also explores the bank's perception of the determinants of bank success in implementing SF policy.

The combination method was used in this study. The quantitative method approach with one sample test and Structural Equation Model-Partial Least Square (SEM-PLS) meanwhile the qualitative method approach with Focus Group Discussion (FGD) were analyzed using NVivo. The results of statistical tests show that the level of bank perception of OJK's sustainable financial policy positively influences bank attitudes. Likewise, the bank's positive attitude towards SF policy positively affects the bank's actions. Bank size is not proven to moderate the positive influence of perception on attitudes and attitudes toward bank actions in implementing SF policy. A descriptive analysis of the bank's sustainability report shows that both large- and small-scale banks have a balanced response quality. The survey and FGD result show the bank's top management support, strengthening bank human resources, and appropriate incentives from the OJK and the government are very important to ensure the successful implementation of SF policy.

Keywords: Action, Attitude, Bank size, Long-term, Perception, Sustainable Finance

State Asset Management Strategy: Highest and Best Use Analysis to Increase Non-Tax Revenue

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Abstract

State Asset Management is a strategic effort to increase Non-Tax State Revenue (PNBP) and strengthen sustainable fiscal policy stability. This research develops a framework for optimizing state asset management to enhance PNBP by analyzing implementation strategies, influencing factors, and identifying approaches such as Highest and Best Use (HBU) analysis, inter-agency coordination, and technology utilization.

The study uses qualitative methods, including a Systematic Literature Review, Focus Group Discussion, and NVivo analysis. Data came from government officials and state asset managers to explore challenges in managing state assets in Indonesia.

Results show state asset management strategies require four key factors: (i) Implementation improvements for State-Owned Assets (BMN) in Indonesia through integrating good governance, public finance, public policy, and asset efficiency principles to create economic and social benefits supporting sustainable national development; (ii) Enhanced expertise and capacity among BMN managers to overcome significant effectiveness barriers; (iii) Regulatory reform simplifying procedures and improving accountability; and (iv) Integrated management strategies aligned with development plans, inter-agency synergy, and private sector involvement. Recommendations include integrating good governance principles into asset management, empowering the State Asset Management Agency (LMAN), strengthening digitalization of asset information systems, enhancing human resource capacity, and improving regulations while pursuing appropriate deregulation. Further research should explore technology integration and conduct comparative international studies.

This study contributes by integrating HBU analysis with good governance principles, providing an understanding of effective state asset management supporting fiscal stability and economic growth. The framework developed offers practical guidance for policymakers seeking to optimize state assets and increase non-tax revenue, ultimately strengthening Indonesia's fiscal sustainability.

Keywords: Good Governance, Highest and Best Use Analysis, Non-Tax State Revenue, Public Policy, State Asset Management.

Integrating Ubuntu Philosophy in Promoting and Communication of Mental Health Through Traditional Healing Practices.

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Abstract: Mental illness has been documented as one of the global phenomena that impacts many people across South Africa. The perceptions of mental illness and the effective treatment methods are influenced by many factors such as perceived causes, culture, attitudes, experiences, and policies that are put in place within the health care systems and government policies. South Africa, as a multi-cultural context, embraces multiple perspectives in which mental illness can be treated. However, communication emphasis on promotion of these multifaceted paradigm is skewed and bias toward western philosophies. Existing treatment modalities such as psychotherapy and psychiatric treatments, have over decades, been more favourable, promoted and communicated extensively as opposed to traditional healing modalities which take cognisance of various aspects of a human-being including the central aspect of Ubuntu. In South Africa, traditional healers are mostly consulted by people who preserve their cultural beliefs and practices as methods of achieving physical, spiritual, and mental health. The inclusion of individuals who rely on traditional healing was introduced lawfully under the Traditional Healers Act (Act No. 22 of 2007). The implementation of this Act in the health care system, declares approval of traditional treatments and proposes an outline to protect individuals who use the services.

The study explored perceptions of communities in eMbumbulu, south of Durban regarding mental illness and traditional healing as a treatment modality and whether it is communicated effectively to inform societies. The aim was to understand the different factors that influence their perceptions, taking into consideration the environment in which they participate in, the attitudes, beliefs, and values they hold which consequently influence their perception. This study undertook a phenomenological approach of the qualitative research method.

Findings show influences of context of family, social interactions, and social media. The findings reveal that culture is a common force that influences how people perceive mental illness as aspects of culture tie into beliefs, standard behaviour and practices intended to achieve good health. It further revealed that people rely on their beliefs that grant them necessary health and thus utilize resources that align with these beliefs.

Keywords: Beliefs, Communication, Culture, Mental Health, Ubuntu

Exploring the role and effectiveness of the Crime Information Management and Analysis Centre within the South African Police

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Abstract

The global rise in crime has compelled law enforcement agencies to move beyond traditional policing methods toward more strategic, technology-driven approaches. While visible policing was once believed to deter crime, research indicates that visibility alone is insufficient. Instead, crime prevention relies on planned police deployment guided by effective crime analysis. Crime analysis supports law enforcement in enhancing public safety, identifying emerging trends, allocating resources efficiently, and designing targeted prevention strategies. Although the concept of crime analysis has been recognised internationally since the 1960s, its integration into police operations in South Africa is relatively recent. The South African Police Service has introduced legislative measures and dedicated personnel to support crime information analysis. At the station level, this function is performed by the Crime Information Management and Analysis Centre, which is the focal point of this study.

Using a qualitative case study design, this research explored the role and effectiveness of the Crime Information Management and Analysis Centre within the South African Police. Data was gathered through an extensive literature review, in-depth interviews with South African Police officials, Crime Information Management and Analysis Centre personnel, and provincial and national Crime Registrar representatives. International perspectives were also incorporated through interviews with two overseas experts in crime analysis. Findings reveal that the Crime Information Management and Analysis Centre provides crucial operational crime information and intelligence products, including street names, addresses, and crime series profiles. These resources aid in identifying crime trends, hotspots, priority areas, and investigative leads that support detection and prevention efforts. However, the study also identified several challenges, such as weak communication channels, underutilisation of analytical outputs, and limited collaboration between the Crime Information Management and Analysis Centre and other policing units.

To address these gaps, the study proposes a framework to standardise and strengthen the use of the Crime Information Management and Analysis Centre at the station level. The recommendations focus on clarifying reporting structures, revitalising oversight mechanisms, defining roles and responsibilities, increasing awareness of the Crime Information Management and Analysis Centre's value, ensuring adequate training and resources, and integrating the Crime Information Management and Analysis Centre analysts into operational planning. The proposed framework seeks to enhance the Crime Information Management and Analysis Centre's contribution to crime prevention and reduction by embedding crime analysis into daily policing practices and aligning its operations with global standards. Improved communication, collaboration, and proactive use of crime data are central to optimising CIMAC's role in the SAPS.

Keywords: Crime Analysis, Crime Information Management and Analysis Centre (CIMAC), Crime Patterns, Crime Statistics, Crime Trends, Crime Prevention, Crime Reduction.

Analysing the Role of Data Integrity in Crime Analysis and Crime Prevention within the South African Police Service

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Abstract

Information management plays a crucial role across various sectors, particularly within police departments, where the ability to collect, process, and analyse data is fundamental for informed decision-making and strategic planning. In response to this need, the South African Police Service has partnered with Statistics SA to ensure that crime data meets high-quality standards, thereby enhancing the reliability and accuracy of crime analysis. This paper analyses the role of data integrity in crime analysis and crime prevention within the South African Police Service, emphasising the importance of maintaining high-quality data to support effective policing. Using a qualitative approach, this study collected data through an extensive literature review and in-depth interviews with South African Police Service officials, Crime Information Management and Analysis Centre members at the station level, and Crime Registrar members at provincial and national levels. Insights from two international participants provided a global perspective on the use of crime analysis units in crime prevention and reduction. The findings reveal that while crime analysis is essential for supporting police operations, poor-quality data hampers decision making and resource allocation which deters its full potential within the South African Police Service.

This paper highlights the benefits of high-quality data in enhancing decision-making, resource allocation, and crime prevention strategies. It underscores the critical role of crime analysts, who utilise primary and secondary data to derive insights that guide police operations. The findings also emphasise that poor-quality data can undermine the effectiveness of crime analysis, leading to inefficient police responses. The paper provides recommendations to address the challenges identified, including the need for comprehensive training for stakeholders on the various types and processes of crime analysis. This paper advocates integrating crime analysis into daily operations, strategic planning, and decision-making, ensuring better coordination and information sharing across units. Additionally, the study stresses the importance of regular Crime Information Management and Analysis Centre accountability meetings to evaluate crime analysis findings, track responses to short-term incidents, and assess long-term trends and strategies. To ensure consistency, the paper recommends the development of a standardised pocketbook by provincial and national crime registrars detailing crime analysis product types, uses, and production frequency. In conclusion, this paper outlines the pivotal role of crime analysis in modern policing. The South African Police Service can enhance its crime prevention efforts by improving data integrity, fostering collaboration, and implementing the proposed strategies, and contribute to safer communities. A structured approach to crime analysis will enable the South African Police Service to optimise its effectiveness in crime reduction, offender apprehension, and resource management.

Keywords: Crime analysis, Crime Information Management and Analysis Centre, crime prevention, data analysis, data integrity, data management, data quality, information management, South African Police Service

Enhancing Crime Prevention by Converting Data into Intelligence within the South African Police Service

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Abstract

In South Africa, crime, particularly violent crime, remains a persistent public concern, frequently spotlighted in media discourse. The South African Police Service, as mandated by Section 205(3) of the Constitution of the Republic of South Africa (Act No. 108 of 1996), is entrusted with preventing, combating, and investigating crime. Central to fulfilling this mandate is accurate and timely crime information, including the nature, location, motive, and timing of criminal incidents, vital for guiding effective policing responses. Over time, crime analysis has emerged as an essential tool in transforming raw data into actionable intelligence, enabling evidence-based policing practices. This paper highlights the benefits of crime analysis in supporting law enforcement strategies, informing resource allocation, guiding operational decisions, and enhancing the ability of police to detect, understand, and prevent crime.

This paper explores enhancing crime prevention by converting data into intelligence within the South African Police Service. Adopting a qualitative research methodology, data were collected through an extensive literature review and in-depth interviews with South African Police Service officials, Crime Information Management and Analysis Centre members at the station level, and representatives from the Office of the Crime Registrar at both provincial and national levels. Additionally, two international experts were interviewed to provide comparative insights and global perspectives on the role of crime analysis in policing. This paper's findings reveal that, although the South African Police Service has formalised crime analysis structures, significant gaps remain in stakeholders' understanding of crime analysis's various types, processes, and objectives. It further underscores the importance of standardised training, professionalisation, and the full integration of crime analysis into all levels of police practice.

The paper provides recommendations to improve the effectiveness of crime analysis in policing. These include embedding crime analysis into daily operational planning, promoting interdepartmental information sharing, enhancing accountability through regular Crime Information Management and Analysis meetings, and increasing the strategic use of crime analysis products across units. It is also recommended that provincial and national crime registrars develop a practical pocketbook to standardise crime analysis outputs, detailing analytical reports' types, uses, formats, and production frequency. The research further stresses the need for continuous capacity development and managerial support to foster a culture of analytical thinking within the South African Police Service. In conclusion, the paper outlines the strategic value of institutionalising crime analysis in contemporary policing. When effectively implemented, crime analysis strengthens intelligence-led, problem-oriented, and hotspot policing models. By converting data into intelligence, the South African Police can improve responsiveness, adapt strategies to emerging crime trends, and achieve more effective crime prevention outcomes.

