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## **Accepted Abstracts**

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**Is there a case for broadening the South African rural consumer's food basket in the wake of climate change?**

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**Abstract**

This discussion paper wants to explore the case of broadening the food basket of South African consumers, especially the rural households who are hit hard by food insecurity, yet have land where they can grow their own food. The paper discusses the potential of underutilized indigenous crops (UICs) to enhance food security in South Africa. UICs, which have historically played a significant role in local diets and agricultural systems, are increasingly recognized for their resilience to climate change, nutritional benefits, and contribution to biodiversity. Despite their advantages, these crops remain underexploited due to various socioeconomic, cultural, and policy-related barriers. Through a review of literature and policy documents, this paper discusses measures that can be taken to broaden the food basket through UICs. Findings suggest that promoting UICs requires a multifaceted approach, including awareness campaigns, supportive policies, and investment in research and development. Reviving the cultivation of UICs will not only contribute to household food security and achieving Sustainable Development Goals, but could minimise the impact of climate on our food systems.

**Keywords:** Climate Change, Food Security, Indigenous Crops, South Africa, Sustainable Agriculture

Ref: 101/SOA/24

## **Understanding Neonatal Health: A Comparative Case Study on Core Blood Parameters of Infants Born to Hypothyroid and Euthyroid Mothers in India – Insights for Better Maternal and Child Care**

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The health of newborns is a critical marker of societal well-being, and maternal thyroid function plays a pivotal role in determining neonatal outcomes. This study aims to compare core blood parameters in neonates born to hypothyroid and euthyroid mothers in India, highlighting the socio-health implications of untreated maternal hypothyroidism. Given India's high burden of thyroid disorders—affecting nearly 12% of the population, with a significant proportion of cases going undiagnosed—this issue has vast ramifications for maternal and child health. The study was conducted with a cohort of 200 neonates born in a tertiary care hospital in India. The participants were divided into two groups: 100 neonates born to hypothyroid mothers and 100 born to euthyroid mothers. Core blood parameters such as hemoglobin levels, white blood cell counts, TSH (thyroid-stimulating hormone) levels, and Apgar scores at birth were compared between the two groups. Data revealed that neonates born to hypothyroid mothers had significantly higher TSH levels (mean: 12.5 mIU/L vs. 6.8 mIU/L in the control group,  $p < 0.05$ ) and lower hemoglobin levels (mean: 14.0 g/dL vs. 15.6 g/dL in the euthyroid group,  $p < 0.01$ ). Apgar scores at 1 minute were also lower in neonates of hypothyroid mothers (mean score: 7.0 vs. 8.5,  $p < 0.05$ ), reflecting mild respiratory distress and delayed adaptation at birth.

The socio-economic impact of untreated hypothyroidism during pregnancy is profound. Many women in low-income and rural areas of India lack access to prenatal screening for thyroid disorders, often due to poor healthcare infrastructure, limited awareness, and financial constraints. This study underscores the need for comprehensive prenatal screening programs and better healthcare access to ensure timely diagnosis and treatment of maternal hypothyroidism.

Neonates born to untreated hypothyroid mothers are at increased risk of developmental delays, cognitive impairments, and long-term health complications, perpetuating cycles of poverty and poor health outcomes. Addressing this issue not only improves neonatal health but also enhances the socio-economic stability of families and communities. Targeted interventions such as universal prenatal thyroid screening, especially in rural and underserved populations, are essential to improving maternal and neonatal outcomes in India. This study calls for an integrated healthcare approach, blending clinical intervention with social policy, to address the broader socio-health challenges posed by maternal hypothyroidism in India.

**Keywords:** Hypothyroid, Mothers, Neonates, India, Socio - Economic

Ref: 102/SOA/24

## **Integration of the SDGs in higher education: Reflection on the global impact rankings**

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### **Abstract**

Impact rankings and the implementation United Nations Sustainable Development Goals have become a buzzword almost in every higher education institution. Both exercises have both negative and positive impact on the higher education systems. Globally and locally higher education institutions are constantly trying to improve their rankings, especially the impact rankings by implementing SDGs into their core functions. This study review how the University of South Africa (UNISA) incorporates and implements SDGs into its core functions and what the university's priorities in this regard are. Furthermore, the study explores the impact of this prioritisation on the university's ranking globally. The 2023 global impact rankings is used as a basis for this comparison. The purpose is to find lessons and to improve our efforts towards the implementation of SDGs through its core functions.

**Keywords:** Global impact rankings, SDGs, higher education, UNISA.

Ref: 103/SOA/24

**Addressing the Underutilization of Citizen-Based Monitoring for Sustainable Development in South Africa:  
A Framework for Enhanced Accountability**

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**Abstract:**

Citizen-Based Monitoring (CBM) is a participatory tool that has the potential to significantly improve accountability and community participation in public service delivery, particularly in the context of Sustainable Development Goals (SDGs). In South Africa, CBM is currently underutilized, with both citizens and government institutions demonstrating limited awareness and engagement. This study explores the barriers to implementing CBM effectively in South Africa. It investigates how it can be integrated into public governance systems to advance key sustainable development targets, particularly SDG 11 (Sustainable Cities and Communities) and SDG 17 (Partnerships for the Goals). These goals emphasize the importance of inclusive, safe, and accountable institutions, which are integral to improving service delivery, reducing inequalities, and ensuring community participation in governance. The research problem addressed in this study is the underutilization of CBM due to the lack of structured frameworks, limited public awareness, and fragmented policy integration. As a result, the full potential of CBM in fostering transparent and participatory governance has yet to be realized. This study aims to develop a comprehensive CBM framework that strengthens citizen participation and enhances institutional accountability, thus contributing to achieving South Africa's SDGs.

Employing a mixed-methods approach, the research draws on quantitative surveys and qualitative interviews conducted with citizens, government officials, and community-based organizations in both urban and rural areas. These methods are used to assess the current state of CBM, its challenges, and its potential impact on improving governance and public service delivery. The findings reveal that public awareness of CBM initiatives remains low, with many citizens unaware of how to monitor public services. Furthermore, government institutions have been slow to adopt CBM due to fragmented policy frameworks and the lack of formal mechanisms for integrating citizen feedback into decision-making processes. Based on these findings, the study proposes a CBM framework designed to address these challenges. The framework emphasizes the importance of awareness campaigns, capacity building, and digital inclusion to ensure that citizens—especially those in marginalized and rural areas—are empowered to participate. Additionally, it outlines strategies for enhancing government responsiveness and aligning CBM with national sustainable development strategies. Ultimately, this research aims to demonstrate that CBM can be pivotal in strengthening accountability, promoting transparency, and driving sustainable development outcomes in South Africa.

**Keywords:** Accountability, Citizen-Based Monitoring, Public Service Delivery, Sustainable Development Goals, Transparency

## **Unlocking Health Equity: Innovating MSM-Friendly Healthcare in Kimberley, South Africa**

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In Kimberley, South Africa, equitable healthcare access for Men who have Sex with Men (MSM) remains an ongoing challenge, particularly against the backdrop of the high HIV/AIDS prevalence in the region. MSM often face stigma and discrimination, creating significant barriers to accessing healthcare services. Despite the pressing need, there is a lack of MSM-friendly healthcare infrastructure. This study aims to explore these challenges and propose innovative strategies for the development of MSM-inclusive healthcare systems that align with the principles of health equity.

This qualitative study employed semi-structured interviews with 34 healthcare workers at Masakhani and Betty Gaetsewe clinics in Kimberley. The research was guided by the Health Belief Model, focusing on the healthcare workers' perceptions of MSM-related stigma, their attitudes toward MSM patients, and the systemic barriers faced by MSM in seeking care. The study also explored MSM clients' fears around disclosing their sexual orientation and the absence of specialized healthcare services tailored to their needs.

The findings reveal that perception stigma is a significant barrier to healthcare for MSM, leading to internalized stigma and eroding self-esteem. Negative attitudes from healthcare providers and community members, rooted in cultural and societal biases, create an environment where MSM feel unsafe and hesitant to seek medical care. The fear of disclosure further exacerbates these issues, compounding the barriers posed by an already strained healthcare system. The absence of MSM-friendly facilities and trained personnel prevents MSM from receiving the specialized care they require, resulting in healthcare disparities.

To address these disparities, this study highlights the urgent need for the development of MSM-friendly healthcare services in Kimberley. By co-creating safe and inclusive spaces that prioritize the needs of MSM, healthcare providers can foster trust and improve engagement with MSM populations. Collaborative efforts between healthcare professionals, community stakeholders, and MSM individuals are essential for achieving transformative change. These interventions will not only reduce stigma but also contribute to advancing health equity for MSM populations in Kimberley and beyond, in line with the broader objectives of Sustainable Development Goals 3 (Good Health and Well-Being) and 10 (Reduced Inequalities).

**Keywords:** MSM, Health Equity, Stigma and Discrimination, Healthcare Access, Innovation

## **Unlocking Health Equity: Innovating MSM-Friendly Healthcare in Kimberley, South Africa**

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**Keywords:** MSM, Health Equity, Stigma and Discrimination, Healthcare Access, Innovation

## **The employability of Development Studies Graduates in the context of the Fourth Industrial Revolution – The Case study of the University of Johannesburg**

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### **Abstract**

The Fourth Industrial Revolution (4IR) will not only affect the economic and educational spheres but also the social fibre of our communities. The Department of higher Education in South Africa had made an observation that the current demand for skills related to the 4IR far exceeds the available supply, resulting in more job vacancies than graduates each year. This is commonly referred to as a skill imbalance. A skills imbalance is a misalignment between the demand and supply of skills in an economy. Conversely, there were other suggestions from literature that in a 4IR system, competency and skills may hold greater significance than qualifications (e.g., creativity, critical thinking, problem-solving). Ten top skills were identified by the World Economic Forum in 2023. These were critical thinking, analytical thinking, technological literacy, curiosity, and lifelong learning, resilience, flexibility and agility, systems thinking, AI and big data, motivation and self-awareness, talent management and service orientation and customer experience. These divergent views call for concerted efforts to ensure that South Africa and its people are ready to exploit the opportunities that the 4IR has brought. Higher education institutions play a crucial role in shaping our society and the acquisition of skills. They equip graduates with specialized skills and knowledge essential for fostering innovation and productivity in various sectors, thereby enhancing career opportunities, and contributing to broader economic advancement. Higher education institutions (HEI) are deemed significant in addressing the needs of the marketplace and transforming the society for better. This paper aims to highlight the extent to which graduates from the University of Johannesburg who had majored in Development Studies Honours degree between 2019 and 2021, had acquired the relevant skills that would assist them to be employable and navigate the world of work more efficiently. Development Studies was chosen as a discipline for scrutiny because of its focus on analysing social structures, economic systems, and political institutions to comprehend how they interact and affect human development. This interdisciplinary approach is crucial for understanding the multifaceted nature of development and for formulating effective strategies to address global development challenges.

The study adopted an explanatory sequential design, which combines quantitative and qualitative research methodologies. Web-based questionnaires and interviews were conducted. Descriptive statistical analysis was used to analyse quantitative data, and thematic analysis was used to analyse qualitative data. Conceptual approaches to examine employability encompassed two theories namely, the human capital theory and Freire's pedagogical approach. The human capital theory is a modern economic concept that examines issues related to the development and quality of the workforce. The theory posits that individuals can increase their labour productivity by investing in their education, skills, and knowledge. On the other hand, Freire's theory emphasizes the importance of developing critical thinking in learners (Putra et al 2020) and dialogical education. According to Putra et al (2020), critical analysis helps to ensure that development efforts are contextually relevant and aligned with the principles of social justice.

The study investigated the Development Studies graduates' aspirations, experiences, and readiness for the world of work in the context of the 4IR. There is a general assumption that the 4IR can pose a threat to employment opportunities especially in the Developing world. There are also assumptions about the types of skills that are required for sustainable employment opportunities. However, the study found that there are inherent skills that are found in the subject of Development Studies that are essential for future employability. The study revealed that South Africa is immersed in the 4IR although the graduates' understanding of its machinations vary and are not fully comprehended in the matter in which the 4IR impacts on the world of work. The results presented mixed results about the level of preparedness for the workplace. Some participants felt underprepared for the workplace, lacking an understanding of 4IR and the necessary employability skills required by the 4IR. Whereas other views were that although the 4IR has transformed industries, societies, and the way we live and relate to one another, there are certain relational skills at community and national levels that require human interaction. Some participants acknowledged that while 4IR is transformative, it still requires human input and intelligence, raising a human-machine interface debate. These cannot be replaced by any machinery.

