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Green Economy in the Transport Sector: A Case Study of Limpopo Province, South Africa. J.O. Odiyo, P.B. Bikam, J. Chakwizira (Eds.), Springer 2022

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Abstract. This book review critically examines *Green Economy in the Transport Sector: A Case Study of Limpopo Province, South Africa*, edited by John Odiyo, Peter Bikam, and James Chakwizira. The book explores the intersection of sustainable development, climate change, and transportation through the lens of Limpopo Province — an area emblematic of the challenges and opportunities facing green transitions in the Global South. Drawing on national policy frameworks such as South Africa's National Development Plan 2030 and the Green Transport Strategy (2018–2050), the book provides a multidisciplinary approach involving policy analysis, environmental science, urban planning, and technological innovation. Key themes include emission control, knowledge transfer, transport infrastructure, and environmental governance. While focused on a specific region, the book offers broader insights applicable to similar contexts across Africa and beyond. This review highlights the book's strengths, including its practical relevance, interdisciplinary depth, and policy coherence, while also noting areas for further development, such as comparative perspectives and inclusionary approaches. Overall, the book makes a significant contribution to the literature on sustainable transport and green economy policy, offering guidance for policymakers, scholars, and practitioners aiming to foster inclusive and environmentally sound mobility systems in developing regions.

Keywords. Green Economy; Sustainable Transport; Climate Policy; Limpopo Province; Environmental Governance.

JEL. Q01, Q58, R41.

SDGs. SDG11, SDG13.

Book Review

The transition towards a green economy has gained global momentum, driven by urgent climate imperatives and the quest for sustainable development. In this context, the book *Green Economy in the Transport Sector: A Case Study of Limpopo Province, South Africa* offers a timely, interdisciplinary, and richly contextual exploration of how the transportation sector—one of the largest contributors to greenhouse gas emissions—can serve as both a challenge and a catalyst for environmental transformation. The book's central focus on Limpopo Province, a region characterized by socio-economic disparities, infrastructural limitations, and

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environmental vulnerability, makes it a vital case study for understanding the complexities of implementing green transitions in the Global South.

Structured into eight thematic chapters plus front and concluding matter, the book brings together academic insights, policy analyses, and case-specific strategies that link local practices to national and global frameworks such as the Sustainable Development Goals (SDGs), South Africa's National Development Plan (NDP 2030), and the Green Transport Strategy (2018–2050). Edited by scholars from urban and regional planning backgrounds, the book offers a compelling integration of theory, policy, and practice.

Chapter-by-Chapter Analysis

1. Introduction (Odiyo, Bikam, Makungo): The introductory chapter frames the book's objectives within the South African socio-political and environmental context. It highlights Limpopo Province's unique position—rich in natural resources yet constrained by developmental challenges. The editors argue that a green economy in transportation is not only environmentally imperative but socially and economically transformative. The chapter effectively sets the tone by positioning the transport sector as central to green economy debates, bridging infrastructure development with carbon neutrality goals.

2. Environment, Climate Change and the Green Economy (Ogola): Jason Ogola delves into the scientific and policy-oriented foundations of the green economy, providing a robust discussion on climate change's regional impacts. He reviews international frameworks (e.g., UNFCCC, Paris Agreement) and national policies, linking them to Limpopo's regional planning context. Importantly, the chapter critiques the "one-size-fits-all" models of green transition and calls for localized approaches tailored to environmental, economic, and social peculiarities of African provinces.

3. Transport Modes and the Green Economy (Nethengwe): This chapter offers an empirical and analytical overview of transport modes in Limpopo and their carbon footprints. Nthaduleni Nethengwe assesses road, rail, and non-motorized transport modes, identifying key bottlenecks such as vehicle emissions, outdated infrastructure, and urban sprawl. He makes a strong case for modal shifts towards rail and non-motorized transport, supported by planning innovations and behavioral incentives. The analysis is enhanced with statistical insights and policy suggestions, making this chapter especially useful for practitioners.