Keywords: Crime analysis, crime data, crime information, Crime Information Management and Analysis Centre, crime reduction, crime prevention, data, information analysis, intelligence, South African Police Service

Exploring Crime Analysis and Operational Efficiency in the South African Police Service with a Focus on Challenges and Opportunities

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Abstract

Crime analysis has transformed from the basic identification of crime patterns into a sophisticated and systematic discipline that plays a critical role in crime prevention, case resolution, and community safety. This study investigates the development, practical application, and inherent challenges of crime analysis within the South African Police Service, emphasising its integration into various policing models and its contribution to strengthening law enforcement strategies. Given the complex and ever-changing crime landscape in South Africa, there is a growing reliance on data-driven policing to develop more informed and effective responses to criminal activity.

Using a qualitative case study approach, the research explores Crime Analysis and the Operational Efficiency of the South African Police Service by focussing on Challenges and Opportunities Data collection involved an in-depth literature review and interviews with various stakeholders, including South African Police Service officials, Crime Information Management and Analysis Centre personnel, provincial and national Crime Registrar representatives, and international crime analysis experts. The study aims to identify key obstacles to the effective use of crime analysis, compare South African practices with international benchmarks, and evaluate how crime analysis informs and supports policing strategies such as standard policing, Intelligence-Led Policing (ILP), hotspot policing, Problem-Oriented Policing (POP), and community-based policing.

The findings of this paper indicate that while crime analysis is widely acknowledged as a vital tool for operational and strategic decision-making, several significant challenges limit its impact. Foremost among these challenges are issues related to data integrity, a lack of adequately trained personnel and technological resources, inefficiencies in management practices, and weak communication channels between analysts and operational personnel. Despite these challenges, crime analysis remains an essential mechanism for guiding proactive policing approaches, detecting crime patterns, identifying high-crime areas, and measuring the effectiveness of police interventions. One of the most persistent problems is the inconsistent application of crime analysis findings at the operational level. Analytical outputs are not always integrated into frontline policing, reducing their influence on tactical and strategic actions. Additionally, lacking formalised feedback mechanisms means valuable insights often go unutilised, diminishing the relevance and impact of analysts' work. Another challenge lies in the lack of structured career development pathways for crime analysts, which affects staff morale, retention, and the long-term institutionalisation of analytical expertise within the South African Police Service.

To address these issues, this paper proposes several key recommendations. These include strengthening the integration of crime analysis into everyday policing practices, improving communication and collaboration between analysts and operational staff, enhancing training and professional development opportunities, and addressing data quality and management concerns. Furthermore, establishing clearly defined career progression frameworks for analysts, cross-departmental collaboration, and sufficient resourcing are essential for sustaining and advancing the discipline. This paper underscores the strategic value of crime analysis in modern policing and the necessity of overcoming organisational, communicative, and resource-related challenges to enhance effectiveness. By implementing these recommendations, the South African Police Service can better leverage crime analysis to inform decision-making, reduce crime, and improve public safety.

Keywords: Crime analysis, community-based policing, hotspot policing, intelligence-led policing, problem-oriented policing

Hindrances to partnership policing: A case study of Gauteng townships, South Africa

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Abstract

Quarterly Crime statistics show rising crime levels, particularly in previously disadvantaged environments such as townships in South Africa. Serious crime has reached unacceptable levels in that community members feel vulnerable in the streets and in their own homes. This paper studied the effects and factors that inhibit partnership policing in the townships North of Pretoria and Gauteng in South Africa. During the summer of 2018, 45 community members and South African Police Services members actively involved in the Community Police Forum in Soshanguve, Pretoria, in Gauteng, South Africa, were randomly selected and participated in focused interviews for a month. The aim was to establish factors that inhibit partnership policing in the area. In-depth interviews with stakeholders, particularly Community Policing Forums (CPFs) and law enforcement officers involved in such forums. A qualitative method was adopted in the research. Factors such as lack of trust, lack of resources, insufficient/inadequate resources, lack of training, and corruption were identified as the most pressing ones that hinder effective partnership policing in the area. During the follow-up interviews, it was established that the crime situation continues to worsen as issues established during interviews three years back have not been adequately addressed. Moreover, research found that failing to implement available crime prevention strategies, change, and/or poor leadership at the local level results in rising crime levels, as monthly crime statistics indicate. These findings suggest that leadership, political will, implementation of crime prevention strategies, trust, cooperation, resources, training, and communication, amongst others, will enhance or promote effective partnership policing in the townships in South Africa.

Keywords: Community policing; partnership policing; community police forum; crime prevention; accountability; culture

A VECM Study of Assets Growth Determinants: Short-Term and Long-Term Perspectives in Indonesian Banks

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Abstract

In the dynamic realm of financial markets, comprehending the factors that influence both short-term and long-term banking assets is essential for fostering sustainable growth and stability. Short-term assets, defined by their liquidity and immediacy, are designed to address banks' immediate cash flow requirements and are affected by market conditions, interest rates, and economic policies. On the other hand, long-term assets are governed by strategic investment choices, regulatory frameworks, and macroeconomic trends and are directed towards achieving future growth and stability.

This study examines the short-term and long-term influence of various banking performance indicators, interest rates, and macroeconomic factors on the growth of banking assets in Indonesia. It focuses on two distinct periods (the BUKU period and the KBMI period). The study utilizes data from 95 commercial banks spanning December 2014 to June 2023.

The findings reveal that by using the Vector Error Correction Model (VECM), it is known that in the short term (1-5 periods), the shock effect for the BUKU period occurs on NPL, BOPO, and LDR, significantly affecting asset growth. While in the long term (10-24 periods), the shock effect tends to be stable and has a slight negative impact. In the KBMI period, in the short term, NPL, ROA, LDR, and BOPO are significant but vulnerable to credit quality. In contrast, in the long term, the shock impact decreases and stabilizes with slowing losses. Impulse Response Function (IRF) shows partial recovery occurs in variables such as NPL, ROA, LDR, and BOPO within 10-24 periods. While CCR and BI rate recover after 10 periods, NIM, BI rate, inflation, and deposit interest do not require further recovery.

The results of this study recommend for the industry in the short term: (i). It is necessary to optimize and focus on increasing profitability (ROA and NIM) through optimization and diversification of revenue sources and asset management; (ii). Reduce operating costs and efficiency; (iii). Effective credit policies and fundraising strategies, including deposit interest adjustments to reduce dependence on high interest rates and find more stable funding alternatives; (iv). Adjust business strategies by paying close attention to macro variables; and (v). Increasing retained earnings to maintain capital resilience (CAR).

Meanwhile, in the long term, the focus is on: (i). Sustainable growth of banking assets through retained earnings policy to strengthen capital resilience while still implementing prudential and margin strategy development (NIM) and increasing capital adequacy ratio (CAR), and ensuring banks have sufficient liquidity (CCR) to deal with emergencies and maintain financial stability through synergies with other banks; (ii). Competitive interest management strategies to maintain optimal margins through managing the cost of funds and interest rate risk exposure; (iii). Development of contingency plans and robust risk management mechanisms to address future economic uncertainties; (iv). Adopting the latest technology to improve operational efficiency, security, and service quality; and (v). Strengthening human resources and developing a stronger and more adaptive risk management framework to deal with future economic shocks through better risk assessment, strict regulation, and effective risk mitigation policies.

Keywords: Banking Asset Growth, Bank Performances, Bank Periods, Macroeconomics Factors, Vector Error Correction Model.

Fiscal Decentralization and Welfare Economics: The Linkage

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Abstract

Fiscal decentralization refers to distributing taxation and expenditure responsibilities from central to local governments. This policy aims to enhance efficiency by bringing decision-making closer to the people and fostering tailored solutions to local needs. Meanwhile, welfare economics, focusing on the well-being and economic prosperity of individuals in society, intersects with fiscal decentralization as it seeks to optimize resource allocation for maximal social welfare. By aligning financial resources with local preferences, fiscal decentralization can potentially elevate public service satisfaction, promote equity, and stimulate economic development, reinforcing the principles of welfare economics by addressing local demands and disparities effectively.

This study examines the link between fiscal decentralization and welfare economics using a Systematic Literature Review (SLR) and bibliometric analysis, drawing data from Web of Science (WOS) and Scopus. It identifies a growing trend in fiscal decentralization research, frequently linked to welfare topics. The key focus, "Welfare State + Fiscal Decentralization," highlights its role in improving public goods provision. Another theme, "Pareto Efficiency + Public Goods," explores how local tax policies and Marginal Fiscal Cost (MFC) influence efficiency.

This research innovatively applies bibliometric analysis to track thematic trends, offering insights into the evolution of fiscal decentralization studies.

Findings suggest that fiscal decentralization enhances welfare by optimizing public goods allocation under Pareto Efficiency principles. However, fiscal disparities must be addressed to ensure equity, as regions with stronger fiscal capacities are better positioned to meet Welfare State objectives.

Keywords: Fiscal Decentralization, Pareto Efficiency, Public Goods, Systematic Literature Review, Welfare Economics

Ref: 076/CAD/25 – Withdrawn

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**Ensuring equity and accessibility of universal health coverage of Climate Changed Marginalized Population:
Establishing linkage system with GOVT. Health Care and Family Planning Services for
the Bede Community in Bangladesh**

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Abstract

Background: About 750,000 Bede people, locally known as “river gypsies” in Bangladesh. Professionally their ancestors were snake charmers and herbal medicine makers but because of climate change, digitalization, and urbanization, most of them are detached from their heritage. The Bede community is a miserable example of early marriage and childbearing, and the non-use of FP methods is a social practice. The Bede couple is not registered in the public family planning system and has not received immunization services. In addition, universal health coverage (UHC) and family planning (FP) services are limited within this community. The Directorate General of Family Planning (DGFP) and Health Services (DGHS), Bangladesh collaborated with the USAID-funded Shukhi Jibon project to increase access to UHC and FP services for this community. The Govt. program implementation is running in the Madaripur district in Bangladesh. All kinds of people get services from the DGHS and DGFP except the Bede community. The members of Bede community were not aware of the Govt. health and family planning services. And there are no service provisions for the Bede communities. There is all over the darkness below the lamp. Besides, the Bede community are living with the other locality, where the whole population are getting all kind of Govt. and Non-Govt. facilities except for the Bede community.

Methods: The objective of the assessment was to explore key themes of the Bede community regarding UHC and FP services. Action research was conducted using qualitative approaches at Shibchor of Madaripur district, Bangladesh where the total Bede population were 1600. Among them, 297 married (114 men, 183 women) between the ages of 13 to 39 years were interviewed. Simple random and purposive sampling techniques were applied to the selected person. 18 Key Informant Interviews, 18 Focus Group Discussions, 64 In Depth Interviews as well as observation were done. Data were rearranged through thematic observation. A checklist and open-ended questionnaires were developed for the data collection tools. The interviews were noted and transcribed for data analysis.

Results: As a result of continuous advocacy done by the project, UHC and FP services were made available through the combined action of DGFP and DGHS by organizing satellite clinics, courtyard sessions, etc. Before introducing and implementing the intervention, the people were almost unaware of the FP and UHC services. Almost all the respondents were unaware of SRH and FP services. The mean age at marriage for girls and boys was 13 and 15 years respectively. The mean age at first child for girls was 14 years and 92% of girls already have given birth by the age of 17 years. Two third of respondents (67%) mentioned the current use of modern contraceptives (86% OCP, 14% Condom). Two unskilled Bede women were conducted NVD here. They believed that a grilled placenta saved a newborn baby’s life during the delivery period. Still, they have lots of misconceptions and myths about FP methods and general medical treatment.

Conclusion: Continuous advocacy with DGFP and DGHS resulted in introducing this marginalized community to mainstream UHC/SRH/FP services. There need to be more awareness sessions, and engaging community-level stakeholders and leaders, conducting door-to-door visits, uthan-boithok can increase their awareness. Govt. and Non-Govt. stakeholders need to give more emphasis on them. Need a concrete population data set on them and need to explore and assess their knowledge and demand in the SRHR sector. Local-level Govt. will keep separate programs with them to solve their problem. However, further support from the government and stakeholders is required to ensure quality UHC/SRH/FP services and overcome the existing harmful practices and social norms.