The research significantly contributes to the fields of Development Studies and 4IR, bringing awareness on the implications of 4IR for graduates' future employment, unpacking the role of 4IR in development work, and serving as a guideline for higher education institutions seeking to prepare Development Studies graduates and other disciplines for future employability.

**Keywords:** Fourth Industrial Revolution, Development Studies, Employability, Freire's Pedagogy World of Work, Freire's



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**The 21<sup>st</sup> century governments require skills coherence and alignment for adaptivity and sustainability.  
The case KwaZulu Natal Provincial Government**

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**Abstract**

The purpose of this paper is to evaluate skills coherence, alignment and needs of the 21st century governments for Public Administration adaptivity, the case KwaZulu Natal Provincial Government. This paper used interpretivism research paradigm, to discover the reality of the phenomenon, through content analysis and systematic review design.

In the rapidly embryonic landscape of the 21st century, governments worldwide are facing unprecedented challenges that demand highly adaptable and responsive public administration systems. With its unique socio-political context, South African government is no exception. There is quite a number of urgently needed specializations in government that public administration as a study needs to align with such as public sector monitoring, and evaluation, programme planning, and the use of Artificial intelligence in governance in response to these challenges. Thus, this paper delves into skills coherence, alignment and needs of the 21st century governments for Public Administration adaptivity while highlighting the crucial role that well-equipped public administrators play in ensuring effective governance and sustainable development.

This paper argues that there is a serious need for skills needs assessment and alignment in the field of Public Administration, this will optimize government systems and processes; providing a standardised culture and principles in the public sector; strong academic support; a centre of expertise providing access much needed expertise and reduce the unemployment for Public Administration graduates.

Public Administration as a field of study should provide government with strategic skills that are relevant to the 21<sup>st</sup> century good governance needs. The changing times, environment, and socio-economic requires Public Administration education to have adaptivity, resilient and open to change. The study concludes that the investment in the development of highly adaptable and skilled public administrators will assist the government to navigate the myriad challenges of the 21st-century effectively while ensuring the socio-economic progression and sustainable development of the nation.

**Keywords:** 21<sup>st</sup> century, government, Alignment, Coherent, Development, Skills

## Compensating Inequality

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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 trade and inequalities. In other words, how trade standards or rules make it possible to understand inequalities, their causes and consequences in the multilateral trading system, in order to better promote action initiatives working towards their reduction or elimination. ?

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 is about compensating inequality, developing countries claim, based on the recognition of real inequalities in development between States, the benefit of derogatory regimes. Thus, taking into account development inequalities must lead to the establishment of legal inequalities intended to compensate for real inequalities. In trade, these inequalities will result in the abandonment of the principle of reciprocity and the determination of categories of States with a different status. This involves the adoption of the principle of duality of norms which means that “a single body uniformly governing all interstate relations will now be replaced by two bodies of rules; on the one hand, that governing relations between developed countries, on the other hand, that which governs relations between these and developing countries as well as relations between developing countries. Indeed, this principle aims to correct the strict and inopportune application of equality between States on the international scene contrary to WTO rules through compensation of the initial inequality between States and the transition from formal inequality to real equality of treatment justified by the principle of solidarity.

Thus, compensating inequality resulted in a strict and inappropriate application of equality between States on the international scene contrary to WTO rules (Section I) and compensation for the initial inequality between States; from formal inequality to real equality of treatment justified by the principle of solidarity (Section II).

**Keywords:** GATT, WTO, Solidarity, Fighting Against Poverty, Development

## **An Overview of Forensic Investigators in the Investigation of Mobile Fraud: The Study Case of the South African Banking Industry**

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### **Abstract**

Research addresses the overview by the forensic investigators in the investigation of mobile fraud and to identify best practices to combat mobile fraud at the South African Banking Industry are discussed. The SABRIC annual report (2017-2022) detailed a number of mobile fraud cases that were classified and influenced by various categories, such as revenue loss and fraudulent cash disbursement (expenditures), as well as biometric-based solutions for combating mobile fraud in the South African banking industry. The paper also emphasized that the common detection methods were characterized by the change in the biometric-based solution in combating mobile fraud in the South African Banking Industry, which included both external and internal employees. Mobile fraud is a complex issue that encompasses a wide range of illegal behaviors, from bid rigging during the pre-contract award stage to fake billing during the post-contract award phase. It could be committed by both internal and external parties. Design/methodology/approach of this paper discusses from secondary sources of data, mainly drawn from journal articles, internet sources and scholarly books relevant to address the overview of mobile fraud by the forensic investigators in the investigation of mobile fraud and to identify best practices to combat mobile fraud at the South African Banking Industry. The population of the study was the banking mobile fraud investigators who work in banking mobile fraud unit dealing with mobile fraudulent activities in the banking industry in the country. The study's key findings include: -legal constraints and the sentences awarded by courts to mobile fraud convicts are insufficient by the SABRIC annual report- 2017-2022. The recommendation of this paper suggests bank employee training, customer awareness programs, the establishment of a consolidated mobile fraud database, and improvements in the judicial and legal management of bank mobile fraud.

**Keywords:** Forensic investigation, investigation, mobile fraud, biometric-based solution, bank.

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**Evaluating the success of South African Law Enforcement in combating drug and substance abuse:  
Are we winning the fight?**

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**Abstract:** Research shows that engagement vision of higher education as an asset for Social Justice in South Africa and in Africa by combating drugs and substance abuse. The Youth-Network Engaged Scholarship Project site visit has been conducted with the community in South African Communities for 2024. The purpose of this project to engage the community members on the effectiveness of Law Enforcement awareness against drugs and substance abuse- Is our Law Enforcement winning the fight against Drugs and Substance Abuse in South African Community”. The impact of the drugs and substance abuse on a young participant’s life and life after matric. For the 2024 academic year, Youth-Network ES Project aim to work with different stakeholders around Limpopo (Mokopane and Polokwane) and Western Cape (Cape Town Community) in combating drugs and substance abuse as well as life after matric among youth participants. Consequences of youth substance abuse and Western Cape-Cape Town Community. Young people who persistently abuse substances often experience an array of problems, including academic difficulties, health-related problems (including mental health), poor peer relationships, and involves law enforcement to address “Is Law Enforcement winning the fight against Drugs and Substance Abuse in South African Community”.

**Keywords:** Effectiveness, Law Enforcement, Awareness, Engaged Scholarship, Community, Drugs and Abstance Abuse.

## Climate Change and the Evolution of Climate Jurisprudence: A Study in the Indian Context

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### Abstract

India is increasingly facing challenges from climate change, as evidenced by frequent and extreme weather events like intense heat waves and erratic rainfall. Research studies from institutions like the Tamil Nadu Agricultural University (TNAU) and the Indian Agricultural Research Institute (IARI-ICAR) predict that rice yields could decline by 6.5% during the 2021-2035 period due to rising temperatures, altered rainfall patterns, and other climate-related factors. Another research by the International Crop Research Institute for Semi-Arid Tropics (ICRISAT) in Hyderabad shows that diseases affecting major pulses, such as blight, will likely shift in their seasonal occurrences, presenting new challenges for farmers. This changing climate brings about droughts, floods, and hailstorms, which threaten to destabilize horticulture and other high-value cropping systems. Rising temperatures due to climate change are also anticipated to impact livestock health and productivity. Moreover, the iconic Himalayan glaciers—a natural buffer against drought—are also at risk. A 2019 report projected that by the year 2100, at least one-third of these glaciers could vanish, significantly affecting river flows, water availability, and agriculture in the downstream areas.

Against this backdrop, the paper highlights that India has long taken a stance that climate change is a shared global challenge requiring collaborative action across nations. India is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and its subsequent agreements, including the Kyoto Protocol (KP) and the Paris Agreement (PA), both of which commit countries to reducing greenhouse gas emissions and fostering climate resilience. India has also committed to the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD), highlighting its comprehensive engagement with international environmental governance frameworks.

The paper proceeds to discuss, briefly, India's robust set of laws, regulations, policies, and institutional frameworks to combat climate change. It, then, moves on to elaborate the instrumental role that judiciary, particularly the Supreme Court of India and the National Green Tribunal (NGT), have played in shaping India's environmental and climate jurisprudence. Through landmark judgments and directives, these adjudicatory bodies have sought to address environmental degradation and support climate-friendly policies. Climate jurisprudence in India, in the context, encompasses legal decisions that, while not always explicitly targeting climate change, have significant implications for it. For instance, in *Indian Council for Enviro-Legal Action v. Ministry of Environment and Forests* (2014), the NGT ordered an assessment of HFC-23 emissions, recognizing this greenhouse gas as a contributor to global warming and directing authorities to examine its impact. Similarly in *Association for the Protection of Democratic Rights v. State of West Bengal* (2021), the Supreme Court of India mandated the establishment of guidelines for tree felling related to development projects. The Court emphasized the importance of preserving tree cover as a national commitment, aligning with India's climate pledge to increase forest cover from 23% to 33%. A landmark Supreme Court judgment in April 2024, in *M K Ranjitsinh & Ors. v. Union of India & Ors.*, recognized a "fundamental right against the ill effects of climate change" under Article 21 of the Indian Constitution, which guarantees the right to life and personal liberty. This case is significant as it explicitly links environmental harm due to climate change with a constitutionally protected right, creating a legal basis for future climate-related claims. Likewise, many other judicial decisions stress the importance of sustainable practices, emission reductions, and forest conservation, which indirectly support climate resilience by protecting carbon sinks and reducing greenhouse gas emissions.

By delving into landmark judicial interventions, the paper posits that although India's environmental adjudication may not always explicitly mention climate change, they are crucial for building a foundation for climate action. Cases like those mentioned above though often centred on broader environmental protection, contribute to the emerging foundation of climate jurisprudence in India. This growing body of climate jurisprudence is helping to shape India's approach to climate governance, potentially leading to a more explicit and specialized legal framework for climate change in the coming decades. The paper concludes by arguing that India's environmental jurisprudence is gradually evolving into a distinct climate jurisprudence that may become more pronounced in the times to come.

**Keywords:** Carbon Sinks, Climate Change, Governance, Jurisprudence, Pollution

**Internet banking fraud awareness in combating phishing: The case study of the South African Banking Industry**

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**Abstract**

Internet banking fraud, particularly phishing scams, poses a significant threat to banking customers in South Africa. Notwithstanding the ongoing initiatives of the banking industry to increase fraud awareness, most banking customers remain vulnerable to such scams. This paper explored banking customers' perceived inadequate awareness of fraud. Despite efforts from the banking industry to educate customers and raise awareness of online banking fraud, these efforts are compromised if banking customers do not apply this knowledge as their first line of defence. Fraudsters exploit psychological vulnerabilities because of their lack of awareness of phishing scams. This ignorance is perceived as a critical enabler of ongoing fraudulent activities. In conclusion, robust educational initiatives from banks are critical for effectively implementing fraud awareness campaigns to combat phishing scams. Banks that initiate a culture of perpetual awareness and vigilance among customers may enhance the safety of the online banking space and deter fraudsters from targeting and exploiting unsuspecting customers. This study was conducted through a non-empirical qualitative approach using exploratory and descriptive design approaches. The researcher conducted semi-structured interviews with major banks in the fraud division and a documentary analysis of phishing fraud cases of major banks. Including other stakeholders, law enforcement, the South African Banking Risk Centre (SABRIC), and the Ombudsman of Banking Services South Africa (OBSSA), now formerly referred to as the National Financial Ombud Scheme (NFO).