4. Technology Innovations in Green Transport (Bikam): Peter Bikam focuses on technological solutions, ranging from electric vehicles to intelligent transport systems (ITS), and explores how these innovations could be adapted in South Africa. The discussion acknowledges the cost and accessibility barriers but emphasizes the long-term economic and environmental returns. The chapter critiques South Africa's technology policy framework and calls for greater alignment between R&D initiatives, public transport investment, and sustainable innovation policies.

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5. Vehicle Management and Emission Control and Maintenance (Bikam): This complementary chapter by Bikam explores the technical and regulatory dimensions of emissions control. The author assesses vehicle fleet composition, maintenance regimes, and regulatory enforcement mechanisms. A significant contribution here is the discussion on the informal sector—particularly minibus taxis—and the need for inclusive strategies that do not marginalize key stakeholders in the transport economy. This chapter is a reminder that green transitions must be equitable and just.

6. Skills and Knowledge Transfer for Transitioning into the Green Economy (Odiyo, Musyoki, Makungo): Transitioning to a green economy requires more than infrastructure—it necessitates a skilled and informed labor force. This chapter highlights existing gaps in technical education, vocational training, and policy literacy. The authors propose a multi-tiered approach to knowledge transfer involving universities, technical colleges, and community initiatives. The emphasis on co-production of knowledge, rather than top-down instruction, is a progressive and pragmatic stance.

7. Regulatory Frameworks, Policies, Norms and Standards (Chakwizira): This is perhaps the most detailed and policy-heavy chapter, in which James Chakwizira offers a comprehensive review of South Africa's regulatory landscape. From national climate adaptation plans to municipal by-laws, the chapter maps out the legal infrastructure shaping the transport sector. The author critiques regulatory fragmentation and calls for greater harmonization between spatial planning and environmental governance. This chapter is crucial for policy makers and legal scholars alike.

8. Conclusion (Odiyo, Bikam, Chakwizira): The concluding chapter synthesizes the insights from previous chapters and reaffirms the central thesis: that sustainable transport in Limpopo is both feasible and necessary for a just green transition. It emphasizes policy coherence, cross-sectoral collaboration, and long-term planning as keys to success.

Strengths of the Book

Interdisciplinary Approach: The book draws from urban planning, environmental science, policy studies, and transportation engineering, creating a rich, multi-faceted discussion.

Policy-Relevant: Each chapter offers actionable insights, making the book relevant not just for academia but also for policy makers and local governments.

Regional Focus with Global Relevance: While focused on Limpopo Province, the book's findings are highly transferable to other regions facing similar development-environment trade-offs.

Open Access: The open-access format democratizes access to knowledge and facilitates engagement from a broader audience.

Critical Reflections

While the book excels in breadth and accessibility, there are areas where further depth could have enhanced its contribution:

Comparative Analysis: Including case studies or comparisons with other African regions or Global South contexts could have highlighted best practices and shared challenges.

Quantitative Rigor: Some chapters rely heavily on descriptive analysis; incorporating more quantitative models (e.g., carbon footprint projections, cost-benefit analyses) would strengthen the empirical basis.

Gender and Inclusion: The social justice implications of green transport transitions—particularly gendered mobility and access to green jobs—are underexplored.

Follow-up Mechanisms: While strategies are proposed, the book could benefit from frameworks for monitoring and evaluating the implementation of these green transitions.

Conclusion

Green Economy in the Transport Sector: A Case Study of Limpopo Province, South Africa is a landmark contribution to the fields of sustainable development and green transport. It provides a thorough and thoughtful analysis of how green transitions can be implemented in a complex socio-political and environmental context. The book bridges global imperatives with local realities, offering a model for interdisciplinary, grounded, and policy-relevant research. It should be required reading for urban planners, environmental policy makers, researchers, and anyone interested in the future of sustainable mobility in Africa and beyond.

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