Keywords: Access, Climate, Equity, Equality, Inclusion, Inclusive, Marginalized, River Gypsies , Universal health coverage

Ref: 078/CAD/25

Student Perspectives on Artificial Intelligence Integration in English Language Learning: Towards Quality, Innovative, and Equitable Education

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Abstract

Amidst the array of technologies rapidly emerging, none can quite compare to the rapid pace of innovation and the level of controversy surrounding artificial intelligence. It has shown great potential in application to various disciplines, disrupting humanity and the way of life as we know it. The exponential development of artificial intelligence presents a unique opportunity for revolutionizing the landscape of English language learning. The emergence of AI tools has allowed increased efficiency, accuracy, and personalization in language teaching, potentially enhancing teaching effectiveness and providing more engaging and meaningful learning experiences for students. However, the integration of AI also raises concerns about the accessibility and equity of education, as it may exacerbate existing disparities in access and digital literacy, potentially further marginalizing students from underprivileged backgrounds.

Hence, this study investigates the extent of AI use and the perception of the threat of AI integration from the perspectives of 232 English language students in a state university in the Philippines. Data was gathered to determine the students' current use of AI in the context of language learning, its affordances for them, and their perception on the threat of its integration in language learning. Survey questionnaires were deployed to gather the initial set of data, and a focus group discussion was later conducted with a select group of 15 purposively-selected students to enrich and contextualize the quantitative findings. The findings reveal that the students' most commonly used AI tools are e-learning platforms, AI-powered design tools, and AI-powered collaboration tools. The students elaborated that integrating AI enhances the efficiency and effectiveness of learning by facilitating assessments, providing immediate feedback, and fostering student engagement. The students also state that AI tools also enable them to produce quality academic outputs by helping them to synthesize ideas, improve writing and produce visual materials. Furthermore, the use of AI also helps students uphold academic integrity by guiding them on how to cite resources properly in academic papers. Moreover, the use of AI tools also allows for collaboration and professional development, while also offering reliable language translation support.

The findings also reveal that the most significant concern of the students is how AI integration could exacerbate the digital divide. Geographical constraints and economic factors, such as the high expenses associated with the use of AI tools in learning, were perceived to pose a barrier for students coming from geographically-isolated communities or low-income families. Students from rural areas with limited to no internet connectivity, as well as those who cannot afford to purchase devices to support AI-powered learning, expressed concern over being able to keep pace if AI tools were to be fully integrated in the classroom. This places students with limited access at a disadvantage, further reinforcing existing inequalities in education. Furthermore, the students also expressed fear over data privacy concerns, as well as inaccuracies generated by AI tools.

As an output of this study, a comprehensive, contextually adaptable, and future proof AI-ELT integration framework was developed and proposed by the researcher to ensure that ELT keeps pace with the ever-evolving pedagogical landscape resulting from the constant emergence of innovations in AI while still considering students' needs to cope with an ever-evolving pedagogical landscape. These findings emphasize the necessity for institutional policies to promote the ethical and inclusive adoption of AI, ensuring fair and safe access for all students. Addressing the concerns of the students directly aligns with the UN Sustainable Development Goals (4, 9 and 10) by advocating for language education that is innovative, while ensuring that, in the pursuit of progress, no student is left behind.

Keywords: artificial intelligence, English language learning, student perceptions, sustainability

Financial Inclusion and Its Determinants: A Study of Laku Pandai in Indonesia

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Abstract

Expanding access to financial services to all levels of society is one of the keys that help a government to realize a thriving economy. Efforts to increase the Financial Inclusion Index have been made in Indonesia through programs, regulations, and projects. Laku Pandai (LP) program is one of them. With their agents and information technology, banks cover a wider area of operational business coverage for the unbanked and the underserved people. Since the LP regulation was issued in 2014, the financial inclusion index has increased significantly. The National Strategy of Financial Inclusion also played an important role in boosting the cooperative work among stakeholders to enhance the implementation of each pillar within the NSFI framework. An example of those cooperative works can be found in the LP program, which helped the government to deliver non-cash social assistance for several years. Unfortunately, along with the advancement in the technology of mobile banking, the number of banks doing LP is declining. This situation affects the number of agents and BSA accounts.

This research aims to study how the LP program and its regulation have been done and implemented in Indonesia and how to make them better to optimize the continuance of the LP program. This paper was carried out using both primary data and secondary data. Various sources of data were used, such as data from OJK, banks, and other related ministries/institutions. Data were analyzed qualitatively. Data from nine in-depth Interviews had been analyzed using the NVIVO system. Both Coding analyses (First Cycle Coding and Second Cycle Coding) were run. In addition to these, we conducted a Systematic Literature Review (SLR).

For the first Cycle Coding of the NVIVO system, we built many system nodes from determinant factors, challenges, and regulations. "Education and Literation" gets the highest reference value (88%), which is 8 (eight) out of 9 (nine) informants. From sub-nodes Challenges, "Less Literate -> Saving Behaviors" was found as the most challenging factor. From the sub-nodes Regulation, it is found that the Monitoring gets the highest share. Different from the other two sub-nodes, the sub-nodes of Determinant Factors show many influential factors such as "Education & Literation", Profitability Rate, Needs Based Product, Human Capital Availability, "Cash Transfer > Bank Account", "Bank Business Model > Product Design", and Bank Incentives. The comparison between Regulator and operator in the Second Cycle Coding phase made the result that there are 18 nodes that are most mentioned by the informants. We began to classify some Casual Coding from this finding and got 6 nodes as the highest referenced situation.

Before the SLR is started, we get 812 research papers by using PRISMA, and down to 426 eligible research papers after implementing 4 (four) screening factors. From several scenarios that were run within SLR, many factors are important, such as Financial Literacy, Financial Behavior, Education, Development, Economic Growth, Saving, Saving Behavior and Fintech. Furthermore, most of the factors that come up as keywords from SLR and the interlinkage among them reinforce and confirm the results of the analysis done using the NVIVO system.

From this research, it is found that many determinants are challenges that, when they are developed, will boost the access and usage of the financial system through LP in Indonesia, although further research is needed on the implementation in specific areas due to geographical diversity.

Keywords: Financial Inclusion, Laku Pandai, Nvivo, Qualitative Research, Systematic Literature Review

The Paradox of Freedom and Poverty in Post-Apartheid South Africa: Lessons from Political and Economic Dynamics for a more Inclusive and Resilient Socio-Economic Systems

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Despite significant political transformation in post-apartheid South Africa, economic inequality and persistent poverty remain pressing challenges. Moeletsi Mbeki critiques the country's governance model, arguing that redistributive policies such as Black Economic Empowerment (BEE) have primarily benefited a politically connected elite rather than fostering broad-based economic inclusion. This aligns with Joseph Stiglitz's assertion that economies prioritising redistribution over equitable opportunity often struggle to achieve sustainable development.

Mbeki's call for reimagining African capitalism advocates for a shift from neoliberalism towards mission-driven economies, resonating with Mariana Mazzucato's emphasis on state-led investment in strategic sectors such as renewable energy, agriculture, and technology. His perspective also aligns with Acemoglu and Robinson's theory on the role of inclusive institutions in sustainable growth. Drawing on Rwanda's developmental state model and Kwame Nkrumah's Pan-Africanist vision, Mbeki highlights the need for institutional reform to counter elite capture and enhance governance accountability.

This paper critically examines the intersection between political institutions, economic policies, and social cohesion in South Africa and other post-colonial democracies. It employs a qualitative research methodology, including a comparative case study approach and discourse analysis of policy frameworks, economic data, and key scholarly contributions. The study offers policy-oriented recommendations for constructing more inclusive and resilient socio-economic systems by addressing elite capture, diversifying economies, and strengthening institutions.

Keywords: African capitalism, developmental state, economic inequality, elite capture, inclusive institutions, post-colonial democracy, redistributive policies, South Africa.

Understanding the South African Drug Crime situation through Criminological Theories

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Abstract

The goal of criminological theory is to help one gain an understanding of crime and criminal justice. Theories cover the making and the breaking of the law, criminal and deviant behaviour, as well as forms of criminal activity. South Africa has been ranked among the top ten countries with the highest crime in the world. This paper focuses on drug crime. The classical school, rational choice, routine activities, Sutherland's differential association, Merton's anomie, securitisation, democratic control, strain theory, situational crime prevention and integrated theories are discussed to explain the drug crime situation in South Africa. In pursuit of the objectives of the study, the research paradigm was rooted in positivism. Consequently, a quantitative approach was adopted and a cross-sectional design was employed. Through convenience sampling, 130 respondents were recruited at public transport stations in the Gauteng province. The findings demonstrated, among other things, that respondents were of the view that some public servants and law-enforcement officials are enablers of the high drug crime rate. Furthermore, the respondents believed that South African Police officials collude with drug dealers for monetary gain, instead of performing crime-prevention and order-maintenance functions. The findings of this study corroborated the existing theories that explain the roots of the high drug crime rate in South Africa. Possible recommendations to address the problem were identified.

Keywords: criminological theories, drugs, law enforcement, South Africa

**The negative impact of the influx of undocumented immigrants into
Johannesburg central business district, South Africa**

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Abstract

This paper outlines the challenges caused by undocumented immigrants coming in large numbers into South Africa from different parts of the world. Police officials working in the Johannesburg central business district (CBD) have expressed their concerns about the challenges brought about by foreign nationals in the city. Data were collected using phenomenological face to face interviews with eleven on-duty police officials working at Community Service Centre and Crime Prevention unit, and included detectives with the relevant knowledge, experience and background. These high-level interviews provided in-depth explanations about the impact that the entry of undocumented immigrants have on the Johannesburg CBD. The findings show that the influx of immigrants has a strong positive impact on the South African economy but is straining an already stretched police force. There is public debate around the xenophobic attacks on foreign nationals, the hateful attitudes that sometimes appear in the media and in South African communities, and their consequent negative impact on the South African economy. A lack of political will affects service delivery, police-community relations and SAPS staff turnover. Furthermore, the results of this paper show that the South African Police Service (SAPS) lacks the strategies to reduce this phenomenon. Based on these findings, this paper provides recommendations to address the influx of undocumented foreign nationals into the country by proposing effective interventions that add to the current knowledge on immigration in South Africa.

Keywords: Influx, Johannesburg, South African Police Service, Undocumented immigrants

The evolving landscape of the 21st century governments: A need for adaptable and responsive public administration systems in South Africa

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Abstract

In the rapidly evolving landscape of the 21st century, governments across the globe are encountering increasingly complex and dynamic challenges. These include, but are not limited to, technological disruption, shifting socio-political landscapes, climate change, global pandemics, and mounting citizen expectations. In response, public administration systems are being called upon to become more adaptive, responsive, and forward-looking than ever before. South Africa, with its unique historical trajectory, socio-political realities, and developmental goals, is no exception. The need for transformation within the public sector is urgent and compelling, particularly as it pertains to the modernization of governance structures and the professionalization of public service.

This paper explores the critical necessity for adaptable and responsive public administration systems in South Africa. It focuses on the alignment of public administration as a field of study with the contemporary demands of governance. Specifically, it emphasizes the need to integrate specializations such as public sector monitoring and evaluation, programme planning, digital governance, and the application of artificial intelligence in public sector processes. These areas are increasingly vital to enhance the efficiency, effectiveness, and transparency of government service delivery.

A central argument of this paper is the pressing requirement for a thorough skills needs assessment in the field of Public Administration. Such an assessment will serve as a foundational step toward aligning academic training with the actual demands of the public sector. A coherent and standardised approach to capacity development is essential. This includes cultivating a shared culture of ethical governance, fostering professional principles within public service, and creating robust academic support structures. Moreover, the establishment of centres of excellence or expertise can offer targeted knowledge and training opportunities that bridge the gap between theory and practice.