**Keywords:** Fraud, Awareness, Internet Banking, Phishing, Combat.

Ref: 113/SOA/24

## **Sustainable Development in Africa through Fourth Industrial Revolution (4IR) Technologies: Addressing Poverty, Education, and Infrastructure Challenges**

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### **Abstract**

The Fourth Industrial Revolution (4IR) presents a transformative opportunity for African countries to accelerate sustainable development through technological innovation. This paper explores how 4IR technologies can address key Sustainable Development Goals (SDGs), specifically poverty alleviation, education, and infrastructure development. The qualitative research design utilises a Problem-Driven Political Economy Analysis (PEA) framework. It employs case studies of Rwanda's adoption of digital infrastructure and Kenya's use of mobile technology for education and financial inclusion. This is done to investigate how 4IR technologies—such as artificial intelligence (AI), big data, the Internet of Things (IoT), and blockchain—can catalyse structural transformation in African economies. The study also critically analyses the role of global economic systems, investment flows, and international cooperation in facilitating or hindering Africa's integration into the global digital economy. Although 4IR holds immense potential for enabling sustainable development, challenges such as technological inequality, inadequate infrastructure, and insufficient policy frameworks pose significant hurdles. This paper argues that harnessing 4IR for sustainable development in Africa requires a nuanced understanding of the global political economy, regional disparities, and inclusive governance models prioritising equitable growth. By assessing existing initiatives and identifying gaps, this research contributes to the discourse on how Africa can strategically position itself within the evolving global digital economy to achieve long-term sustainable development.

**Keywords:** African Economic Transformation, Artificial Intelligence, Big Data, Blockchain, Sub-Saharan Africa, Sustainable Development, The Fourth Industrial Revolution, The Internet of Things

**Building Resilient and Sustainable Rural Communities: Leveraging Benefits for Trauma Therapy in Sustainable Development**

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**Abstract**

Building resilient and sustainable rural communities plays a vital role in addressing the mental health and wellbeing needs of their inhabitants, particularly in relation to trauma therapy. In thirty years of democracy rural areas are still facing unique challenges like economic instability, environmental degradation and social isolation. By addressing mental health and wellbeing through trauma informed approach is fundamental for advancing rural community resilient. This study explores the interconnectedness of community resilience, trauma therapy and sustainable development in rural communities, focusing on building resilience and sustainability. We examined the ways that incorporating trauma treatment into sustainable development programs can improve social networks, empower people, and enhance community well-being. Findings revealed that stakeholder's engagement with established support systems and collaborative initiatives significantly improve access to and effectiveness of trauma therapy. We highlighted effective models that show how holistic methods can improve mental health and sustainable behaviours through case studies and participatory research. By utilising local resources and expertise, we proposed strategies that not only address the psychological impact of trauma but also advance environmental sustainability and economic resilience. This paper suggests that prioritising resilience in rural planning and incorporating mental health and wellbeing support within community development frameworks not only addresses immediate therapeutic needs but also contributes to long-term and sustainable community can foster healthier rural environments.

**Keywords:** community resilience, economic empowerment, mental health and wellbeing, social support systems, trauma recovery.



## Quantifying Spatial-Temporal Dynamics of Urban Heat Island: A Case of Bengaluru City, India

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**Abstract:** Urbanization has enhanced different facets of human situations. However, the quality and comfort of urban life have adversely influenced environmental concerns. Urbanization is one of the foremost factors that cause abnormal changes in climate patterns around the earth and drastically infect the world. Alterations made to the natural ground surface and the anthropogenic activity elevate the surface and air temperature in the urban areas compared with the surrounding rural areas, known as urban heat island effect. The Urban Heat Island (UHI) phenomenon, characterized by higher temperatures in urbanized areas compared to rural surroundings, poses significant challenges in rapidly growing cities worldwide. During warmer seasons, UHI exacerbates thermal discomfort, increases energy demands, and intensifies air pollution. This leads to higher temperatures in urban areas compared with the surrounding suburban or rural areas, known as the UHI effect. Analyzing the intensity of UHI spatially and temporally is important to understand the thermal environment at the city scale. In large cities, the unwelcome side effects of UHIs, like deteriorating air quality, increasing energy demand, and heat-related illness, require extensive attention. The difference in Land Surface Temperature (LST) between urban and non-urban areas is represented by surface UHI, which can be measured using satellite thermal remote sensing data. UHI shows different characteristics both spatially and temporally. The current study remotely examines the spatial and temporal changes in the effect of UHI on city scale using satellite data without the help of any in-situ measurements to support science-based sustainable urban planning.

Keeping the aforementioned knowledge in mind, Bengaluru City has been chosen for further detailed investigation. Bengaluru, a prominent metropolitan city in India, exemplifies these challenges as it continues to expand due to industrialization and the Information Technology sector. While population growth has supported economic gains, it has also introduced a range of urban issues, including heightened pollution, traffic congestion, and considerable temperature variation across the city. Industrial areas such as Peenya, Jigani, Attibele, and Bommasandra, situated near Bengaluru's core, contribute to the Urban Heat Island effect and its associated problems. This study aims to identify sources of UHI in Bengaluru and propose targeted strategies to mitigate its impact on urban living. The methodology adopted in this study includes extensive literature study to understand the UHI effect, associated solutions, and global best practices. Using remote sensing (RS) technology, thermal data from satellites were analyzed to estimate Land Surface Temperature (LST). Further, the study also utilizes Land Use Land Cover (LULC) data and the Normalized Difference Vegetation Index (NDVI) to examine urbanization patterns and vegetation coverage. The research study Findings reveal that temperature differences of 1–2 degrees Celsius are prevalent in dense, vegetated areas compared to industrial zones, where pollutants such as PM<sub>2.5</sub> and PM<sub>10</sub> accumulate along major highways and areas with low vegetation, trapping heat and elevating local air temperatures in the study region. Data analysis tools, including Excel, PowerPoint, ArcGIS, and medium-resolution spatial data from LANDSAT and Bhuvan, were employed to explore the spatial dynamics of Bengaluru's UHI. The results indicate that high pollution levels, particularly from the transportation and industrial sectors, are major contributors to UHI. The results indicate that without effective mitigation, UHI will continue to deteriorate further, aggravating climate-related issues. The casual relationship between spectral parameters, LULC, and UHI can guide strategies to mitigate UHI effects, to enhance urban resilience and promote sustainable urban growth. Based on the results, the study evolves an integrated framework and institutional mechanism to mitigate UHI effect and associated air pollution. Finally, the study concludes with recommendation of several mitigation strategies/guidelines for promoting urban sustainable development

**Keywords:** Urban Heat Island; Land Surface Temperature; Spatial dynamics; Integrated framework; Sustainable Growth.

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## **Policing in the Fourth Industrial Revolution: Prospects and Challenges**

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**Abstract:** This conceptual paper explores the prospects and challenges for policing in the fourth industrial revolution. Policing as a social order, is not immune from the influences brought about by the introduction of new technologies. Whilst technological innovations were introduced in police work at the turn of the 20<sup>th</sup> century (around 1901, during the second industrial revolution, also known as the technological revolution), the move to the third industrial revolution from the 1950s to 1999, brought about radical changes in police work the world over. This paper extrapolates a few technological applications as a way of imagining some of the prospects for policing, whilst showcasing specific fourth industrial revolution technologies are used to improve operational efficiencies in crime prevention. The fourth industrial revolution is typified by artificial intelligence, 5G techs, robotics, crypto currencies, virtual reality, Internet of things, smart software's, big data analytics, and gamification, among other applications that can contribute to sustainability. The research is desktop and draws from literature and fictional sources (movies), to illustrate the prospects. This qualitative approach thus uses inductive ways to synthesise data.

**Keywords:** Policing; Industrial Revolution; Artificial Intelligence; Crime Prevention; Robotics.

## **Gender Equality and unpaid jobs**

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### **Abstract**

The Constitution of the Republic of South Africa, Act 108 of 1996, as amended in 2012, emphasises human rights to everybody in the country. It strives to achieve gender equality by emphasising that no person may unfairly discriminate directly or indirectly against anyone on one or more grounds such as race, gender, sex, pregnancy, marital status, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, culture, language and birth, however, the reality is opposite. Women and other marginalised groups such as children, older persons, people with disabilities, lesbians, gays, bisexual, transgender, intersex, queer (LGBTIQ+) and others are the victims of discrimination and inequality. South African policy of apartheid contributed negatively to the unity in the country and created a fragmented society characterised by patriarchy and harmful practices. The patriarchal system is ensuring that the abovementioned groups receive the second-hand treatment and unrecognised efforts as human beings. This study seeks to point out the existence and availability of gender inequality thirty years after the implementation of democracy, irrespective of the existence of the Constitution. Human Capital and Empowerment theory underpinned the study. Proper education will empower the marginalised groups to acquire and sharpen their skills to be effective to compete in the market. At the same time, the marginalised groups will be assisted and guided towards identifying their potentials, building their autonomy and be in control of their lives. This desktop qualitative study employed purposive sampling to gather rich data through studying both on-line and printed materials related to gender equality, unpaid and paid jobs. Information related to gender inequality served as unit of analysis. The findings indicated that gender inequality exists, and it is clearly visible through gender roles such as unpaid jobs performed by women in the households as compared to men. Harmful social practices such as patriarchy socialised boys and girls differently and unfortunately, a girl child was denied an opportunity to go through proper and formal education system. They were taught to take care of their brothers and the rest of the household which exposed them to financial dependency to their partners as they become adults. Ongoing education and awareness raising should be conducted to communities to change their socialisation approach and treat both boy and girl child equally. As per the Constitution, every child has the right to education, and this must be actualised without any compromise.

### **Section R**

**Keywords:** Constitution, Education, Empowerment, Gender equality, Unpaid job

## **Revival of Indigenous Artforms and Crafts for Community-Based Tourism Nexus in promoting Inclusive Tourism: A Case of Borong, Sikkim, India**

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**Abstract:** In recent years there have been increases in domestic and international tourism for the purpose of experiencing another culture. Community based tourism is travel to local indigenous communities that invites the tourists to experience their customs food, lifestyle and set of beliefs. The responsibility to manage and balance the impacts and benefits of the community-based tourism lies within the host population by strengthening their self-governance, economic alternatives and showcasing traditional ways of life as tourism products. Community based Tourism enables tourists to discover the local culture, food, way of life, landscaping, environment etc. It helps the tourist to relive their life outside the routine environment. Community based Tourism helps to address and develop many issues like poverty reduction, developing local economy, revival and regeneration of art and craft, preservation and conservation of tangible and intangible heritage infrastructure development etc. which in turns helps the host guest both. With emerging forms of tourism, creative tourism has brought as shift in the tourism industry. The focus of this article is arts and crafts as an indigenous knowledge and its role in promoting inclusive tourism from a community-based type of inclusive tourism. Using qualitative approaches, the study examines the role of creative tourism through visual arts and crafts in promoting inclusive tourism. The objective of this study is to enable the creation of a framework for the preservation and enhancement of sustainable techniques of handicrafts production and consumption. This is crucial since small artisans are abandoning their traditional techniques, which are most often eco -friendly, and adopting unsustainable methods which are the most cost effective to scale up their operations.

India is a diverse country and every corner evokes a different flavour and culture in the system. Each state has its own set of heritage, culture, art, cuisine and often left unexplored. People are losing touch with their own heritage and culture to keep up with the western world and modernization. Thus, many art forms, crafts, and music are dying, which are indigenous to many cultures. The aim of this study is to break the stereotype that all people from the hills of Sikkim are Nepali, and also create awareness among common people about the ethnic groups of Sikkim, thereby preserving their dying art forms. There are many ethnic tribes and clans in Sikkim with the majority migrated from Nepal and other bordering countries. One such ethnic group is the Gurung Community. They are mostly known for their handicraft items such as woven baskets, woolen blankets, bamboo goods, metal goods, carpentry, and tailoring. Keeping the aforesaid knowledge in mind, Borong Phamthang Gram Panchayat, South District of Sikkim chosen for the detailed investigation. Currently the tourist footfall, according to the local residents, was around 10,000-15,000 monthly during peak season and 5000 during off season respectively. According to primary survey, 2023, if there is an increase in tourism, it will affect 30% of the households especially the homestay owners, guides. In addition, they are also trying to revive their culture through Government Schemes and participating in exhibitions in cities. The Borong village community having less chance and did not get opportunity to showcase their culture and traditional wisdom to the outside world, due to lack of availability of open grounds for their exhibitions within the village. The socio-economic conditions of the village, including their migration trends and their impact on indigenous culture was studied. Most of the migrants from Nepal and major economic sources for Borong are organic farming and tourism. A qualitative analysis was carried out, on the basis of their work, space and professional environment, materials used, interaction of artists and consumers in the system. The findings of the study were that more of women involved in the weaving and more of men in the carpentry work. However, the space constraints were an issue, hence to overcome these issues and challenges, a cultural hub has been proposed for promoting conducive working environment of indigenous community. Due to modernization and in search of income, people of the village are being migrated to cities and this cultural hub could serve as potential element of tourist attraction, in turn, play a vital role to create employment and enhance revenue generation to promote local economy. This cultural hub could help in archiving the history and heritage of the beautiful hills in order to educate the visitors about its rich ancestry. Most of the artisans are exploited by the middle men and traders, resulting in artisans moving to different cities and different profession to earn minimum daily wages to support their family. This hub would help to bridge the gap within artisans and consumers. Finally, the study concludes with suggested framework for preservation and enhancement of sustainable techniques of handicrafts production and consumption and recommend strategies and guidelines to promote community-based inclusive tourism development.