Furthermore, aligning public administration education with labour market demands can help mitigate the high unemployment rates among Public Administration graduates. By ensuring that students acquire relevant, future-oriented skills, educational institutions can better prepare them for the evolving demands of government work. This would not only enhance the individual employability of graduates but also strengthen institutional capacity within the public sector, thereby contributing to national development goals.

The paper concludes by emphasizing the imperative of investing in the continuous professional development of public administrators. Equipping them with critical thinking skills, technical competencies, and innovative mindsets will enable the South African government to navigate the challenges of the 21st century more effectively. Such investments are not merely beneficial but essential for achieving sustainable development, promoting socio-economic transformation, and building a capable and developmental state.

Keywords: 21st century, government, alignment, development, Public administration

An Interdisciplinary Analysis Through the Lens of Burden of Proof, Presumptions, Estoppel and the Parol Evidence Rule Across Succession, Contract and Criminal Law

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Abstract

The longstanding distinction between substantive and procedural law has traditionally served as a foundational framework within legal analysis. Substantive law is generally understood to establish and define the rights and duties of individuals, while procedural law outlines the methods and processes through which those rights and duties are enforced or adjudicated. However, contemporary legal scholarship increasingly questions the sustainability and utility of this binary separation. As Kemp et al. aptly note, the boundary between substance and procedure is often blurred, particularly in legal contexts where evidentiary principles serve both to define legal rights and to regulate the mechanisms of their enforcement. This conceptual tension forms the basis of the present inquiry, which undertakes an interdisciplinary and cross-cutting analysis of four pivotal legal principles namely, the burden of proof, irrebuttable presumptions, estoppel, and the parol evidence rule. Each of these principles transcends traditional doctrinal boundaries and significantly impacts the application of both substantive and procedural law.

This article situates its analysis within three core domains of South African law: succession, contract, and criminal law. These fields were selected due to their doctrinal richness and the frequency with which evidentiary rules influence their outcomes. First, the burden of proof, often considered a procedural requirement, can in practice determine the substantive resolution of legal disputes. For example, in inheritance cases, the evidentiary burden placed on a party to prove the validity of a will or the existence of undue influence may ultimately determine the distribution of an estate. In criminal law, the burden of proof particularly the requirement for the prosecution to prove guilt beyond a reasonable doubt serves not only to structure the trial process but also to protect fundamental rights, thereby underscoring its substantive dimension.

Second, irrebuttable presumptions challenge the principles of fairness and natural justice by precluding any opportunity for the opposing party to contest a legally assumed fact. This raises particular concern in criminal proceedings where such presumptions may impinge on the accused's constitutional rights, including the presumption of innocence and the right to a fair trial. In such cases, what appears to be a procedural shortcut may, in fact, have profound implications for substantive justice.

Third, the principle of estoppel while traditionally framed as a procedural device to prevent inconsistency in litigation often affects substantive rights by barring a party from asserting a legal claim or defence that would otherwise be available. In contract law, estoppel can preclude a party from denying the existence of an agreement based on prior representations, thus effectively creating binding obligations outside of the formal contract.

Lastly, the parol evidence rule, which excludes extrinsic evidence intended to vary or contradict a written agreement, significantly shapes the interpretation and enforceability of contracts and wills. While commonly viewed as an evidentiary rule, its application often determines the substantive validity and scope of legal documents, thereby affecting the rights of the parties involved. In criminal law, analogous concerns arise in the context of confessions, where the exclusion or admission of oral statements can decisively influence case outcomes.

In critically examining these principles across distinct legal fields, this article argues that the conventional dichotomy between substantive and procedural law fails to capture the complexities of modern legal practice. Rather than existing in isolation, these doctrines interact in ways that necessitate a more integrated, functionalist, and context-sensitive approach to legal interpretation and application. By drawing on doctrinal analysis, statutory interpretation, and case law, the article contributes to the broader scholarly discourse on evidentiary principles and legal theory in South Africa.

Ultimately, this analysis underscores the need for South African jurisprudence to evolve towards a more nuanced understanding of how evidentiary principles influence both rights and remedies. Recognising the fluid boundaries between procedure and substance allows for a more realistic, just, and responsive legal system that better reflects the lived realities of litigants and practitioners alike.

Keywords: Burden of proof, Contract law, Criminal law, Estoppel, Evidentiary principles

Challenges in Achieving Sustainable Development Goals for rural communities due to habitat fragmentation and human-elephant conflicts in South-Asian countries: A geospatial and socio-economic assessment based on the dry zone of Sri Lanka

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Abstract

The rapid expansion of human settlements and agriculture in the Dry Zone of Sri Lanka has led to extensive forest fragmentation, severely threatening the habitat of the endangered Asian elephant and intensifying Human-Elephant Conflict (HEC). This ongoing conflict has escalated beyond a biodiversity conservation issue to a major socio-economic challenge, undermining food security, poverty reduction, and sustainable agricultural development in rural communities, causing challenges in achieving sustainable development goals. The main aim of this study was to assess the Land Use and Land Cover (LULC) changes of dry zone forests in Anuradhapura district Sri Lanka from 1995, 2010 and 2024 using Sentinel-2 satellite imagery and a Convolutional Neural Network (CNN)-based AI model to improve classification accuracy and to estimate temporal changes of fragmentation parameters such as patch density, edge density, and core area using QGIS. Then, the ecological effects of habitat fragmentation on Asian elephants and socio-economic influence on rural communities were evaluated using a field survey and a household survey carried out for selected Grama Niladhari Divisions. Significant land cover changes were revealed over the study period, and fragmentation parameters indicated a marked increase in forest fragmentation over the study period, reflecting reduced habitat quality and connectivity, resulting in more encroachment of elephants into cultivated areas. Major drivers for the forest fragmentation were agriculture and settlement expansion. As a result of the conflicts, the frequency of both elephant deaths and human deaths is escalating over time. There is a strong positive correlation ($R = 0.76$) between agricultural expansion and conflict frequency. Notably, 82% of respondents reported frequent crop damage, while 68% expressed dissatisfaction with existing mitigation strategies such as electric fencing. Loss of agriculture-based rural livelihoods, collapse of education of school children, and depression due to these conflicts are severe socio-economic problems encountered by rural communities. The findings highlight the urgent need for integrated land-use planning that aligns wildlife conservation with rural livelihood sustainability in conflict-prone regions.

Keywords: Human-Elephant Conflict, Forest Fragmentation, Sustainable Development Goals, Agriculture-based rural livelihoods, Land-Use Change

Evaluating the Role of the South African Police Service (SAPS) in Enforcing the Cybercrimes Act: Effectiveness and Challenges in Combating Cybercrime

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Abstract

This study evaluates the role of the South African Police Service (SAPS) in enforcing the Cybercrimes Act, focusing on its effectiveness and the challenges faced in combating cybercrime. Utilizing a desktop study approach, this research synthesizes existing literature, reports, and data to provide a comprehensive analysis of SAPS's efforts in this domain. The Cybercrimes Act, enacted in 2020, aims to address the growing threat of cybercrime in South Africa by providing a legal framework for the identification, investigation, and prosecution of cyber offenses. Despite the legislative advancements, SAPS faces significant challenges in implementing the Act effectively. These challenges include a lack of specialized skills and resources, insufficient training programs, and the rapid evolution of cyber threats that outpace legislative and enforcement capabilities. One of the primary challenges identified is the shortage of specialized skills within SAPS. Cybercrime investigations require a unique set of technical skills and knowledge, which many officers currently lack. This skills gap is exacerbated by the rapid pace of technological advancements, making it difficult for law enforcement to stay ahead of cybercriminals. Additionally, the limited availability of resources, such as advanced forensic tools and software, hampers the ability of SAPS to conduct thorough and timely investigations.

Training programs for SAPS officers are another critical area of concern. While there have been efforts to provide cybercrime training, these programs are often insufficient in scope and depth. Many officers receive only basic training, which does not equip them with the necessary skills to handle complex cybercrime cases. There is a pressing need for more comprehensive and continuous training programs that cover the latest developments in cybercrime and cybersecurity. The study highlights the effectiveness of SAPS's current strategies, such as the establishment of specialized cybercrime units and the development of Standard Operating Procedures (SOPs) for cybercrime investigations. These units are tasked with handling cybercrime cases and have shown some success in identifying and prosecuting offenders. The SOPs provide a structured approach to investigations, ensuring that cases are handled systematically and efficiently.

However, the effectiveness of these strategies is limited by several factors. One significant issue is the lack of inter-agency collaboration. Cybercrime often involves multiple jurisdictions and requires cooperation between different law enforcement agencies, both domestically and internationally. SAPS has struggled to establish effective partnerships with other agencies, which hinders their ability to tackle cybercrime comprehensively. Improved collaboration and information sharing are essential to enhance the effectiveness of cybercrime enforcement. Public-private partnerships are also crucial in combating cybercrime. The private sector, particularly technology companies and cybersecurity firms, possesses valuable expertise and resources that can aid law enforcement efforts. However, there is currently a lack of formal mechanisms for collaboration between SAPS and the private sector. Establishing such partnerships can provide SAPS with access to advanced tools and knowledge, improving their ability to combat cybercrime.

The research underscores the importance of continuous adaptation and innovation in law enforcement practices to keep pace with the dynamic nature of cybercrime. Cybercriminals are constantly developing new methods and techniques, requiring law enforcement to be agile and proactive in their response. This includes investing in new technologies, such as artificial intelligence and machine learning, which can enhance the ability to detect and prevent cybercrime. International cooperation is another critical aspect of effective cybercrime enforcement. Cybercrime is a global issue, and many cybercriminals operate across borders. SAPS must engage in international collaborations and participate in global initiatives to combat cybercrime. This includes sharing information and best practices with other countries, as well as participating in joint operations to apprehend cybercriminals. In conclusion, this study provides valuable insights into the current state of SAPS's enforcement of the Cybercrimes Act, offering recommendations for addressing the identified challenges and improving the overall efficacy of cybercrime prevention and enforcement in South Africa. While SAPS has made notable strides in combating cybercrime, there is a pressing need for ongoing investment in training, technology, and international cooperation to enhance its effectiveness. By addressing these challenges and leveraging the strengths of both the public and private sectors, SAPS can improve its ability to protect South Africa from the growing threat of cybercrime.

Keywords: Challenges; Combat; Cybercrime; Enforcement; SAPS

Public Policy and Food Security in Nigeria: An Evaluation of the Agricultural Transformation Agenda (2011-2015) and Agricultural Promotion Policy (2016-2022)

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Abstract

This study critically examined the evaluation of public policies, specifically focusing on the Agricultural Transformation Agenda (ATA) and the Agricultural Promotion Policy (APP). It assesses the performance of these two policies within a comparative framework to evaluate their impact on Nigeria's food security goals and their effects on smallholder farmers in the country. The study aims to uncover the challenges that have plunged Nigeria into severe food insecurity, resulting in hunger and malnutrition affecting its citizens. The research employed a qualitative methodology to explore the implications of the agricultural policies through both primary and secondary data collection methods. Primary data were gathered via key informant interviews (KII) from selected participants, while secondary data were obtained from relevant textbooks, scholarly journals, and official agricultural policy documents provided by the Federal Ministry of Agriculture and Food Security. The findings revealed significant challenges in the implementation and effectiveness of these policies. Feedback from participants indicates widespread frustration among farmers, largely due to corruption and poor resource management. Many farmers have reported feelings of exclusion and have resorted to self-sustaining practices instead of benefiting from government support, emphasizing a critical gap in the efficacy of these policies. While some farmers have experienced benefits through cooperatives, these advantages are not uniformly distributed, particularly among rural populations struggling to access essential agricultural inputs. This trend raises broader concerns, as political favoritism and dishonesty in policy execution have resulted in the misallocation of resources away from those who genuinely need assistance. Such entrenched challenges hinder both the ATA and APP in achieving their intended agricultural reforms. Findings from the study revealed that ATA has had a more noticeable impact than the APP, particularly concerning the provision of subsidized fertilizers and seedlings. However, both policies ultimately fall short of their established objectives. Consequently, the policies have not succeeded in significantly enhancing agricultural production or promoting rural development, leaving many farmers disillusioned and perpetuating high food prices, thereby threatening Nigeria's food security ambitions. The study concluded by recommending transparency and proper monitoring and evaluation for improving the effectiveness of future agricultural policies.