**Keywords:** Indigenous artforms; Ethnic group; Indigenous knowledge; Cultural hub; Community-based tourism; Inclusive tourism development.

**Enhancing Sustainability with an Automated Financial Literacy Expert Advisor to Train and Educate on Generating Passive Income from Forex Trading**

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**Abstract:** The study recommends developing and developing Expert Advisors (EAs) to facilitate with foreign exchange market trading by leveraging financial technology to increase financial literacy and investing techniques. An EA model and forecasting model that analyses trading details and promptly provides a seller with precise outcomes for purchasing and selling extremely cost-effective guidelines save time. EAs are meant to automate trading procedures by analysing price movements and making accurate buying and selling recommendations using the SMA (Simple Moving Average) and ADX (average directional index) approach. This reduces decision-making time, increases accuracy, and makes investment more accessible. The study's purpose is to encourage people to generate passive income through forex trading by matching their short-term and long-term financial goals with developing fintech trends for future financial sustainability. The proposed system is also user-friendly as it enables a trader to set and perform several trading processes strategies, and the model considers the trades that corresponds to each approach. This would be a valuable study as its inspiration to build passive income in the foreign exchange and technology market enables potentials contributing towards future sustenance of interested people in the society. As future sustenance of people is taken care of, then the society could experience developments meeting the needs of the present and progressively making it easier for future generation to maintain and improve.

**Keywords:** Average Directional Index (ADX), automation, Expert Advisors (EAs), foreign exchange market literacy, forex trading, Simple Moving Average (SMA).

**Health care workers' perceptions towards Tuberculosis Preventive Treatment (TPT) implementation regardless of Human Immunodeficiency Virus (HIV) status.**

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**Abstract**

Tuberculosis (TB) remains a major public health problem throughout the world. It remains a leading cause of death globally. TB Preventive Therapy (TPT), previously referred to as Isoniazid Preventive Treatment (IPT) is the treatment offered to individuals who are at risk of developing active TB disease, to reduce the disease. This paper assesses the health care workers' perceptions towards TPT implementation on them regardless of HIV status. A quantitative, descriptive cross-sectional research design was used. The research site was a hospital of Manzini region at Eswatini. The population comprised of all health care workers who were involved in clinical practice and the target population were clinicians. Simple random sampling method was used where suitable respondents were chosen randomly from their departments for two weeks. The sample size was 201 health care workers who worked in the departments where known TB patients were treated and taken care of. The results of the study suggest that health care workers generally do not support implementation of TPT on them as a preventive measure against TB. Furthermore, the long period of taking TPT as compared to the limited durability of TPT benefit of 2-3 years is a major deterrent factor to health care workers taking TPT. Last, but not least, the results indicate that knowledge is not as a great determinant factor to TPT uptake as previously posited in other studies, and that most health care workers support the provision of alternative prevention methods such as ventilation of spaces and wearing of masks. The study results may contribute to informing the formulation and implementation of effective health policies to improve the uptake of TPT amongst health care workers thereby ensuring their safety and that of the patients.

**Keywords:** health care workers; human immunodeficiency virus; implementation; tuberculosis; tuberculosis preventive therapy.

## The compelling factors for the use of force by the police during the 21st century

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### Abstract

This discussion paper sought to argue that socio-economic conditions not only limited to high levels of poverty, inequality in the distribution of wealth, and alarming rate of crime, in South Africa and elsewhere, have unsurmountable implications for policing. These unbearable conditions in society further contribute to the persistence of an extensive tension between law enforcement and the community. Altogether, this animosity in the society create environments where the use of force may be perceived as necessary, while others argue against it as excessive and consequently give rise to the circle of violence which becomes a pandemic and thwart development. Furthermore, this article has been anchored into three research questions, as follows: a) Which factors are magnificent for the understanding of the use of force by police officers when apprehending a suspect?; b) What are the consequences embedded in the use of force by the police?; c) How community members makes police to feel propelled to use force when executing their constitutional mandates for maintaining law and order in society? A qualitative data was collected by means of literature study. Results reveals that it is imperative to consider the social, and legal context in which law enforcement operates. Currently the country is a quest to embark into efforts to reform the criminal justice system, leading to changes in the legal framework governing the use of force by law enforcement. Moreover, . understanding these contextual factors is essential for a comprehensive analysis of the use of force in effecting arrests, as they shape the dynamics and challenges that law enforcement personnel face. Overall, the background and context of South Africa provide a rich and complex environment in which to examine the use of force by law enforcement and its implications for public safety and human rights. Once a lawful arrest has been made, a wide range of legal issues arise concerning the force that may be used in effecting that arrest. In South Africa, a common law prima facie duty arises with the effect that a police official may, in general terms, use reasonable force to effect an arrest. The use of excessive force gives rise to a delictual claim for damages. As South African law reformers deliberate on the legal rules governing the use of force to affect arrest, it is important to study how foreign legal systems address this issue. Though South African police have the constitutional right to employ force to detain persons in certain situations, there remains a need for oversight mechanisms to safeguard against the improper use of force.

**Keywords:** Arrest, community, excessive force, human rights, and policing.

## **Improving Sustainable Development with a Mentorship System to enhance Teaching and Learning for Universities in Developing Countries**

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**Abstract:** Mentorship is an important aspect of helping students to improve in their academic performance. Most students are improving when they get mentorship and this helps them finish their qualification on time. Some of the students are not aware of the mentorship that is provided in the university, even better some are scared to approach a mentor physically. Said issues should be tackled in order to help students in need of support on certain subjects which will help the university to reach one of its objectives. Even then, booking for mentors is not straightforward and easy. Imagine having to fill out a paper each time one seeks mentorship from one of the mentors at the university. Currently the university uses a file system which requires that mentors and students need to fill forms to make appointments and this costs the university as papers are wasted and hard to manage if they are a lot of them. Such a process is boring and tiring, and most importantly not in line with the goals of sustainable development. Furthermore, the university will have to generate their mentorship reports manually by going through all the papers that were filled by students and submitted by the mentor. This study shows that mentorship is a critical factor in the performance of students. Most of the students are depending on mentorship to pass their modules and fulfill the requirements to obtain their qualification in time. A survey was initiated to see the performance of the students who seek mentorship and those who do not. Students who ask for mentorship have better performance than those who do not. Students need a 24-hour system that will help them manage their appointments (mentorship sessions) even as mentors use such a system to make available relevant information and interactions to ease mentorship. The university also needs such a system to keep track of progress relating to mentorship. This study aims to address such a problem and implement a system towards better student academic performance at minimal cost, enhancing productivity and progress towards sustainability. In future evaluation of the system, a questionnaire would be administered across different types of users which include Students, Mentors, and University staff to provide their experience with the system and provide valid feedback. Evaluation of the developed system would be of assistance to the students in their quest for mentorship and to indicate to the students if mentorship is effective in their academic success. Meanwhile, attempts are made to ensure mobile friendliness as students access it even through their smartphones. A help page is provided if a user gets stuck and needs to know how the application works. The university should invest in this project as it will help cut costs and help with making critical decisions in terms of deciding whether to exclude a student. The Mentorship system will bring about convenience and better decision making by the university. Students could engage with this system as it is accessible from anywhere, so the students can make appointments at their own time. Since most schools provide free WiFi access across the campus, accessing the application won't be an issue. And with the change to the use of the system leading to possible better student academic performance at minimal cost, productivity is enhanced and progress becomes sustainable.

**Keywords:** Collaborative learning, knowledge sharing, mentorship, teaching and learning systems.



## The effects of Operational, Input and Production efficiency towards Resource Empowerment among Resource-poor Citrus Farmers in South Africa: Hayes Process Macro Analysis

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### Abstract

Resource Based Theory is an economic theory concerned with the management of internal resources and capabilities to enhance resource efficiency and to attain competitive advantage of a firm. Resource-based theory has its origin in the field of economics but in recent times has found wider application in the field of Operational Management. In the field of Agriculture, it has been applied extensively to address a number of farm-level management constraints. In China, it was used to study the extent to which agricultural companies, through management of environmental resources, has succeeded in building a long-term competitive advantage. Based on available literature, in the field of Agriculture, there is less emphasis on operational efficiency as an empowerment tool, to enable farmers to make farm-level management decisions independently. This is because the world at large, the dominant nature of farm support, is that of farm-input supply, with less emphasis to empower farmers to independently make decisions. In this study we address one of the dimensions of Resource Based Theory, which is Resource efficiency. Resource efficiency, in this regard is considered a function of input, production and operational efficiency. Input efficiency is concerned about the extent to which a farmer can manage the application of, as an example, human resource factors, marketing, natural resources (e.g., land) and farm inputs towards attaining resource efficiency. Production efficiency evaluates the farmer's decision-making capabilities, when it comes to optimal exploitation of input factors (e.g. fertilizer, seed and chemicals) to achieve optimal production. Operational efficiency deals with decisions on logistics, time schedules and internal organizational structures and stakeholder management decisions. In South Africa, there is a dearth of literature covering aspects of Resource Based Theory in Agriculture. This study aims to determine the effects of input, production, and the operational efficiency towards resource efficiency. Its objectives were to determine the mediation effect of production efficiency towards resource empowerment and to analyze the moderation effect of operational efficiency.

Primary data was collected through field survey among 401 citrus farmers in six provinces. Exploratory factor analysis was employed to extract important factors and to ensure adequacy of sample size. Hayes Macro Process model was employed as an empirical model. The results has shown that input, production, and operational efficiencies have effect on resource empowerment ( $\beta = 0,575, p < 0, 05$ ), ( $\beta = 0,207, p < 0, 05$ ) and ( $\beta = 0,533, p < 0, 05$ ), respectively. In all pathways for moderation, path  $a_1 \times d_1$  ( $\beta = -0, 0297, p > 0, 05$ ) and path  $e_1 \times b_1$  ( $\beta = -0, 018, p > 0, 05$ ), there is no moderation. Production efficiency does mediate for resource empowerment ( $\beta = 0, 508, p < 0, 01$ ). Lack of moderation constitutes a gap on the skill's capacity of farmers. It is recommended for the South African government to capacitate farmers with skills for operational efficiency and independent decision-making at farm level.

**Keywords:** input efficiency; moderation; operational efficiency; production efficiency; resource efficiency.

**Effect of strategic partnerships on the resources and sustainability of smallholder deciduous fruit farming enterprises in high-value chains**

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**Abstract**

Integrating smallholder farmers into high-value agricultural chains has emerged as a critical strategy for enhancing farm incomes in developing countries. Such integration offers opportunities for smallholder farmers to advance beyond production, potentially engaging in higher-value activities like product design, marketing, and distribution. This study examines the impact of strategic partnerships on the resources and sustainability of smallholder deciduous fruit farming enterprises within these high-value chains. Employing a hierarchical linear regression analysis, the research evaluates how these partnerships influence the resource base and long-term viability of these enterprises. Findings reveal that while strategic partnerships facilitate the production of high-quality fruit—thus bolstering the supply base and competitiveness of exporting firms—there are limitations. Specifically, the study indicates that investments from strategic partners primarily serve to enhance the quality of output rather than to build autonomous marketing capabilities among smallholder farmers. Furthermore, the degree of commitment by smallholder farmers to these partnerships, coupled with the nature of resource investments, significantly correlates with an adverse effect on the farmers' overall sustainability. The research underscores the need for smallholder farmers to explore alternative marketing opportunities outside the confines of these strategic partnerships to foster entrepreneurial growth and ensure the sustainability of their farming enterprises. The findings carry significant implications for the livelihood strategies of smallholder deciduous fruit farmers, particularly in terms of balancing partnership benefits with long-term sustainability goals.

**Keywords:** marketing capabilities; specific investments, commitment; quality of relationship; exporting firms

## **The Perils and Fatalities: A Deep dive into the Killings of JMPD Officers**

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### **Abstract**

The Johannesburg Metropolitan Police Department (JMPD) is one of the largest police departments in South Africa. The aim of this article was to investigate police killings in the JMPD and to identify the causal factors and challenges linked to these killings. A qualitative research approach was adopted in this article and the target population was the police officers. The article design was a case study design with a focus on the outcome of the study. The main findings were as follows: the factors that contributed to the killings were discussed; the reasons for the killing of police officers were identified; and the factors contributing to the police killing in this area. The results of the qualitative research showed that police officers are subjected to continuous risks, stress, and threats from violent offenders that jeopardize their safety. It was further indicated that the lack of service delivery in the provision of CCTVs, poorly lit streets, and consistent load shedding presented dangers and threats to the lives of police officials as criminality thrives mostly in darkness. It is imperative that the police department and police management should undertake the following measures for both organizational development and improved performance by their employees (i.e., police officers). This technology implementation may assist in increasing police officers' safety, public safety, improved crime prevention, and increased accountability.

**Keywords:** accident; crime; Johannesburg Metropolitan Police Department; killings; police

**Developing a Commercialisation Model to Enhance the Socio-Economic Impact of South Africa's Smallholder Farming Sector**

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**Abstract**

This study develops a comprehensive commercialization model aimed at enhancing the economic viability of South Africa's smallholder farming sector. The model is designed to address structural and operational inefficiencies, with the broader goal of contributing to national GDP, poverty alleviation, and reduced unemployment rates. Employing a sequential, multi-phase mixed-method research design, the first phase involved qualitative focus group sessions to delineate key research dimensions. This was followed by quantitative face-to-face interviews using a structured, closed-ended questionnaire. The data, collected from a randomly selected sample of 1,115 participants—comprising 560 females (50.22%) and 555 males (49.78%)—were analyzed using structural equation modeling (SEM). The results underscore the significance of entrepreneurial leadership, social capital, and competitive advantage as crucial factors for enhancing smallholder enterprise performance. Notably, enterprise performance emerged as a mediating variable influencing the commercialization outcomes of smallholder farming enterprises. The study offers theoretical and practical insights, advocating for strategic interventions, including policy amendments and land reform adjustments, to facilitate the sustainable commercialization of this sector. These recommendations emphasize a holistic approach to empowering smallholder farmers, positioning them as vital contributors to South Africa's socio-economic development.

**Keywords:** commercialization, smallholder farming, entrepreneurial leadership, social capital, economic development.

## **A review of the Sustainable Development Goals (SDG's) beyond the post-covid barriers – South Africa**

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### **Abstract**

The Sustainable Development Goals (SDGs), adopted by all United Nations member states in 2015, represent a comprehensive global blueprint for eradicating poverty, protecting the environment, and ensuring prosperity for all by 2030. South Africa, as a developing nation with significant economic disparities, has embraced these goals, aligning its national policies to foster sustainable growth and social equity. However, the COVID-19 pandemic presented unforeseen challenges, exacerbating existing socio-economic issues and creating additional barriers to progress. This review examines South Africa's current status regarding the SDGs, highlights the theories associated with sustainable development, and discusses how the country can navigate these challenges post-pandemic to maintain momentum toward these critical objectives. COVID-19 accentuated the structural weaknesses in South Africa's economy, deepening poverty and unemployment. The World Bank (2022) reported that the pandemic-induced recession pushed an additional 2 million South Africans into poverty. The ripple effects included reduced public investment in social services and strained healthcare infrastructure. The pandemic disrupted the nation's trajectory in meeting several SDGs, including SDG 1 (No Poverty), SDG 3 (Good Health and Well-being), and SDG 8 (Decent Work and Economic Growth). Moreover, inequalities in access to healthcare, education, and digital technologies widened, disproportionately affecting vulnerable groups such as women, children, and rural communities. This review adopts a mixed-methods approach, combining qualitative analysis of policy documents, reports from government and international organizations, and scholarly articles with quantitative data from national statistics and global SDG trackers. By comparing pre-pandemic progress with post-pandemic realities, this research identifies key barriers that have hindered sustainable development. Interviews with policymakers and development experts complement the data, providing insights into the practical challenges and strategies for revitalizing SDG implementation. The research is likely to reveal that while South Africa has made strides in specific areas, such as improving access to renewable energy (SDG 7) and promoting gender equality (SDG 5), significant gaps remain, especially in economic and social dimensions. Post-pandemic recovery has been uneven, with urban areas rebounding faster than rural regions. Public health investments, though ramped up in response to the pandemic, have been insufficient to meet the broader needs of SDG 3, particularly mental health services and non-communicable disease prevention. Furthermore, the review is expected to show that effective recovery hinges on enhancing resilience through policies that prioritize inclusivity and environmental sustainability. South Africa's renewable energy drive, bolstered by initiatives such as the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), suggests that targeted policies can support sustainable growth even amid global disruptions. The post-pandemic period presents a unique opportunity for South Africa to re-evaluate and re-energize its commitment to the SDGs. Despite the barriers introduced by COVID-19, there are pathways forward that incorporate innovative solutions, inclusive growth strategies, and enhanced policy coherence. By capitalizing on lessons learned during the pandemic, South Africa can build a more resilient and sustainable future that adheres to the global SDG agenda.

**Keywords:** Barriers, COVID-19, Resilience, Sustainable Development Goals (SDGs), Sustainability

**Sustainable urban management through digital transformation and technologies in the South:  
Challenges and prospects**

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**Abstract**

Traditional urban management plays a critical role in urban governance, addressing the increasing urban challenges relating to urban housing, land, infrastructure, services, and livelihood using policies, principles, specialised tools, and programmes. With increased urbanisation and population growth, the pursuit of sustainable development brings about complex challenges in planning and managing primary and secondary cities towards sustainability and efficiency. With urban centres and cities being a scramble point for shelter, employment, mobility, and access to quality health and education, urban managers are posed with a significant challenge in making predictions, planning, and managing cities timeously with updated information in real-time for better efficiency. These challenges have resulted in the development of various city concepts leaning on sustainability, innovation, information and communication technologies to better manage urban centres and cities. Despite developing various urban management approaches, smart city concepts and agendas, many Southern cities and even the North grapple with complex urban problems. The question thus arises: how can digital technologies and innovations be used in a sustainable way to improve traditional urban management in the cities of the South, considering their peculiar challenges? Following the broad paradigm of cognitive cities theory and smart governance theory, this paper explores the challenges and prospects of leveraging technological advancements in managing cities and improving urban management. While extensive structured and unstructured urban data are collected occasionally in silos by companies and municipalities, these data sets are not integrated to influence planning and management when they are processed. This article concludes that an integrated digital approach to urban management offers new sustainable pathways to address the planning, development, governing, monitoring and maintaining of cities using the Internet of Things, machine learning, remote sensing, drone technology, and other innovative practices.

**Keywords:** fourth industrial revolution, digital transformation in cities, digital twins, smart cities, sustainable urban management

## **Informal Mining as a Strategy for Sustainable Livelihoods in Shurugwi, Zimbabwe**

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### **Abstract**

The study delves into whether informal mining can be considered a form of sustainable livelihood through the specs of the livelihoods framework. Informal mining can be defined as a form of mining that relies on labour-intensive methods to extract minerals. Manual labour such as shoveling, picking, and digging. The forms of mining methods that characterize informal mining are artisanal, small-scale, and alluvial mining. A livelihood comprises the capabilities, assets, and activities required for a means of living. It is deemed sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities, assets, and activities both now and in the future, while not undermining the natural resource base. The basic idea of a sustainable livelihoods framework is based on five pillars which are: human capital, social capital, natural capital, physical capital, and financial capital. The sustainable livelihoods framework presupposes that for all activity to be deemed adequate for future generations it must enhance the five capital pillars stated above. The research aims to investigate whether informal mining can be regarded as a strategy for sustainable livelihoods. The research objectives of the study are as follows: to evaluate the effect of informal mining on financial capital, to investigate the impact of informal mining on human capital, to evaluate the capacity of informal mining in providing social capital, to assess informal mining potential to generate natural capital and to explore how informal mining affects physical capital. The study addresses SDGs 1: No poverty and 11: Sustainable communities. The livelihoods framework is intended to be a versatile tool for planning and management. It offers a way of thinking about livelihoods and makes clear the many factors that affect livelihoods. The study will be conducted through a comprehensive literature review to explore how informal mining can be utilized to achieve sustainable development.

**Keywords:** Informal, livelihoods, mining, SDG, and sustainable.

**Analysis of Housing characteristics and the provision of basic services for all: the case of Human Settlement programmes in Mpumalanga province**

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**Abstract**

Human settlements fulfill fundamental human rights and substantially impact the quality of life. In South Africa, The Department of Human Settlements has delivered almost 5 million houses, which has benefited more than 20 million people from 1994 to date. Furthermore, The Government continues to institute human settlement programs to address slums and informal settlements by providing housing options, particularly to the country's poorest households. However, providing residents with housing infrastructure does not end the process. Other concerns about accessibility to water, sanitation, electricity, and refuse removal are just as important as the actual top structures (houses). Therefore, the two components, namely, the housing top structure and provision of basic services, provide a liveable environment that is suitable for the survival of an ordinary human being. In this context, the provision of low-cost housing is expected to enhance households' social and economic well-being. Thwala (2010, p, 10-12) indicates that the leading cause of defects is poor workmanship and inadequate inspection during construction. Furthermore, they identified 80% of the problems in the roof, 60% in the walls, and 20% in the foundation. The prevalence of these defects in the human settlement programs has jeopardized the quality of housing's physical infrastructure quality. On the other hand, (UN-HABITAT, 2010) indicates that several human settlements in developing countries lack access to essential services, therefore improving access to essential services such as safe water, energy, sanitation, and refuse removal has been recognized as one of the most significant methods to promote sound human settlements, healthy, and decent living circumstances.

This article examines the relationship between the housing's physical characteristics and the provision of basic services among the housing beneficiaries of the human settlement programmes. Quantitative techniques were utilized in the structured questionnaires, which assessed the condition of house characteristics and the provision of basic services.

The article revealed that most human settlements are female-headed households compared to their male counterparts. The results from the data also demonstrate that the provision of human settlement programs accordingly features the physical infrastructural requirements of a home, which are the floor, walls, and roof. The findings also revealed that, on average, the structural conditions are generally good. The research participants' data show that most human settlement occupants were happy with the condition of the floor, the walls, and the roof. Furthermore, the delivery of low-cost housing has prioritized the adjacent provision of essential services, like water, sanitation, electricity, and refuse removal, to improve the standard of human life in Mpumalanga. The provision of housing, top structures, and basic services has provided a liveable environment suitable for the survival of ordinary human beings in Mpumalanga. In support of the theoretical framework, the findings demonstrate that housing characteristics and provision of basic services contribute to creating conditions congruent with residents' satisfaction in human settlement programs in Mpumalanga province. The article concludes that although a house's physical characteristics are important, providing essential services is necessary for human survival.