Keywords: Agriculture, Food, Policy, Transformation, Security

Business Growth and Access to Finance: Evaluating the Impact of Bundled Services for Women-Owned Small and Medium Enterprises (WSMEs)

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Abstract

Women run one-third of all registered businesses globally, and small and medium-sized enterprises account for 80% of jobs created. Significantly, the proportion of women-owned businesses continues to grow. However, in developing economies, mentorship plays a pivotal role in empowering women-led small and medium enterprises (WSMEs) by addressing the unique challenges they face, such as limited resources, gender biases, and insufficient support networks. This paper explores the multifaceted effects of mentorship through bundled services on the growth and purpose of these enterprises. Bundled services and mentorship empower women entrepreneurs with essential skills for decision-making, strategizing, and navigating business challenges. They foster innovation, expand markets, boost finances, and build confidence, promoting gender equality and economic growth. Despite the positive impacts, challenges persist in ensuring the quality and relevance of mentorship, aligning it with the needs of WSMEs, and assessing long-term outcomes. The findings underscore mentorship as a vital tool for addressing immediate business challenges and fostering sustainable growth, innovation, access to finance and societal change in women-led SMEs. Ongoing research highlights its transformative potential in developing economies.

Keywords: Women-Led SMEs, Bundled Services, Mentorship Impact, Organizational Innovation, Value Creation, Inclusive Growth, Entrepreneurial Empowerment, Access to Finance

Employees' protest actions: Policing dilemmas in the Southern African countries

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Abstract

The right to protest is one of the fundamental rights that democratic countries guarantee to their populace. In South Africa, the right to protest is enshrined in the Constitution and labour laws. Some of the protests and riots in South Africa turned violent and catastrophic. More often than not, tensions heighten between protesters, employers and law enforcement and end up turning violent and often leading to protesters and law enforcement officials losing their lives. The policing of these protests was met with the use of maximum force and unwarranted abuse of power by the police in contravention of the law. This study explored the policing of employees' protests in South Africa and assessed the capabilities and abilities of law enforcement to police protests and riots in the country. In this study, desktop research was conducted using relevant literature that was relevant to the topics. A qualitative approach perspective was adopted, and secondary sources elicited information that was used in the research. The increasing nature of protests in South Africa makes a case for immediate increased policing. These protests turned violent and led to people's lives being lost and property being destroyed. Some of the peaceful protests that were not managed by employees' labour union organisers, were hijacked by rogue criminals and became violent. The private and public law enforcement is overwhelmed and struggles to maintain law and order in the workplace. The study revealed that policing of protests often becomes violent, and private and public law enforcement members are not well trained to control and manage riots in the workplace. Law enforcers do not integrate the use of intelligence sources sufficiently to assist in policing activities. Proper use of intelligence sources during the policing of protests could provide law enforcement officials with reliable information to hold unruly protesters and rioters to account for their infractions. This can be done by video recording protests and recruiting ordinary and statutory informers to provide reliable information, de-escalate violence and trace criminals. Moreover, the use of an intelligence tactic of penetration could assist in destroying criminal gangs that feast on criminality.

Keywords: Employees, human rights, intelligence, policing, protest, technology

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Perishable commodity trading by informal traders: A South African conundrum

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Abstract

The right to venture in trade is enshrined in the Constitution of South Africa, national legislation and various international policies. This right is vested in everyone within the borders of South Africa, whether a South African or a migrant. Trading involves transacting in imported or locally manufactured goods alike. In the context of the South African informal trading, during trading, the issue of trading in counterfeited products and expired products continues to ignite hatred between communities and small business traders. Spaza shop owners are not known, and the profits are expatriated and used to fund terrorist organisations. The migrants become a soft target and often receive a backlash from a section of the community. This study explored hatred and hate by community members towards the selected migrants who are informal shop traders in Gauteng province, South Africa. The study will also assess the competency of public and private law enforcement and environmental health inspectors in enforcing the laws. A desktop qualitative approach was adopted using a systematic literature review. The increasing nature of violence towards migrants in South Africa makes a case for immediate increased enforcement of the laws and for equipping the intelligence agencies. The study revealed that the public law enforcers are understaffed and overwhelmed in maintaining law and order in the informal business sector where migrants operate. There is poor coordination of private and public intelligence to assist in defusing tension and halting violence. The findings revealed that foreign-run Spaza shops benefit the communities. The informal traders and largely selected migrants become a scapegoat for trading in poisonous goods and contributing to the death of innocent people. There is a growing fear of competition by selected community members that spaza shop owners are engaging in uncompetitive behaviours that are taking them out of business. There is a concerted effort to displace spaza shop businesses that are owned by foreign nationals in the townships and villages to allow local communities the opportunity to run them.

Keywords: Human rights, informal traders, intelligence, law enforcement, migrants, violence

Ref: 091/CAD/25 (Withdrawn)

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Enhancing Communication and Complaints Resolution: A Strategic Approach to Mitigating Healthcare-Related Litigations.

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Abstract

Healthcare-related litigations are a growing concern worldwide, often caused by complaints related to patient care, medical errors and communication breakdowns. These litigations lead to significant financial losses and emotional distress for both patients and hospital staff. This paper argues that enhancing communication and complaint resolution strategies is crucial to mitigating healthcare-related litigation. Effective communication and complaint resolution can address patient concerns, prevent misunderstandings, and reduce errors, ultimately decreasing litigation rates. By adopting a strategic approach to communication and complaints resolution, public hospitals can improve patient satisfaction, build trust, and reduce the likelihood of litigation, ultimately contributing to a safer and more patient-centred healthcare environment. The main objective of this study is to determine whether effective communication can reduce complaints and litigation. A mixed-method approach was adopted. The data collection process involved both qualitative and quantitative methods. Face-to-face interviews were conducted with patients and staff at three hospitals in the district to gather in-depth insights into their experiences and perceptions. Additionally, self-administered questionnaires were distributed to patients and staff at the same hospitals to collect quantitative data. The empirical findings were complemented by a comprehensive literature review, which provided a theoretical framework and contextualised the study's results. Furthermore, a document analysis of relevant policies, guidelines, and records was conducted to provide additional context and validate the findings. The triangulation of these methods allowed for a comprehensive understanding of the complex issues surrounding communication, complaints resolution, and litigation in healthcare settings. The study revealed significant communication gaps and challenges in Mpumalanga's healthcare settings, contributing to patient dissatisfaction, litigation, and staff distress. The study has implications for healthcare policymakers and practitioners regarding evidence-based approaches to improving communication, complaint resolution, and, ultimately, patient safety and satisfaction.

Keywords: Communication; complaint resolution; litigation; patient complaints; and patient satisfaction.

Evaluating Construction Management Approaches in Pietermaritzburg

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Abstract

Construction management plays a critical role in ensuring the successful delivery of building and infrastructure projects through effective coordination of resources, time, cost, and quality. In Pietermaritzburg, a city experiencing rapid urban development, the effectiveness of construction management approaches significantly impacts project outcomes and sustainable urban growth. This study aims to evaluate the prevailing construction management practices in Pietermaritzburg, with a focus on identifying their strengths, weaknesses, and alignment with modern project delivery standards.

The study adopts a mixed-methods approach, combining quantitative surveys with qualitative interviews. Data were collected from construction professionals, including project managers, contractors, and consultants operating within Pietermaritzburg. The questionnaire measured key performance indicators such as project planning, risk management, stakeholder engagement, cost control, and use of digital tools. Interviews provided deeper insights into contextual challenges and best practices.

Preliminary findings indicate that while traditional construction management methods are still widely used, there is a growing shift toward more integrated and technology-driven approaches. However, gaps remain in areas such as risk mitigation, communication strategies, and the adoption of Building Information Modelling (BIM). The study discusses the implications of these findings for local industry stakeholders and offers recommendations to enhance construction management practices in Pietermaritzburg.

This evaluation contributes to improving project delivery standards and encourages the adoption of best practices aligned with global trends, ultimately supporting the sustainable development of the city's built environment.

Keywords: project planning, digital twins, construction, government, pietermaritzburg

Maximizing Research Impact, Minimizing Waste: The Case for Explicit Priority Setting

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Abstract

Despite growing expectations for research to demonstrate real-world impact, explicit impact reporting remains rare in peer-reviewed literature. Well-documented barriers—including the time lag between research and impacts, attribution challenges, and limited capacity to monitor long-term effects—contribute to this gap. Yet an equally critical, and less acknowledged, obstacle is the persistent lack of transparent research priority setting. Most studies do not begin by identifying the concrete decision choices faced by policymakers, service providers, or communities for which research is needed, nor do they assess whether existing evidence is sufficient to guide those decisions or whether new research is necessary and strategically justified. As a result, research often proceeds without a clear understanding of its intended use—diminishing relevance and undermining potential impact.

This study systematically reviewed 60 publications from the *OIDA International Journal of Sustainable Development* to assess the extent to which they incorporated explicit research priority setting or reported research impact. Using Boolean search methods, articles were analysed by year, country of origin, theme, outcome types, and attention to impact and priority-setting practices. While countries such as South Africa and Indonesia were well represented, West Africa—despite being a stated priority for OIDA—was entirely absent, highlighting potential disparities in research capacity, access, or institutional support.

More strikingly, none of the reviewed studies clearly articulated the decision dilemmas they aimed to inform, nor did they distinguish between generating knowledge for its own sake and producing evidence to guide action. This disconnect reinforces a troubling pattern in which valuable research investments risk being wasted—through duplication, irrelevance, or failure to influence policy and practice.

To address this, research design must be flipped: rather than starting with filling evidence or knowledge gaps, it must begin with the real-world decision choices or dilemmas that users face. OIDA is uniquely positioned to lead this shift by embedding structured priority-setting into its funding strategies and publication criteria. Frameworks such as the Lowitja Institute's Research for Impact Tool offer practical models for aligning research with user decision choices and implementation contexts. By piloting user decision-driven approaches and evaluating their effectiveness against conventional methods, OIDA can generate essential evidence on how to improve the value and impact of development research.

Transforming research from a knowledge-generating exercise into a decision-informing strategy will require systemic change—but it is both possible and urgent. Through strategic leadership, OIDA and other development organisations can reduce research waste, enhance the return on investment, and reshape the international research landscape toward greater equity, relevance, and real-world impact.

Keywords: Evidence-informed decision-making, Impact-oriented research, Priority-setting frameworks, Research relevance, Transparency in research design

Building Capabilities for the Twin Transition: Technological Trajectory and Organizational Adaptation at GKN Automotive Mexico (2000–2024)

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Abstract

The automotive industry is currently undergoing a profound disruption driven by two major transformations: the accelerated digitalization of production processes and the transition toward electrification. This convergence of transitions—known as the *twin transition*—is forcing global companies to redefine their technological and organizational strategies in order to remain competitive (OECD, 2023; European Commission, 2020a, 2020b). While the literature has thoroughly documented these processes in plants located in developed economies, there is still limited evidence on how they are experienced and implemented in the Global South, particularly in terms of the capabilities built in local plants

Given this, the purpose of this contribution is to analyze the construction of technological and organizational capabilities in the GKN Automotive plants located in Celaya and Villagrán, Mexico, during the implementation of the twin transition strategy from 2000 to 2024, as a means of responding to the challenges of digitalization and sustainability in the automotive industry.