**Keywords:** Client satisfaction, housing beneficiary, housing delivery, human settlements, physical characteristics.



## **A Strategy for Poverty Eradication towards Sustainable Development**

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### **Abstract**

This paper explores an integrated approach to poverty eradication aimed at sustainable development, highlighting the critical role of inclusive, community-driven strategies in addressing multi-dimensional poverty. Focusing on the socio-economic and environmental challenges experienced by vulnerable communities, particularly in sub-Saharan Africa, this study examines how tailored poverty alleviation strategies, supported by governmental and non-governmental entities, foster resilience and economic empowerment. Utilizing an analytical framework that incorporates sustainable livelihood models, microfinance, and community-based interventions, the study reveals that poverty alleviation is most effective when local needs and cultural dynamics guide policy formation. Findings indicate that approaches emphasizing gender-sensitive economic empowerment, sustainable agriculture, and environmental conservation substantially enhance poverty reduction outcomes. The study draws on recent case studies and empirical data to analyze the synergies between poverty eradication and sustainable resource management. Notably, financial inclusion and entrepreneurial support emerged as transformative elements, enabling marginalized populations to build resilience against economic shocks and environmental degradation. Despite the successes documented, challenges persist in scaling localized interventions to a national level, highlighting the need for continuous policy adaptation and cross-sectoral collaboration. By emphasizing localized interventions, this research underscores the necessity of frameworks that bridge immediate poverty relief with long-term sustainability goals, ensuring that poverty eradication aligns with environmental resilience. This paper also addresses the limitations of current data collection systems and the complexity of measuring multi-dimensional poverty, suggesting that future research should incorporate qualitative assessments and longitudinal studies to enhance the effectiveness of poverty alleviation programs. The findings contribute to the discourse on sustainable development by identifying practical, culturally adaptive strategies that align poverty eradication efforts with environmental conservation, thereby offering a roadmap for policy innovation in the field of development studies. This study calls for increased investment in sustainable livelihoods, microfinance, and technology-driven solutions to support the world's poorest communities in achieving lasting economic stability and environmental sustainability.

**Keywords:** Community-based interventions; Environmental resilience ; Financial inclusion ; Microfinance ; Poverty eradication ; Sustainable development

**Community perceptions regarding the impact of police corruption on service delivery in Pretoria central policing precinct, South Africa**

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**Abstract**

The impact of police corruption in South Africa is devastating and has a negative image to the rest of the police service. The corruption of police officers is a problem which erodes cultures, countries and generations because it is based on human weakness and motivations. Even the lowest ranking officer can exercise wide power and there are people who want to take advantage of that power. Corruption erodes communities and the government that oversees them, regardless of who the perpetrators are. Where police corruption exists, an overall lack of public trust and reliability can result. This paper measures the perceptions of the community about the prevalence of police corruption and its impact on service delivery in the Pretoria Central. A qualitative approach was adopted for the study, and twenty-five unstructured interviews were conducted with community members as the primary method of data collection. The participants were selected through non-probability and purposive sampling technique. Documentary research was used to substantiate the allegations that emanated from the community. The study found that most community members regard police officials as being corrupt. A lack of understanding from South African Police regarding the negative impact that actual or perceived police corruption has on sound police-community relations was also evident. This paper provides several recommendations for the enhancement of the South African Police Service's systems to mitigate the incidences of corruption and its impact on service delivery. Amongst others, this paper recommends the South African Police Service to revise its recruitment drive by improving its recruitment strategy to recruit the appropriate calibre of police.

**Keywords:** Corruption, Police, Pretoria Central Policing Precinct, Service delivery

## Assessment of RESCO Model for Rooftop Solar in Schools of Delhi, India

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### Abstract

The present study was conducted with the aim to understand the implementation of the rooftop solar policy in schools with a specific reference to the RESCO model. It aimed at understanding the drivers, barriers and satisfaction level of the selected stakeholders at various stages of its implementation associated with the same. Government schools were chosen for the study due to their excessive energy demands. At the same time, they have great potential to tap solar energy owing to availability of large rooftop areas and high requirements of electricity. The study was conducted in Delhi, India. Stakeholders for the study included government officials, officials from selected schools, project developers and officials from DISCOMs. It was seen that Ministry of New and Renewable Energy (MNRE) is the nodal Ministry of the Government of India for all matters relating to new and renewable energy. To implement the policies and programmes of MNRE, each state has its State Nodal Agency (SNA) which implements and promotes the policies and programmes made by MNRE in their respective states. When asked about the drivers for implementation of the policy, officials from schools reported government mandate as the major driver which was followed by reduction in electricity bills and environmental benefits. Further, various barriers were reported by the stakeholders during each step of the process of implementation of RESCO model. The study also collated suggestions given by selected stakeholders to overcome these barriers while implementing the RESCO model in schools. In order to overcome the delay in site verification, officials from DISCOMs suggested that Government can create a separate department for solar in DISCOMs to reduce their workload and facilitate timely site verifications. Further, project developers and officials from schools suggested that the process and the documents required for the DPR can be reduced which will lead to reduction in the number of stakeholders, in turn reducing the time taken for preparation of DPR. Further, it was suggested that the timeline for submission of documents for net metering can be increased by the government as it is not possible to submit an extensive list of documents in two days. The study can be used by policy makers and professionals who are working in the area of grid connected rooftop solar systems. Incorporating the suggestions will help in overcoming the barriers and will smoothen the installations of grid connected rooftop solar systems under RESCO model in schools.

**Keywords:** (Five words in alphabetical order): Renewable energy, RESCO, Schools, Solar policy, Solar rooftop.

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## **Adapting to Global Carbon Policies: Economic Impact of Carbon Border Adjustment Mechanism on Indian Businesses**

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### **Abstract**

This paper analyses the impact of global carbon policies through the lens of the European Union's Carbon Border Adjustment Mechanism (CBAM) and its implications for Indian industries, particularly in carbon-intensive sectors such as steel, cement, and aluminium. Imposition of carbon tariffs on imported goods has placed an additional economic pressure on Indian exporters, potentially undermining their trade competitiveness. This study examines the economic effects of CBAM, focusing on the tax burden and its impact on Indian businesses. Furthermore, it explores emissions reduction strategies, such as investing in cleaner technologies and improving energy efficiency. The paper also underscores the importance of developing a robust domestic carbon market in India to align industries with global carbon regulations and enhance their resilience in the face of evolving international climate commitments.

**Keywords:** Carbon Border Adjustment Mechanism (CBAM), carbon emissions, carbon pricing, energy, industries

## **Interrogating the Plight of Hidden Contributors: Informal Traders in South Africa's Premier Tourism Landscapes**

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### **Abstract**

In the confluences of high-quality tourism areas in South Africa lies a peculiar relationship- a cohort of local informal traders who are oftentimes overlooked and undervalued. At prima facie, these traders may seem to be just food and souvenir vendors, yet they are significant custodians of tourism areas' novelty and authenticity, weaving the fabric of the tourism experience itself. This conceptual paper seeks to unmask the ignored activity of local informal traders who operate around South Africa's premier tourism attractions, focusing on their importance as significant contributors to the tourism experience. The paper stems from the currently existing gap regarding the marginalization of the local informal traders within the formal tourism frameworks, despite their contribution to the stimulation of local economies and enriching tourist engagement. The paper focuses on interrogating the dual impact of these local informal traders- their augmenting of tourism experiences and their plight from being excluded from the sustainable tourism development initiatives. The paper uses a desktop research method to identify the existing gaps in literature regarding the subject under investigation. This is done with a view to provide a framework that aims to assimilate the local informal traders into the mainstream tourism ecosystem. This paper underscores the need for the recognition of these traders not only as food and souvenir vendors operating around high quality tourism attractions, but as vital drivers and enablers of both sustainable livelihoods and sustainable tourism experiences playing a meaningful contribution to the enrichment of the tourism sector in South Africa.

**Keywords:** Local Informal Traders, Tourism Development, Sustainable Livelihoods, Economic Integration, Tourism Impact

## **Preserving African Languages Through Natural Language Processing: Opportunities, Challenges and Epistemic Equity**

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### **Abstract**

The fast-paced development of advanced artificial intelligence models has ignited innovative thinking, speedy problem-solving and bridging of structural global gaps across industries. Recently, there have been research and initiatives on the use of natural language processing (NLP) to document and preserve indigenous African languages. Language preservation initiatives in South Africa are mostly led by the South African Centre for Digital Language Resources (SADiLaR) with the support of the Department of Science and Innovation (DSI) as well as the Masakhane community. The (SADiLaR) is a national centre that supports research, development, storage and access to language corpus for South Africa's eleven official languages. The centre retains a depository of digital language corpus, machine translation platform as well as South African language translation. It executes projects in partnership with six partner institutions (University of Pretoria (Department of African Languages); University of South Africa (Department of African Languages); CSIR (HLT Research Group); North-West University (Centre for Text Technology); Inter-Institutional Centre for Language Development and Assessment (ICELDA); and Child Language Development Node (Department of General Linguistics at Stellenbosch University)). Meanwhile, Masakhane is a diverse organisation with the mission to use natural language processing to preserve Africa's 2000 languages that have been impacted by colonial legacies. These initiatives that provide data and research on African languages with contextual quality are transformative decolonial approaches to preserving African languages in the AI era. In addition, they seek to reduce the structural biases that are known with AI models. Despite the importance of their work to language preservation within and outside the African continent, there are limited analyses of the opportunities and challenges in utilizing language data from SADiLaR and NLP research output from Masakhane. In addition, there are limited analyses of South Africa's policymaking trajectory on digital language resources, utility, intellectual property and other AI ethical questions. Indeed, South Africa has developed policy documents to regulate data and foster progressive and safe AI development, however, several scholars ignore these policy documents in their analyses. This creates a gap in the sense-making of how policies impact opportunities and challenges in the digital language preservation industry. While there are digital humanities publications and technical engineers have produced interesting and compelling articles to examine epistemic contribution in South Africa through natural language processing research, this paper identifies the need to enrich the literature with views on digital language preservation governance. It leverages surveys and secondary data as well as utilitarian and transformative decolonial theories to analyse the opportunities, challenges and epistemic motivation of preserving African languages through NLP research and development as well as the policy papers that regulate the development and use of language data in South Africa.

**Keywords:** Artificial Intelligence, LanguageData, Masakhane, Natural Language Processing, South Africa

## **The Risks and Protective Factors Experienced by Child Protection Social Workers in the Workplace in Africa: A Scoping Review**

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### **Abstract**

This scoping review examined the risk and protective factors affecting Child Protection Social Workers (CPSWs) in African contexts, with a particular focus on workplace experiences. The study addresses a significant gap in the literature, as social workers in African countries are notably underrepresented in research. Following Arksey and O'Malley's framework for scoping reviews, a comprehensive search strategy was implemented across four major databases: ScienceDirect, EBSCOhost PsycINFO, Scopus, and African Journals Online. The search terms included combinations of "Child protection social workers OR child welfare workers", "Risk factors OR protective factors", "Burnout OR Job dissatisfaction", and "Africa". Studies published between 2014 and 2024 were considered for inclusion. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework guided the screening process, with 529 initial records identified, ultimately yielding four studies that met the inclusion criteria. Data extraction was conducted using a standardised form, capturing key information about study characteristics, methodological approaches, and findings. Thematic analysis was employed to synthesise the findings, involving six key steps: data familiarisation, code generation, theme identification, theme review, theme definition and naming, and report production. The analysis revealed five key dimensions affecting CPSWs: organisational, personal, professional, societal, and policy-related factors. The findings highlighted significant challenges including high caseloads, limited resources, and inadequate support systems, while protective factors included supportive workplace cultures and professional development opportunities. The review demonstrates a critical need for expanded research across diverse African contexts, particularly given that only four studies met the inclusion criteria. Recommendations include developing context-specific support systems, enhancing professional development opportunities, and conducting more comprehensive studies in underrepresented African countries. The scoping review methodology proved particularly appropriate for mapping this emerging field, despite limitations in geographical coverage and the number of included studies. Future research should employ broader inclusion criteria and consider country-specific challenges in child protection social work.

**Keywords:** Child Protection, Child Protection Social Workers, Protective factors, Risk factors, Workplace

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## **Postcolonial Africa's SDG 16 and the Interplay Between Formal Political Systems and Informal Norms**

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### **Abstract**

The contemporary African continent presents a realm of questionable realities marked by shoddy governance, military usurpation, the resurgence of autarchy, sporadic conflicts, terrorism, gender-based violence, poverty, and underdevelopment. Botswana, Cape Verde, and Mauritius have proven to be institutionally resilient, as evidenced by international indexes such as SDG 16. The literature dominated by epic decoloniality has attributed governance challenges to colonial legacies such as formal political systems. The epic decoloniality thought, despite its validity, embodies significant gaps in that it failed to consider the impacts of indelible primordial norms in postcolonial Africa. Against this backdrop, this study adopted episodic decoloniality, which focuses on pre-19<sup>th</sup> century Africa and its impacts on post-19<sup>th</sup> century Africa. The study will highlight the influence of informal norms on formal political systems throughout Africa, examining their effects on peace, justice, and strong institutions, which are core elements of political modernity. This study will employ a comparative and historical methodology, primarily sourcing data from secondary realms. The theory of informal institutions and cultural conflict will serve as guiding frameworks, providing insights into why the attainment of goal 16 has proven to be elusive in numerous post-colonial African nations. This study will illuminate why goal 16 has proven to be a mirage in a host of contemporary African societies. In addition, the study will bring to the fore why Indigenous people operating within the frame of Western institutions cannot be accurately understood from colonial experience and legacies.

**Keywords:** Informal political system, Formal political system, Institution, Epic decoloniality, Episodic decoloniality



**Induced heating-healing of bitumen/rubber crumbs/magnetite for conductive asphalt as a sustainable repairing technology: A review in South African context**

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The South Africa's road infrastructure is relatively well developed compared to most sub-Saharan African countries and even by international standards. However, some sections of the country, the deterioration is on the rise. Cracks and potholes have become a common sight in major and minor roads, and often contribute to road accidents and loss of lives. New roads and major repairs of existing roads typically cost about R3.5 million per kilometre for a lightly trafficked paved rural road, while constructing and maintaining heavy freeway structures can cost tens of millions of rand per kilometre. In addition to these huge costs, constant repairs and maintenance disturb the free flow of traffic, which may hinder economic growth. Furthermore, these constant road works contribute immensely to the carbon footprint.

Many conventional technological techniques are currently being implemented with the intention of the induced heating-healing technique for conductive asphalt materials represents an innovative and sustainable approach to road maintenance and repair. This review examines the applicability and benefits of this technology within the South African context, where infrastructure development and maintenance are critical. The study explores the principles of induced heating-healing, its implementation process, and the specific advantages it offers, such as prolonged pavement lifespan, reduced maintenance costs, and minimized environmental impact.

Additionally, the review addresses the challenges and limitations of adopting this technology in South Africa, including economic feasibility, material availability, and climate considerations. By providing a comprehensive analysis, this review aims to inform policymakers, engineers, and researchers about the potential of conductive asphalt in enhancing the sustainability and efficiency of road infrastructure in South Africa.

**Keywords:** Rigid pavements, durability, plastic micro-crumbs

**The relevance of understanding bloodstain patterns and bloodstain patterns analysis (BPA) at crime scenes in Johannesburg, South Africa.**

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**Abstract**

It is very essential for the crime scene investigator to understand the importance of the bloodstain spatter at the crime scene specially where violent took place. It doesn't matter how small the drop or the spatter is it will always tell a story. Bloodstain pattern analysis (BPA) is an important part of forensic science that contributes significantly to crime scene investigations. Forensic investigators may learn a lot about a crime scene occurrence by examining the shape, distribution, and position of bloodstains. Bloodstains can show the sort of weapon used, the number of strikes or bullets, the victim and assailant's positions and movements, and the order of events. The usefulness of bloodstain pattern analysis lies from its capacity to recreate the crime scene and reveal previously unknown information. Bloodstains of various sorts, such as splatter, droplets, pools, or smears, might suggest a variety of acts, including a fight, a fatal wound, or an attempt to clean up the crime scene. Furthermore, the examination can help determine if the bloodstains were created by the victim, the offender, or another person, assisting in the identification of those involved. BPA results can be used as strong evidence in court, supporting or opposing witness testimony and providing to a better understanding of the crime. It is a subject that needs careful attention to detail, a understanding of forensic science and the aforementioned analysis in order to discover the truth behind violent occurrences. Participants were interviewed for the article using a qualitative empirical technique with approval from the South African Police Services and ethical clearance from the University of South Africa. The article's conclusions and suggestions were important for the police to follow.

**Keywords:** Blood pattern analysis; Crime scene; Crime scene reconstruction; identification; individualization.

## **Engendering the Blue Economy: Women in the Maritime Sector**

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### **Abstract**

The blue economy is gaining traction across Africa as nations across the world seek to advance their development goals. Central to this concept is the utilization of ocean resources to enhance the livelihoods of both coastal and inland communities. By focusing on sustainable development, the blue economy offers significant opportunities to boost African economies, particularly in the context of social inclusion and economic sustainability. Ongoing debates highlight the underrepresentation of women in male-dominated sectors like in the maritime sector. However, one key area often overlooked is the intersectionality of gender, race, age, and education. For instance, the International Maritime Organization (IMO) reports that women comprise just 1.2% of seafarers, underscoring the gender disparity in the industry. However, this figure does not account for demographics underpinning the levels of marginalization. One major challenge contributing to this underrepresentation is the lack of sex-disaggregated data in the maritime sector. Current data often only considers the gender binary between male and female, without factoring in the intersectional realities of women's experiences, such as their age, education, or race. This narrow focus paints a partial picture of gender inequality, failing to account for the multiple dimensions that shape women's participation in the maritime industry. To address this gap, gender data mainstreaming becomes essential. It involves the collection of more comprehensive, sex-disaggregated data that reflects not only gender but also other demographic factors that contribute to the underrepresentation of women in the maritime sector. Significantly, women's participation in both political and economic spheres is crucial for the development of democracies across Africa. By promoting women's involvement in these sectors, African countries can drive sustainable development goals (SDGs), as outlined in Agenda 2063 of the African Union (AU). Women's economic empowerment and political engagement are vital for achieving these broader development objectives. Using a qualitative approach, this paper will explore how intersectionality offers a more nuanced understanding of women's underrepresentation in the maritime sector. Through a constructivist theoretical lens, it examines how gender when viewed through a social and cultural framework can adequately explain women's marginalization. The paper argues that focusing solely on gender, without considering other intersecting factors, limits the understanding of women's exclusion in the maritime industry. To develop effective strategies for women's inclusion in the blue economy, it is crucial to recognize the broader context of women's lived experiences and propose gender sensitization projects for gender parity. Ultimately, this speaks to the concept of "teaching the included to be inclusive" as referenced by Miss South Africa 2024, Mia Le Roux.

**Keywords:** Blue economy, intersectionality, gender, women, empowerment

## **Terrorism, Islam and Food Insecurity in Mali**

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### **Abstract**

In any insane society, political instability, economic malaise and socio-cultural maldevelopment will be orders of the day. Issues of terrorism are not new developments in international relations. It has been around for a long time. The area of concern is when terrorism is linked with religion, the dimension, approach and tactic to address it may be different from when it is based on a paradigm shift within a state when the perceived social contract between governed and governors is skewed in favour of a few. Religion is considered to be the opium of the masses; when it is linked with terrorism, some would like to embark on terror activities in the name of religion. This is common in the Islamic world due to misinterpretation of what the Holy Quran dictates about religion. This paper focuses on Mali as a case study in Africa where admixture of the negative impacts of climate change meets with Islamic fundamentalism. The formation of an Islamic state in the northern part of the country is not only un-Islamic but also a means of causing food insecurity in Mali and the coterminous states. Cultural irredentism that prompted the Tuaregs, who are considered to be indigenous peoples based on international law made the war gravitate to the rest of West Africa. Consequently, with factors of climate change and resource scarcity as well as the Islamic rebels spreading in most parts of the country, government's priority becomes that of tackling terrorism, shifting the focus away from enforcing sustainable food security through the facilitation of agroecological systems more so in rural areas and areas in the Northern part of Mali where there is still a heavy presence of the Tuareg extremists and the Jihadists. Based on secondary sources of data and the employment of an agroecological thesis and constructivism, this paper concludes that the only option in addressing food insecurity in the sub-region is the embark on food sovereignty alternative dispute resolution approaches in bringing sanity to Mali.

**Keywords:** Agroecology, Food insecurity, Islam, Mali, Terrorism

## **Beyond treaty mechanisms: Power dynamics and climate change adaptation in transboundary water governance**

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### **Abstract**

Climate change increasingly threatens freshwater resources worldwide, creating urgent challenges for sustainable development, particularly in regions dependent on shared water systems. In Southern Africa, where multiple countries rely on transboundary river basins for water, food security, and energy, the pressures of climate change necessitate adaptive water governance institutions. While existing scholarship highlights the role of specific treaty mechanisms—such as monitoring, enforcement, and conflict resolution procedures—in fostering institutional adaptability, there is a lack of integration with another critical area of study: the role of power dynamics in transboundary water governance.

This issue is particularly relevant to the sustainable development of the Southern African region. Many countries in this area, such as South Africa, Botswana, Namibia, and Mozambique, depend on shared river systems like the Orange-Senqu, Limpopo, and Zambezi for vital resources. These shared waters are critical not only for local livelihoods but also for regional stability and economic growth. However, uneven power relations between riparian states can influence how treaties are implemented, monitored, and enforced.

Although there is a robust body of literature examining how power relations influence negotiations, implementation, and compliance in transboundary water settings, these insights are often disconnected from discussions on treaty mechanisms and states' adaptability to climate change. This oversight is crucial to address because historical instances demonstrate that even in the presence of treaties, conflicts over transboundary waters can still arise. This paper argues that a comprehensive understanding of climate change adaptation in transboundary water governance requires moving beyond a narrow focus on treaty mechanisms and explicitly integrating the complexities of power dynamics. By integrating these two strands of literature, the research seeks to provide a more nuanced and holistic framework for evaluating the effectiveness of climate adaptation strategies in transboundary water governance.

This study employs the Hydropolitical Complex Theory as its theoretical framework, providing a lens through which to examine how strategic dependence on shared water resources influences the dynamics of inter-state relations. A hydropolitical complex emerges when a nation's reliance on transboundary water resources—whether surface or groundwater—becomes so critical that it begins to drive interstate relations. In Southern Africa, this dependence is a key factor in the region's political landscape, influencing both amity and enmity in discernible ways. The methodology will involve a qualitative analysis of Southern African water treaties, evaluating them against criteria for effective climate adaptation as identified in existing literature. The paper will then integrate these findings with an analysis of power asymmetries among riparian states, assessing how these dynamics influence the implementation and effectiveness of treaty mechanisms.

By bridging the gap between the technical aspects of treaty design and the broader context of power relations, this research aims to contribute to the discourse on sustainable development in Southern Africa. It seeks to highlight the need for more inclusive and equitable governance structures that not only account for climate risks but also address underlying inequalities among riparian states. The findings of this study have implications for the design of future transboundary water agreements, emphasising the importance of embedding equity considerations into treaty frameworks to foster more resilient and adaptive governance institutions. This research will ultimately suggest policy recommendations for creating more robust water governance systems that can withstand the pressures of climate change, ensuring sustainable and equitable development for all states in the region.

**Keywords:** Climate change adaptation, Regional stability, Sustainable development, transboundary water governance, Treaty mechanisms

## **Reviewing World Systems Theory: The Collectivized Ascent of BRICS+ in the Global Political Economy**

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### **Abstract:**

The United States Dollar (USD) has long held a dominant position in the Global Political Economy (GPE), a status solidified by the 1944 Bretton Woods Conference. However, this dominance is now being challenged as global actors call for alternative financial systems. The rise of blocs like BRICS+ (Brazil, Russia, India, China, South Africa, and additional members) highlights a collective response to growing doubts about the United States' ability to steer the global economy, driven by contentious foreign policies and the coercive application of financial tools under the pretext of promoting democracy. These developments underscore the growing resistance of Global South countries to U.S. political and economic dominance, catalysing discussions about a transition from a unipolar to a multipolar global order. This research interrogates the applicability of Immanuel Wallerstein's World Systems Theory (WST) in analysing these dynamics, particularly its emphasis on individual state actions in the coreperiphery structure of the global economy.