To do this analysis a qualitative study was conducted using a longitudinal case study approach that enabled the reconstruction of the company's technological and organizational trajectory. A total of 25 in-depth interviews were conducted with key actors from both plants—including engineers, supervisors, quality and continuous improvement managers, and members of senior management—at various points between 2014 and 2024. In addition, an exhaustive review of official corporate sources was carried out to examine the innovations developed by GKN globally in the areas of digitalization and electrification. The analysis made it possible to identify four phases in the evolution of capabilities within the organization:

- **Phase 1. Technological and organizational foundations (2000–2009):** During this phase, the company consolidated basic manufacturing, quality, and work organization capabilities. The plant focused on absorbing the global production model by adopting standardized operations and quality management systems. Although the technology was conventional, this period laid the groundwork for a disciplined and rigorous operational culture.
- **Phase 2. Expansion and diversification (2010–2015):** The plant entered a stage of growth, incorporating new processes and products with higher added value. Capabilities in process engineering, basic automation, and more sophisticated quality control were developed. The continuous improvement approach was introduced along with high-performance teams. This phase was crucial for laying the foundation for future digitalization.
- **Phase 3. Progressive digitalization (2016–2020):** The adoption of Industry 4.0-related technologies began, including sensors, digital traceability, MES systems, and real-time monitoring. Digitalization was driven internally, with local leadership interpreting and adapting corporate guidelines. A new organizational configuration emerged, requiring digital skills, operational autonomy, and multidisciplinary work (Bodrožić & Adler, 2022). A culture of experimentation and incremental learning was strengthened.
- **Phase 4. Technological convergence (2021–2024):** The electrification of products (electric axles, components for hybrid and electric vehicles) and the expansion of digital solutions for process control and predictive maintenance were integrated simultaneously. This phase involved major technological investments and required hybrid capabilities spanning mechanical, electrical, and digital domains. Organizational change intensified: multifunctional cells were created, production flows were reorganized, and job profiles were redefined to meet increased technical complexity.

From a discussion standpoint, the findings suggest that the twin transition in these plants does not follow a unidirectional knowledge transfer model but rather a situated co-construction process in which local capabilities play an active role. Digitalization involved not only the incorporation of new technologies but also the reorganization of structures and routines; electrification, in turn, triggered new dynamics of training, technical collaboration, and alignment with the company's global strategy. In both cases, local technical leadership and internal institutional capabilities—such as a culture of continuous improvement, operational flexibility, and decision-making autonomy—were key enablers of change (Dosi et al., 2003).

In conclusion, this study argues that plants in the Global South should not be seen merely as passive recipients of innovation but as spaces of organizational learning and generators of transformative capabilities. When locally interpreted and appropriated, the twin transition can unleash incremental innovation processes, institutional strengthening, and productive sustainability (Carbonell, 2024). Future lines of research include comparing regional cases of dual transition, analyzing differentiated impacts on job profiles, and exploring the articulation between technological transformation and environmental sustainability from a territorial perspective.

Keywords: Automotive industry; Digitalization; Electrification; Technological trajectory; Twin transition

Exploring the impact of environment-related technologies on the sustainability of energy and economic growth in China and India

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Abstract

The core purpose of this research is to unveil the role of environment-related technologies along with other important controlling factors (e.g. trade openness, industrial growth, transport infrastructure) on non-renewable energy use, total final energy use, energy intensity and economic growth in China and India. To achieve these goals, this study employed first- and second-generation panel econometric procedures from 1995 to 2023 to help address slope heterogeneity and cross-sectional dependence issues. Hence, the estimation outcomes gained from these econometric panel techniques are more robust and consistent. The consequences of both first- and second-generation approaches highlight that the influence of environmentally relevant technologies on non-clean energy, total final energy and energy intensity is robustly adverse, while the impact on economic growth is significantly gradual. These findings confirm that environmental technologies establish a vigorous role in compressing demand for energy and promoting economic growth by helping to improve energy efficiency. Furthermore, the evidence also shows that economic enhancement has an encouraging and momentous contribution to energy intensity, non-clean energy, and total final energy. Trade openness improves energy efficiency and reduces demand for non-renewable energy, while boosting total energy demand and economic growth. The consequences of the causality procedure of Dumetrescu and Hurline highlight the feedback causality between economic welfare and non-clean energy. The analysis also demonstrates bilateral causal relationships between environmentally relevant technologies and energy intensity; between total final energy use and trade openness.

In view of the aforesaid outcomes, this study contends that environment-related technologies can validate a crucial role in compressing the use of fossil fuel energy and cultivating energy efficiency in the specific economies of China and India. Thus, this study recommends that think tank officials and decision makers in China and India must recognize the imperative role of environmental technology in nurturing energy efficiency and saving energy, so as to accomplish SDG-7 (transition to clean energy), SDG-8 (sustainable economic progress), SDG-12 (sustainable consumption) and SDG-13 (nurturing environmental values). The study advocates that when enunciating strategies to expand energy efficiency, the role of environmental technology must be considered, support and encourage environmental technology innovation, and apply it to industry and transportation to reduce the essential for fossil fuel energy and promote economic enrichment.

Finally, the current study enriches literature with its scholarly contribution in the fields of energy utilization, energy efficiency, economic affluence, and environment-related technological issues. Given all this, this study provides innovative discoveries and may add substantial worth to the fields of energy and environmental economics. The model can be expanded more broadly in future research on developing and emerging economies. Likewise, the role of environmental technologies for foreign direct investment, international trade, product improvement, and manufacturing processes can be further discovered within the framework of environmental and economic sustainability.

Keywords: Environmental technologies, non-clean energy, aggregate final energy, Energy intensity, economic growth

Enablers and constraints of channeling mature talents into workforce: insights from Nova Scotia, Canada

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Abstract

As global populations age, the challenge of integrating older adults into the workforce becomes increasingly urgent. Nova Scotia, with one of Canada's oldest populations, offers a critical lens into the systemic and institutional readiness to engage mature talents in economic activities. Drawing on the conceptual framework of the United Nations Decade of Healthy Ageing (2021–2030), this paper presents an integrated analysis of two complementary studies: a survey of 302 small and medium enterprise (SME) owners and managers, and a survey of 187 older adults. By triangulating data from both employer and mature worker perspectives, the study identifies significant misalignments between supply and demand. It further uncovers the interplay of structural policy gaps, workplace culture, and digital readiness in shaping opportunities for economic engagement. The findings reveal a mature workforce that is highly motivated, digitally competent, and eager to contribute beyond financial incentives, yet faces persistent stereotyping, limited job opportunities, and ad hoc accommodations. The paper concludes with a set of policy and programmatic recommendations to unlock the potential of older adults in addressing regional labour shortages, especially within Nova Scotia's dominant SME sector.

Keywords: Aging workforce; Economic engagement; Mature workers; Nova Scotia; Small and medium enterprises

Local Communities, Resource Use, and Sustainable Forest Management in the Terai Region – A Case Study of Katarniaghat Wildlife Sanctuary, India

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Abstract

The paper is based on a study of Katarniaghat Wildlife Sanctuary (KWS), an important area for conservation of *Terai* forests and grassland ecosystems. KWS covering 400 sq.km. and adjoining Reserve forests of 150 sq.km. serve as a single ecological unit on India-Nepal border. It is one of the few remnants of the rich and diverse *Terai* ecosystem having connectivity with Dudhwa National Park to the west and Royal Bardia National Park of Nepal in the north of the sanctuary. Located in *Terai-Bhabhar* biogeographic division in Upper Gangetic Plains in northern India, the region is a mosaic of diverse habitats with immense conservation value and supports a rich biodiversity including flagship species like the Tiger, Elephant and Rhinoceros. The ecologically valuable forest and grassland ecosystems of KWS are under increasing anthropogenic pressure due to resource dependence of local communities and livestock residing both within as well as on its periphery.

For developing long-term viable conservation strategies for sustainable forest management, it is important to not only understand the nature of dependence on the resources of a given ecosystem (IUCN 2016, Ali et al., 2020; Prateek & Punia, 2025) but also to understand people's attitudes towards conservation of the protected area (Badola et al. 2012; Garekae et al., 2016, Lo & Zhu, 2022). The paper is an attempt to understand the extent and nature of resource dependence of local communities and to develop strategies for sustainable management of the *terai* forests and grasslands of KWS.

The study was based on primary data collected using interview-based household survey to assess the extent, nature and drivers of dependence on KWS. There were 10 villages located within KWS and another 64 villages on the periphery within a radius of 5 km of the boundary. The villages were stratified on the basis of community composition and 15 villages were identified for sampling; out of which 2 were located inside and 13 were outside the sanctuary. The peripheral villages were further stratified on the basis of their distance from KWS for sampling. Sampling was done in 7 of the peripheral villages located within a distance of 1.5 km of the boundary and 3 each located at a distance of >1.5-3.0 km and >3.0-5.0 km. Within the selected villages 369 households were sampled using systematic random sampling.

The *Tharu* an indigenous tribe along with other socially and economically weaker communities constituted 85% of the local population who were dependent on KWS primarily for subsistence. The major forest resources extracted were firewood, fodder, food, non-timber forest produce (NTFP) and construction material however, the extent of dependence of sampled households in peripheral villages declined with distance. While 69% of the sampled households (369) owned land, 46% were marginal (up to 1 hectare) or small (>1 – 2 hectare) landholders most of whom belonged to the socially and economically weaker communities. Livestock for local communities was a traditional asset, with 80% of sampled households owning a few heads of cattle. More than 50% of the families were engaged in rainfed agriculture or labour activities and therefore the forest resources provided a safety net during lean periods. The drivers of dependence for the enclaved villages were lack of alternative resources or sources of income. Although these households were in favour of conservation, there is a need for greater community engagement and involvement of stakeholders in developing a sustainable conservation strategy for KWS.

The conservation of *Terai* and forest ecosystems must be prioritized as they not only support the rich biodiversity, but also provide valuable corridors for the movement of wildlife in the region. To reduce biotic dependence on KWS and to provide sustainable livelihoods which are essential for achieving SDG 1 (No Poverty), SDG 2 (Zero Hunger) and SDG 10 (Reduced Inequalities) these families should be involved in conservation-oriented employment generating schemes in order to address the issue of unemployment and provided alternatives to forest resources. Further, for long-term viability of KWS, extraction of resources should be regulated by creating zones for anthropogenic use. Long-term development can only be sustainable if these ecosystems are provided viability.

Keywords: Resource dependence, local communities, *terai* ecosystem, forest management, sustainable development, alternatives.

From Waste to Wealth: Mobilising the African Diaspora and International Development Funders to Tackle Africa's Plastic Pollution Crisis

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Abstract

Africa is at a critical crossroads, facing both an escalating environmental crisis and a generational opportunity for sustainable economic transformation. One of the most visible threats is plastic pollution, which clogs drainage systems, pollutes waterways, and damages ecosystems across the continent. In countries like Ghana, rivers and coastlines are increasingly overwhelmed by plastic waste, endangering biodiversity, food security, and public health. Despite growing awareness and clean-up efforts, the scale of the problem continues to outpace solutions, revealing major gaps in waste management systems. Yet, this crisis offers a chance to rethink plastic waste as a valuable resource—fuel for a circular economy that creates jobs, reduces pollution, and drives inclusive growth. This opinion piece argues that Africa's plastic waste challenge can become a platform for innovation, particularly if leveraged through targeted investment and strategic partnerships. It calls on the African diaspora to support circular economy solutions that transform waste into wealth. The focus is on a promising innovation in Ghana: converting plastic waste into durable building materials such as bricks, tiles, and modular components. This emerging sector demonstrates a practical, scalable approach to tackling environmental degradation while meeting growing demand for affordable housing and infrastructure. By turning discarded plastics into marketable products, these initiatives combine environmental clean-up with economic uplift. The African diaspora—armed with capital, technical know-how, and transnational networks—is well-positioned to drive this change. Through diaspora-led investment, advisory services, and business partnerships, these actors can support local innovators, fill resource gaps, and enable technology transfer. International development agencies like OIDA can further strengthen this effort by providing grants for feasibility studies, concessional finance, and policy backing to help scale operations. However, even strong business models and technologies will falter without trust. Diaspora-led ventures must partner with like-minded, sustainability-driven locals who empathise with each other's realities—where diaspora investors may be risking pension savings, and local collaborators may see rare opportunities for financial stability and reinvention. When aligned around a shared vision, these partnerships can deliver lasting social and environmental value.