While WST posits that semi-peripheral states ascend to core status through promotion by core states, strategic opportunism, or self-reliance, it does not adequately account for collective efforts by semi-peripheral coalitions. The study, therefore, introduces the concept of "collectivized ascent" to explore the potential for cooperative blocs like BRICS+ to transcend semi-peripheral status and challenge the entrenched hegemony of the core. The study critically examines BRICS+ initiatives, including the establishment of the New Development Bank and efforts to de-dollarise the global economy. These measures reflect self reliance strategies aimed at reducing dependence on core-dominated institutions such as the International Monetary Fund (IMF) and the World Bank. Furthermore, historical precedents, such as the transition from the British Pound to the USD as the dominant global reserve currency, offer insights into how collective actions might facilitate shifts in global economic power.

By analysing BRICS+ as a collectivised unit, this study highlights how its cooperative approach challenges the traditional core-periphery dynamics outlined in WST. It argues that the bloc's efforts to promote South-South cooperation and restructure global financial governance mark a pivotal moment in the evolution of the GPE. Ultimately, the study evaluates whether BRICS+ has the capacity to decentralise USD dominance, foster de-dollarisation, and advance a multipolar global order, while assessing the theoretical implications of collectivised ascent for the future of global economic power.

Key contributions of this study include expanding WST to incorporate collective agency in global economic transitions and offering a framework for understanding the shifting dynamics of power in the GPE amid growing multipolarity.

**Keywords:** BRICS+, Collectivized Ascent, De-dollarization, Global Political Economy, World Systems Theory

**South African Police Service strategies to mitigate attacks and deliberate police mortality**

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**Abstract**

Attacks on and murders of police officials in South Africa present significant challenges to the law enforcement fraternity. This paper explores the strategies used to mitigate deliberate police killings and attacks on South African Police Service (SAPS) members. The attacks and murder of police officials in South Africa presents significant challenges to the law enforcement fraternity. The study adopted a phenomenological design. A qualitative approach was adopted, where primary data was collected through one-on-one unstructured interviews with police officials stationed in the Johannesburg policing precinct. These interviews provided descriptions of the SAPS strategies to help police officials protect themselves against attacks in South Africa. The study found a considerable gap between the strategies developed to mitigate murder and attacks of police officials and their implementation. There is no feedback on each current South African Police strategy, how it is implemented and how it contributes to minimising the murder of and attacks on police officials. This paper puts forward recommendations on how the SAPS can mitigate police mortality and attacks on police officials in South Africa, thus contributing to the current body of knowledge in South Africa.

**Keywords:** Attacks; Mortality; Murder, Police Officials; South African Police Service

Ref: 146/FRA/24

## **Examining the future of Democracy in Africa's protest public**

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### **Abstract**

The new wave of 'Gen-Z' led nationwide protests in Africa has shifted from specific issues to systemic overhaul. This has created a popular perception that contemporary protests in Africa seeks 'real democracy'. However, the return of military and autocratic rule in parts of West and Central Africa has challenged this perception. For instance, in Niger, Mali, Guinea, and Burkina Faso, large protests erupted to express solidarity with the military takeovers. This study identifies two factors that enables this trend: 1) the repressive protest responses by democratic governments, and 2) counter-protest activities by certain groups. This study holds that both factors are rooted in a democratic ambivalence that is antithetical to the realisation of SDGs 16 in Africa. Hence, this study seeks to inquire into this ambivalence that informs protest perceptions in contemporary Africa. The recent Anti-Finance Bill protest in Kenya is adopted as a case study. The study proposes that patriotic perceptions of protest will make a significant contribution to enhancing SDGs 16 through the realisation of 'real democracy' in contemporary Africa.

**Keywords:** Ambivalence, Anti-Finance Bill, Democracy, Protest, SDGs 16



**Mechanize Production, And Teaching On Shea Butter, Sustainable Empowerment Programs Among Rural Women In Zuru Emirate Council Kebbi State**

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**Abstract**

The study examined sustainability on mechanize production, teaching on on Shea butter-and sustainable empowerment programs among Rural women in Nigeria study of Zuru Emirate council. The study specifically, discuss the and it ultimate potentially for-job creation, women empowerment, sustainable economic growth, entrepreneurship development and improved partnership with other nations. The study argued that, the current production of shea butter was .locally, been used manually, and could be used as food, cosmetics ingredient and medication, The study therefore, relied on primary data, which was collected from four districts such districts, includes, Ribah, Sakaba, Mahuta, and Danko. Through the application of questionnaire, 200 questionnaires were administered to 50 respondents in each Local Government. The study also utilized secondary source of data, which was carried out from journals, magazines, internet and other valid information. From (2017-2023.) (FEMINISM MODEL) was innovated as theoretical framework. The model argued that, due to the fact that women all over the world were treated as weaker sex and were marginalized due to patriarchy ideology suffered significantly to effectively achieved their potential goals, compared with men counterpart and hence ignored some basic societal opportunities for women. The findings, revealed that, Shea Butter had effectively promoted women sustainable economic and social relations, event though the production of the nut where done manually. However, introducing mechanize system could aid a number of vulnerable to actively improve in the production which could positively create more jobs opportunities among many people in the region.

**Keywords:** Mechanize, Sustainability, Shea Butter, Rural Women and Empowerment

Ref: 148/SOA/24

## **Investigating the Proliferation of Murder for Hire in South Africa and its Implications for Justice**

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### **Abstract:**

This research paper explores the alarming rise of murder for hire incidents in South Africa and the consequent lack of justice for victims. Despite legislative measures and law enforcement efforts, the phenomenon persists, posing significant challenges to the criminal justice system and societal well-being. Through a comprehensive review of existing literature and case studies, this paper aims to shed light on the root causes, modus operandi, and socio-economic factors contributing to the prevalence of murder for hire in South Africa. Furthermore, it examines the systemic failures within the justice system that hinder effective prosecution and the delivery of justice for victims. By identifying gaps in current approaches and proposing potential solutions, this research endeavors to contribute to a better understanding of this complex issue and advocate for necessary reforms to address it.

**Keywords:** Murder for Hire, South Africa, Justice System, Criminal Justice, Socio-Economic Factors, Legal Framework, Victim Advocacy.

## **Cyber Shadows on Campus: Unveiling the Impact of Cyberbullying in South African Higher Education A Study Report**

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### **Abstract**

This study delves into the repercussions of cyberbullying within higher education institutions in South Africa, emphasizing the critical need for comprehensive strategies to mitigate its detrimental effects. The research reveals that cyberbullying poses a significant threat to students' well-being and academic success. The concluding insights stress the urgency for institutions to address this issue through multifaceted approaches. The study recommends the implementation of proactive measures, including awareness campaigns, clear policies, and robust reporting mechanisms. Additionally, the establishment of support systems, the promotion of an inclusive and empathetic culture, and the enforcement of disciplinary measures are crucial aspects of the proposed strategies. The consequences of cyberbullying in South African higher education are shown to be extensive, impacting psychosocial development, self-esteem, academic achievement, and contributing to mental health issues such as depression and social anxiety. To combat this pervasive issue, the study underscores the importance of collaboration among stakeholders, including educational institutions, families, students, and society at large. Creating a united front against cyberbullying requires a collective effort to foster a safer online environment for students. Furthermore, the study suggests that the South African Department of Basic Education plays a pivotal role in equipping educators with the necessary knowledge and skills to address cyberbullying beyond the confines of the classroom. In conclusion, the study advocates for a holistic and collaborative approach to address cyberbullying in South African higher education, combining preventive measures, supportive frameworks, and disciplinary actions. The profound negative effects on students' well-being, academic success, and mental health necessitate immediate attention and concerted efforts to create a secure cyber space for all students in the higher education landscape.

**Keywords:** Cyberbullying, South African Higher Education, Cyberbullying Effects, Mental Health, Academic Performance, Well-being, Awareness, Reporting, Prevention, Intervention

Ref: 150/SOA/24

## **Rethinking development: The informal sector's role in transforming South Africa's economy**

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### **Abstract**

The informal sector plays a pivotal yet often underestimated role in shaping South Africa's economic landscape. Despite government recognition, this sector remains undervalued and underutilized, impeding its potential impact. Thus, using a comprehensive desktop study, this study delves into the multifaceted role of the informal sector in South Africa's economy, examining its dynamics, challenges, and potential for transformative change. It uncovers the dynamic nature of informal enterprises, emphasizing their contributions to employment generation, poverty alleviation, and social inclusion. The study went ahead to identify key challenges and constraints hindering the sector's full realization of its developmental potential across economic, social, and environmental dimensions. The study also highlighted strategies for harnessing the transformative power of the informal sector towards South Africa's economy. The study recommended a collaborative working relationship between the Envisioning a collaborative future that integrates both formal and informal economies, the study offers insights into reimagining development in South Africa. To conclude, by acknowledging the innovation, and dynamism of informal enterprises and by adopting policies and interventions that formalize, integrate, and empower this sector, South Africa can chart a promising path towards development.

**Keywords:** Development; Economic Growth; Formalization; Informal Sector; South Africa

## **Teaching Mathematics Concepts with Improvised Hollow Carton Cubes: A Case of Junior Secondary School in Kenya**

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### **Abstract**

The interest and academic achievement in Secondary school mathematics are low. This is an indicator that the teaching of the concepts in it could be wanting. Inadequacy or lack of teaching/learning materials has been identified as one of the causes of these. The cost of these materials is prohibitively high. The study aimed at establishing the influence of improvised learning materials on the interest and academic achievement in mathematics. Improvised cubes from used cartons were utilized as a versatile manipulative for teaching several concepts in Junior Secondary mathematics in Kisii County, Kenya. The target population was all the Grade seven learners in Kenya and all their teachers of mathematics. Four co-educational centres were randomly sampled for inclusion in the study. A quasi-experimental research design was applied on learners from four intact classes that were randomly assigned to the control group (n=93) and the experimental (n=95) group. A pre-test - treatment - post-test procedure was applied. For a period of five months, the cubes were used in teaching of arithmetic; Algebra; fractions; 2D and 3D geometry; and the Pythagoras theorem. Further the mensuration of length, perimeter, area, volume and weight; to display the data on graphs; progressions and series, probability and statistics. A mathematics Achievement test (MAT) was used to test academic achievement. A student's questionnaire and a teacher's interview schedule were used to triangulate the results. These instruments were validated by expert consideration of Mathematics education experts considered and validated the instruments. The reliability correlation coefficient,  $r$  for each of the research instruments were obtained by test and re-test method in a pilot study in the neighbouring County, Nyamira. They gave 0.78, 0.82 and 0.81 respectively and therefore were considered fit for use in the study; as they were above the set 0.7 criteria. Improvised cubes were found to provide a multi sensory way and enabled learners to concretise concepts and to reinforce a wide range of mathematics topics. Further, that by providing students with a hands-on, visual way to learn mathematics concepts, teachers can help students develop a stronger understanding of complex mathematics topics. This findings of this study will be of use to teachers of mathematics, teacher trainers at pre-service and in-service, educationists, curriculum designers and future researchers.

**Keywords:** Achievement, Improvisation, cubes Mathematics education, Teaching, Learning

Ref: 152/SOA/24

**White commercial agriculture and the reproduction of racial order: Understanding the field of social relations on a Limpopo Citrus Farm**

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**Abstract**

Economistic approaches to understanding relations between farm owners and farmworkers in South Africa's agricultural economy tend to make sense of these in terms of the value chain, with the argument generally being advanced that the state's failure to properly understand the value chain prevents it from properly recognizing that the fate of farmworkers is interwoven with that of agricultural producers. The claim is that it is only with state support of the latter that the fortunes of the former can be altered. This paper is based on the critical discursive analysis of the narrative statements of one white commercial agricultural producer in the export-oriented citrus industry regarding the government, his workers, wages, debt and conflict in the 'micro field' of the farm ('field' being used in the Bourdieusian sense), to speak back to the central claim in the economistic literature. In doing so, we place the micro field of the farm within the 'macro field' of the national agricultural economy, while seeking to expand the scope of literature relevant to making sense of the 'macro field', thereby offering an interdisciplinary approach to analysis.

**Keywords:** Citrus; farmworkers; post-apartheid; South Africa; white commercial agriculture

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