Keywords: Plastic waste, Circular economy, Diaspora investment, Sustainable construction, Ghana, Development partnerships

Tragedy of the Commons in the West Bank

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Abstract

The tragedy of the commons denotes a situation where the involved actors, each acting rationally in their own self-interest, while aware that an overuse of a common resource would render it depletable, deplete the resource at a more precipitous pace, even though its depletion is detrimental to these actors. The political circumstances in the West Bank inevitably lead to collision between four actors: on the one side, the Jewish settlers and the Israeli occupation forces, and on the other side, ordinary Palestinians, and the Palestinian Authority. These actors compete overall the natural resources in the West Bank, while their competition signifies a tragedy of the commons. The West Bank is an occupied territory by Israel, it is an arena where the two belligerent sides (Israelis vs. Palestinians) perceive the control of the land and water resources as a zero-sum game, and each side seeks to exploit and control these resources before the other side does. This leads to over-usage of the land and the water resources and its destruction and desalination, respectively. Given that Israel has the upper hand due to its superior power and given its authority in the West Bank, it seeks to maximize its control over the land and resources. For example, the total annual groundwater supply from aquifers in the West Bank stands at 679 MCM, of which Israel utilize 483 MCM, while Palestinians receive only 118 MCM—representing just 17% of the total available resources. The overuse and depletion of Palestinian water resources has forced Palestinian peasants to look for different sources of income other than agriculture. In addition, the destruction of olive groves by the settlers in order to seize the land, forced Palestinian peasants to abandon these lands, while the building of settlement in order to create facts on the ground caused a drastic change in the West Bank nature. Last but not least, the endeavors of the current right-wing Israeli Government to build twenty-two new Israeli settlements in the West Bank in order to block the future creation of an independent Palestinian state further destroys the natural habitat and landscape of this territory. The lack of a suitable environment for attracting investment has a negative impact on the economic situation and opportunities for sustainable development. In addition to the obstacles that impede comprehensive development planning in the West Bank, the ongoing violation of the environmental rights of the Palestinian people requires the protection of the land of the occupied Palestinian territory. The Palestinian people are in a constant struggle for securing a decent living standards and maintaining their rights over their natural resources (land, water, groves, etc). Under these circumstances, the environment and sustainable development becomes the least priority of all the involved actors. Under these circumstances and in order to rectify the problem, the paper explores ways of minimizing the negative consequences of the tragedy of the commons in the short run and searches for avenues of embracing the strategy of sustainable development by all actors in the West Bank in the long run.

Keywords: Israel, the Palestinian Authority, Sustainable development, Tragedy of the commons, the West Bank.

The Paradox of Law: Do Tough Enforcement Activities Neglect Residents' Rights in Long-Term Care Homes?

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Abstract

This policy analysis addresses a critical contradiction in Ontario's long-term care reform. Despite legislative promises to enhance residents' quality of life through the *Fixing Long-Term Care Act, 2021* (FLTCA), enforcement-driven regulatory mechanisms continue to perpetuate institutional models of care that undermine residents' fundamental rights to autonomy, dignity, and choice. The theoretical concern centers on the disconnect between person-centered care principles embedded in legislation and the practical implementation of punitive oversight systems that prioritize operational compliance over individualized, relational care. This concern is situated within the broader literature on healthcare policy implementation, person-centered care theory, and long-term care reform. Following decades of documented failures in institutional care models, scholars have increasingly advocated for culture change approaches that prioritize residents' autonomy and homelike environments. However, policy implementation research reveals persistent gaps between legislative intent and practice, particularly in complex healthcare systems. The COVID-19 pandemic intensified these concerns, with over 81% of Canada's COVID-related deaths occurring in long-term care homes, exposing fundamental systemic deficiencies that transcend regulatory oversight. Recent policy analysis literature emphasizes the need for transformative rather than incremental approaches to long-term care reform. This study employs a critical interpretive policy analysis approach, grounded in person-centered care principles, to examine the FLTCA 2021 and its subsequent amendment, Bill 7. Document analysis was conducted on primary legislative texts, policy documents, and related regulatory materials. The analytical framework examined contradictions between stated policy objectives and implementation mechanisms, with particular attention to how enforcement strategies align with or undermine residents' rights. The analysis considered both the explicit content of legislation, and the implicit assumptions embedded within regulatory approaches, using person-centered care theory as the evaluative lens. The analysis reveals three primary arguments supported by legislative evidence and policy outcomes. First, while the FLTCA positions long-term care homes as residents' personal homes emphasizing dignity and autonomy, the Act's enforcement mechanisms remain rooted in institutional oversight models that prioritize compliance over personalized care. Second, Bill 7's provision for non-consensual transfers directly contradicts the Residents' Bill of Rights, particularly Section 3 guaranteeing full participation in care decisions. This amendment facilitates forced admissions without informed consent, undermining core principles of autonomy and choice. Third, current policy frameworks create systemic barriers to innovative care models, particularly small home models that empirically demonstrate superior outcomes in resident satisfaction, autonomy, and quality of life. The evidence shows that despite legislative rhetoric promoting person-centered approaches, Ontario's regulatory system continues to reinforce outdated institutional paradigms that have repeatedly failed to protect residents' fundamental rights. The analysis concludes that genuine long-term care reform requires a fundamental paradigm shift from punitive oversight toward transformative, relationship-based care models. Small home models emerge as a viable alternative that operationalizes the FLTCA's stated principles while addressing residents expressed preferences for homelike environments. For international audiences, this case study demonstrates how well-intentioned healthcare legislation can inadvertently perpetuate systemic dysfunction when implementation mechanisms conflict with stated objectives. The findings have global relevance as aging populations worldwide grapple with similar tensions between institutional efficiency and person-centered care. The Ontario experience offers critical lessons for policymakers seeking to balance regulatory oversight with genuine care transformation, highlighting the necessity of aligning enforcement mechanisms with person-centered principles to achieve meaningful reform in long-term care systems internationally.

Keywords: Innovation; long-term care; person-centered care; policy reform, residents' rights

Electronic Governance and the Rule of Law in Haiti

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Abstract:

The rule of Law in Haiti is in a dismal situation. In the 2024 rule of Law Index published by the World Justice Project, Haiti ranks 139th out of 142 states. While the world is currently undergoing a digital revolution, Haiti is lagging far behind in this area. It is therefore worth considering how digital technology can contribute to improving the rule of law in the country. This study aims to determine how e-governance can help strengthen the rule of law in the country. This paper highlights the limitations and obstacles in the application of the concepts of e-governance and rule of law in Haiti, while identifying possible solutions. It shows how public administration practices in Haiti do not meet the requirements of these two concepts. Analysis of available data on Haiti shows that the Haitian government can use digital technologies to promote better access to the law for citizens. Indeed, the country does not yet have an official website for publishing legal texts, and until now, apart from a few laws published on the websites of various public institutions, citizens must pay fees to the country's official Journal to access laws in paper format. Furthermore, it has been noted that the country's public and private institutions are not sufficiently exploiting digital technologies to popularize the law and thus help citizens better understand their rights. The country's judicial archives exist mainly in paper format. They must be digitized to strengthen their protection and allow legal professionals to have better access to them. Based on the observation that corruption is a factor hindering the strengthening of the rule of law in Haiti, the article examines how e-governance can contribute to the fight against corruption. In this sense, digital public services can help stem corruption by significantly reducing the opportunities for racketeers to exploit their corruption channels. Haiti therefore has an interest in digitizing its public services as much as possible. Given that the requirements of an open government are far from being met in the country, this paper examines how digital technologies can be used to help the country better comply with them.

Keywords: corruption, digitization, electronic governance, open government, rule of law

Knowledge and awareness of cervical cancer, HPV, and the vaccine among higher education institution in South Africa: A qualitative study

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Abstract

Background: Commonly contracted sexually transmitted infections, including genital warts and cervical cancer are brought on by the human papillomavirus (HPV). Cervical cancer is still prevalent worldwide, even though screening can prevent it. Immunization against HPV has the potential to lower the incidence of HPV-related diseases in young adolescents who have not yet been exposed to HPV. However, not much of this information is known by higher institution students in South Africa, who are known to be more involved in sexual activities than other categories of students. Therefore, this study sought to determine the knowledge and awareness about cervical cancer, HPV, and the associated vaccine among students in a private higher education institution in South Africa.

Methods: The study was conducted on the campus of one of the private higher education institutions in South Africa over a period of two months in 2024. A qualitative approach and case study design were adopted. Using convenience sampling method, a total of ten students were recruited for the study. Semi-structured face-to-face interviews were conducted to obtain an in-depth understanding of cervical cancer, HPV and HPV vaccine. Data analysis was conducted using thematic data analysis method.

Results: The findings of this study were organized into the following themes- lack of awareness of cervical cancer, HPV and HPV vaccine, Insufficient knowledge of cervical cancer, HPV and HPV vaccine and Barriers to vaccination. According to this study, most students were not aware of the HPV vaccine and that HPV was a sexually transmitted disease affecting both men and women. They did not know that the virus led to cervical cancer. This can be seen in some of the responses received from the participants. While some students were aware of the vaccine's existence, few understood the full range of its benefits, which include preventing various types of cancers associated with the virus, such as cervical cancers. The very same individuals were unaware that it was most effective when given before sexual activity. Compared to female students, male students knew less about the HPV vaccine since many believe that HPV was largely a female problem.

Conclusion: The study shows that students do not have awareness and knowledge about cervical cancer, HPV and HPV vaccine. The findings highlight the need for health education programs within higher education institutions to address misconceptions, promote healthier lifestyles, and enhance preventive measures against HPV and cervical cancer. This research provides valuable insights into student perceptions and suggests that more comprehensive interventions are necessary to raise awareness and prevent HPV-related health issues among young adults. A distorted understanding or lack of understanding may negatively impact the uptake and efficacy of HPV vaccination among students. The study also shows that there is misinformation about HPV vaccination. Therefore, clear and population-specific information needs to be provided to students, explaining the importance of HPV vaccination. Targeted educational programs need to be developed to address the knowledge gap among students about cervical cancer, HPV and HPV vaccine.

Keywords: Cervical Cancer, Higher Education Institution, Human Papilloma Virus, Human Papilloma virus vaccine, South Africa.

Role of Digital Financial Inclusion in Promoting Sustainable Economic Development in Sub-Saharan Africa

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Abstract

This study investigates the role of digital financial inclusion in promoting sustainable economic development across Sub-Saharan Africa. The research was motivated by the growing importance of digital finance in driving inclusive growth, reducing poverty, and fostering social transformation in a region characterized by significant disparities in access to financial services. Through a comprehensive analysis of secondary sources and content synthesis, the paper examines three core dimensions: the necessity of adaptive regulatory frameworks and robust consumer protection, the significance of institutional quality and governance, and the transformative potential of public-private partnerships and stakeholder engagement. The findings demonstrate that regulatory clarity and proactive consumer protection are essential for building trust and expanding participation in digital financial ecosystems. Moreover, the effectiveness of digital financial inclusion initiatives is significantly conditioned by the strength and inclusivity of institutional structures, with transparent governance facilitating greater reach and sustainable impact. Collaborative efforts among governments, financial institutions, fintech enterprises, and civil society have been pivotal in accelerating the adoption and scalability of innovative financial solutions. The research further highlights persistent challenges such as infrastructural gaps, digital literacy deficiencies, and unequal power dynamics within partnerships, which continue to limit the full realisation of digital finance's benefits. The study concludes that digital financial inclusion has emerged as a transformative force for sustainable development in Sub-Saharan Africa. However, its long-term impact depends on ongoing regulatory evolution, institutional strengthening, and inclusive stakeholder collaboration. The results provide actionable insights for policymakers and practitioners, underscoring the need for context-sensitive strategies and capacity-building initiatives to ensure that digital financial inclusion contributes meaningfully to economic growth, social equity, and resilience.

Keywords: Digital financial inclusion, Economic Growth, Economic development, Institutional quality, Sub-Saharan Africa

Colorectal Cancer Prognosis: Gene Expression Clustering and Survival Analysis Using Kaplan-Meier and Cox Models

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Abstract

Colorectal cancer (CRC) is a major health concern worldwide, marked by its complexity and molecular diversity. With the rapid growth of transcriptomics and artificial intelligence (AI), combining gene expression analysis with machine learning (ML) is proving to be a promising strategy for understanding cancer biology and improving early diagnosis. In this study, we conducted a detailed transcriptomic and AI-driven investigation using the publicly available dataset GSE39582, which includes gene expression profiles from 585 human samples, covering both non-cancerous colorectal tissues and various CRC subtypes.

Expression data were derived from the Affymetrix Human Genome U133 Plus 2.0 Array platform (GPL570). After downloading and processing the data with log₂ transformation and filtering for genes with sufficient expression, we retained 54,675 genes for analysis. Principal Component Analysis (PCA) showed a clear separation between cancerous and non-cancerous tissues, indicating strong transcriptomic distinctions. Correlation heatmaps further supported consistent clustering based on phenotype.

To identify significant molecular changes, we performed differential expression analysis using DESeq2. Applying standard statistical thresholds (adjusted p-value < 0.05 and |log₂ fold change| > 1), we identified a subset of significantly upregulated genes in tumor samples. Notable among these were MMP7, SPP1, GDF15, REG1A, and CXCL1—genes previously implicated in tumor progression, invasion, and inflammatory signaling. For example, MMP7 encodes a protease that promotes extracellular matrix remodeling and metastasis, while SPP1 (osteopontin) is associated with immune modulation and cancer aggressiveness.

To explore the functional roles of these genes, we performed enrichment analysis using the clusterProfiler package. Upregulated genes were found to be involved in key biological processes such as extracellular matrix organization, wound response, immune system activation, and epithelial proliferation. These findings align with known hallmarks of CRC, including tumor microenvironment remodeling and inflammatory response.

In the second part of our analysis, we investigated the predictive value of transcriptomic features using machine learning models. We selected the top 100 differentially expressed genes and built classifiers using Random Forest (RF) and Support Vector Machine (SVM) algorithms. The Random Forest model achieved a classification accuracy of 77.4%, with high sensitivity (98.8%) for detecting primary adenocarcinoma samples in the discovery cohort. However, performance was lower for the validation subgroup, indicating possible class imbalance or intra-group variability. The SVM model performed comparably, reaching an accuracy of 78.3%, and confirmed the utility of ML in distinguishing tumor and non-tumor samples. The multi-class area under the curve (AUC) was 0.721, reflecting moderate model performance.

Variable importance analysis from the RF model revealed that several upregulated genes, including CXCL1, GDF15, and REG1A, contributed significantly to prediction accuracy. These genes could serve as potential biomarkers for early detection or therapeutic targeting. Confusion matrix plots also provided a visual summary of prediction strengths and limitations across different sample types.

In summary, this integrative study highlights a panel of biologically relevant, upregulated genes in colorectal cancer, many of which are linked to inflammation, matrix degradation, and tumor progression. The combination of differential gene expression profiling and machine learning offered valuable insights into CRC classification and biomarker discovery. These results underscore the potential of AI-enabled transcriptomics in supporting personalized approaches to cancer diagnosis and treatment. Future work should focus on validating these biomarkers in external datasets and refining model accuracy through improved class balancing and feature engineering.

Keywords: Clustering, Colorectal cancer, Cox model, Gene expression, Survival analysis.

Sustainable Common-Pool Resource Management Through Community-Based Enterprises: A Pathway to Community Resilience in Bangladesh

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Abstract: (400 – 800 words).

Community resilience has become a central concept in disaster risk reduction and sustainable development discourse, especially in countries like Bangladesh that face recurring environmental, social, and economic shocks. Despite its increasing prominence, empirical evidence remains limited on how community-based enterprises (CBEs), as collective management mechanisms, can bolster resilience by sustainably governing common-pool resources (CPRs). In our previous paper (Faiaz and RM Safkat, 2020), we investigated the dynamics of CPRs, identifying why some resources are successfully managed while others degrade, drawing on a well-established theoretical framework and practical examples of the Community Enterprise Approach (CEA). Building on this foundation, the present paper explores a more complex and multidimensional question how the CEA model contributes to community resilience, thereby bridging the gap between resource governance and the broader discourse on sustainable development.

Previous research underscores the role of participatory CPR governance in strengthening local resilience (Berkes, Colding, and Folke 2008; Folke 2006; Ostrom 1990). Seminal work by (Ostrom 1990) established that collective management of common-pool resources (CPRs) can enhance sustainability and equity by fostering trust, reciprocity, and community-led decision-making. Building on this, scholars such as (Berkes, Colding, and Folke 2008; Jules Pretty 2003) have demonstrated that participatory governance and local knowledge-sharing strengthen social capital and adaptive capabilities across diverse socio-ecological contexts. Recent research further argues that community-based enterprises (CBEs) which enable collective resource stewardship and diversified livelihoods, can serve as practical mechanisms to translate these principles into sustained resilience at the grassroots level, particularly under climate and resource stress (Armitage, Berkes, and Doubleday 2010; Bahadur, ..., and 2010). Despite these advances, empirical evidence remains limited on how CBEs, especially in developing countries, enhance resilience by integrating common-pool resource management with socio-economic development. This study addresses that gap by providing new insights into the capacity of CBE-driven floodplain aquaculture initiatives to bolster local resilience in rural Bangladesh. This study adopts a mixed-methods design and incorporates a Randomized Controlled Trial (RCT) to assess the impact of the Community-based Enterprise Approach (CEA) model on community resilience. Communities in the Laksam subdistrict were randomly assigned to either a CEA-implemented intervention group or a non-CEA control group. Due to the absence of a community-scale census in Bangladesh's national statistical framework, we relied on secondary data sourced from the Bangladesh Academy for Rural Development (BARD). This dataset was compiled from a comprehensive door-to-door household survey conducted by BARD in 2025, encompassing responses from 204 households 145 from CEA project areas and 59 from outside the intervention area. Drawing on these data, we constructed a Community Resilience Index (CRI) comprising seven dimensions resource robustness, social capital, economic development, information and communication, community competence, leadership, and collective action to systematically compare resilience outcomes across the two groups.

The analysis reveals a significantly higher CRI score in the CEA area (0.79) compared to the control area (0.47), demonstrating notable improvements in social capital, community competence, and leadership. These results highlight that participatory resource governance, collective decision-making, and local knowledge-sharing under the CEA model contribute to enhanced adaptive capacity. Aligning with Ostrom's design principles and adaptive capacity theory, the findings show that well-managed CPRs can simultaneously promote sustainable livelihoods and resilience building.

By embedding participatory governance, economic diversification, and collective action into common-pool resource management, the CEA model offers a scalable and context-responsive approach to strengthening resilience in climate-vulnerable settings. These findings provide valuable, practical guidance for policymakers, practitioners, and international agencies seeking to promote community-led, sustainable resilience strategies in similarly at-risk contexts.

Keywords: Sustainable Development, CPRM, Community Resilience and CEA

Implications of procedural justice on police legitimacy in South Africa

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Abstract

It is argued that procedural justice is intrinsic to every police action, a dynamic coefficient that shapes legitimacy and trust, and an elementary determinant of community satisfaction with the police. Legitimacy and trust can be built if this ethos drives the everyday interactions of officers and citizens. If these traits are not present, they can easily and quickly erode. The aim of this study was partially to describe to what extent individuals have (dis)trust in institutions of law enforcement, such as the police, a key institution of a democracy, that form part of the criminal justice system (CJS). Procedurally, just policing is essential to the development of goodwill between police and communities and is intricately linked to improving community perceptions of police legitimacy, the belief that authorities have the right to dictate proper behaviour. This study utilised a qualitative research method with a descriptive qualitative approach, which aims to reveal events or facts, circumstances, phenomena, variables, and circumstances that occur when research takes place by presenting what happens. The data collection techniques used in this research were observation, in-depth interviews, and focus group discussions (FGDs) with 37 participants, following purposive sampling and documentation. Six themes emerged from the findings, namely 1) the level of safety in the cluster areas; 2) the role of the police and communities as partners in fighting crime in the areas; 3) the level of trust between the police and the community; 4) the current strategies in place and their effectiveness in building a relationship of trust between the police and the community; 5) the effects of mistrust on the relationship between the police and the community and 6) the strong working relationship of trust between the police and the community.

Keywords: Community, procedural, justice, police, legitimacy

Financial Inclusion and Its Determinants: A Study of Laku Pandai in Indonesia

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Abstract

Expanding access to financial services to all levels of society is one of the keys that help a government to realize a thriving economy. Efforts to increase the Financial Inclusion Index have been made in Indonesia through programs, regulations, and projects. Laku Pandai (LP) program is one of them. With their agents and information technology, banks cover a wider area of operational business coverage for the unbanked and the underserved people. Since the regulation of LP was issued in 2014, the financial inclusion index has increased significantly. The National Strategy of Financial Inclusion also played an important role in boosting the cooperative work among stakeholders to enhance the implementation of each pillar within the NSFI framework. An example of those cooperative works can be found in the LP program, which helped the government to deliver non-cash social assistance for several years. Unfortunately, along with the advancement in the technology of mobile banking, the number of banks doing LP is declining. This situation affects the number of agents and BSA accounts.

This research aims to study how the LP program and its regulation have been done and implemented in Indonesia and how to make them better to optimize the continuance of the LP program. This paper was carried out using both primary data and secondary data. Various sources of data were used, such as data from OJK, banks, and other related ministries/institutions. Data were analyzed qualitatively. Data from nine in-depth Interviews had been analyzed using the NVIVO system. Both Coding analyses (First Cycle Coding and Second Cycle Coding) were run. In addition to these, we conducted a Systematic Literature Review (SLR)

For the first Cycle Coding of the NVIVO system, we built many system nodes from determinant factors, challenges, and regulations. “Education and Literation” gets the highest reference value (88%), which is 8 (eight) out of 9 (nine) informants. From sub-nodes Challenges, “Less Literate -> Saving Behaviors” was found as the most challenging factor. From the sub-nodes Regulation, it is found that the Monitoring gets the highest share. Different from the other two sub-nodes, the sub-nodes of Determinant Factors show many influential factors such as “Education & Literation”, Profitability Rate, Needs Based Product, Human Capital Availability, “Cash Transfer > Bank Account”, “Bank Business Model > Product Design”, and Bank Incentives. The comparison between Regulator and operator in the Second Cycle Coding phase made the result that there are 18 nodes that are most mentioned by the informants. We began to classify some Casual Coding from this finding and got 6 nodes as the highest referenced situation.

Before the SLR is started, we get 812 research papers by using PRISMA, and down to 426 eligible research papers after implementing 4 (four) screening factors. From several scenarios that were run within SLR, many factors are important, such as Financial Literacy, Financial Behavior, Education, Development, Economic Growth, Saving, Saving Behavior and Fintech. Furthermore, most of the factors that come up as keywords from SLR and the interlinkage among them reinforce and confirm the results of the analysis done using the NVIVO system.

From this research, it is found that many determinants are challenges that, when they are developed, will boost the access and usage of the financial system through LP in Indonesia, although further research is needed on the implementation in specific areas due to geographical diversity.

Keywords: Financial Inclusion, Laku Pandai, Nvivo, Qualitative Research, Systematic Literature Review

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