E-Journal of Humanities, Arts and Social Sciences (EHASS)
ISSN – Online 2720-7722 | Print 2821-8949
Volume 6 Issue 5 April 2025 pp 392 - 401
Available online at: https://noyam.org/journals/ehass/
DOI: https://doi.org/10.38159/ehass.2025652

Agroecology Entrepreneurship for Sustainable Rural Economy: Obstacles and Strategic Interventions

Ishmael Iwara[1] & Beata Kilonzo [1]
[1] Institute for Rural Development, University of Venda, Thohoyandou, South Africa.

ABSTRACT
Globally, agroecology entrepreneurial undertakings are crucial in mitigating environmental susceptibility to climate change and fostering economic resilience, particularly in vulnerable regions. In Africa, however, entrepreneurs in this sector face numerous barriers, including complex land tenure systems dominated by traditional authorities, access to funding, inconsistent consumer demand, and technological constraints. Through a qualitative participatory action research approach, this case study examined the lived experiences of agroecology entrepreneurs operating in South Africa, offering comprehensive insights for stakeholders, including entrepreneurs, green investors, and policymakers. The key findings isolated multi-stakeholder collaboration and public-private partnerships as essential in mitigating the identified challenges. These measures could target consumer awareness campaigns to bridge the "green gap" and align purchasing behaviours with sustainability goals. Subsidising green technologies for sustainable agroecology ventures is also necessary for overcoming technological limitations. The study offers a comprehensive approach to facilitating sustainable agroecology entrepreneurship in rural areas.

Keywords: *Agroecology, Environmental Resilience, Green Entrepreneurship, Sustainable Rural Economy*

Correspondence
Ishmael Iwara
Email:
ishmael.iwara@univen.ac.za

Publication History
Received:
8th October, 2024.
Accepted:
3rd March, 2025.
Published:
4th April, 2025.

INTRODUCTION
This empirical enquiry examines the militant elements threatening the survival of agroecology enterprises and possible pragmatic interventions, using the Nombhela Gardens & Cultural Village Cooperative project as a case analysis. The Nombhela Gardens (NGs), established in 2014, spans 40 hectares in Bungeni, within the Makhado Local Municipality of Limpopo Province, South Africa. This initiative engages 16 members in agroecology in the central region of the western Vhembe Biosphere Reserve (VBR), a priority area for the Global Environment Facility's Small Grants Programme. Its goals include stimulating rural economic development, enhancing household income, and providing healthy organic farm products. The cooperative also aims to create a sustainable green community model essential for spearheading long-term programming within the VBR (Table 1). The entrepreneurs hail from neighbouring villages, including Nkuzana, Nwamandzi, and Shivambu, with a collective population exceeding 8,000, of which women comprise 60%.[1] The project embraces a diverse group of men and women, both young and old, interconnected by their commitment to conserving indigenous biodiversity and integrating it with agricultural production. This purpose is to motivate the shared ambition among

[1] United Nations Development Programme, " Nombhela Gardens & Cultural Village Cooperative Agro Ecology Project," 2024, https://www.undp.org/south-africa/nombhela-gardens-cultural-village-cooperative-agro-ecology-project.

members that the project model will be a blueprint for effective agroecological practices and the conservation of natural heritage.

Table 1: The Nombhela Gardens & Cultural Village Cooperative's key priorities

Stakeholder engagement	Agroecology empowerment	Homestead Agroecology	Commercial Agroecology
Capacitate the organisation to liaise with the communities and support stakeholders' sustainable agriculture and agroecology approaches.	Capacitate project and selected community members to design, implement and monitor agroecological activities.	Establish nine household agroecology food gardens at project members' homesteads.	Implement effective and sustainable agroecology on a one-hectare (1ha) piece of land used as a demonstration site and for the commercial sale of produce.

Source: Author's consolidation based on UNDP (2024).

The GEF Small Grants Programmes' financial incentives for the project equipped nine members to navigate food crop production through agroecological mechanisms, an initiative in 2017 on a 1-hectare demonstration site. In support of the initiative, the University of Venda's Institute for Rural Development provided essential training and capacity-building in key areas, such as marketing, agribusiness management, and resource booking, which were crucial to the successful management, sustainability, and expansion of the gardens.[2] The Afristar Foundation and the University played a pivotal role in offering hands-on support for project design, activity planning, record-keeping, financial management, project reporting, social media presence, and documentation of member experiences.[3] In addition, an agroecology consultant was sought for capacity development in areas like site clearing, composting for soil fertility, fencing, irrigation installation, passive water harvesting, crop planting, and the development of herb and medicinal gardens for primary and preventive healthcare.

According to the UNDP report, the project has made substantial progress, with sales of organic products, such as tomatoes, spinach, peppers, cabbages, fruits, and medicinal plants, serving commercial and subsistence needs.[4] It has positively impacted the surrounding community by creating jobs, reducing poverty, and promoting healthy food consumption. The agroecology entrepreneurs capitalised on the project's success to create an Indigenous plant nursery, backed by the Limpopo Economic Development, Environment, and Tourism (LEDET) for the VBR. They also launched a community eco-tourism initiative with four self-catering units, to be expanded to nine by 2018.

Within the Cooperative, experienced elders and traditional knowledge-holders mentored the younger generation on Afrocentric, sustainable, and cost-effective farming techniques.[5] This approach preserves traditional farming systems and mitigates the costs associated with mechanisation and the use of chemical pesticides. In addition, the cost-effective approach enabled individuals without start-up capital to participate in farming, as the agroecological model requires minimal financial resources. There is a strong belief in the community that empowering individuals to be self-sufficient will help address the pressing unemployment and poverty issues in South Africa, particularly in rural areas. The Afrocentric farming techniques adopted by the cooperative include mulching to retain underground water and rainwater harvesting. Given South Africa's ongoing water scarcity problem, this traditional irrigation system is imperative. Importantly, Limpopo Province, where this project was carried out, is among the areas facing a water shortage crisis.[6]

[2] United Nations Development Programme, " Nombhela Gardens & Cultural Village Cooperative Agro Ecology Project."
[3] United Nations Development Programme, " Nombhela Gardens & Cultural Village Cooperative Agro Ecology Project."
[4] United Nations Development Programme, " Nombhela Gardens & Cultural Village Cooperative Agro Ecology Project."
[5] United Nations Development Programme, " Nombhela Gardens & Cultural Village Cooperative Agro Ecology Project."
[6] Sejabaledi Agnes Rankoana, "Climate Change Impacts on Water Resources in a Rural Community in Limpopo Province, South Africa: A Community-Based Adaptation to Water Insecurity," *International Journal of Climate Change Strategies and Management* 12, no. 5 (December 9, 2020): 587–98, https://doi.org/10.1108/IJCCSM-04-2020-0033; Zibongiwe Mpongwana, Kemist Shumba, and Sarah Bracking, "Reflections on Rural Household Water Insecurity: Evidence from Goboti and Khubvi in the Eastern Cape and Limpopo Provinces, South Africa," *African Journal of Inter/Multidisciplinary Studies* 4, no. 1 (2022): 217–33.

The resident agroecology entrepreneurs rely on natural manure, such as cow dung and shredded plant compost, to enrich the soil, thereby ensuring the farm remains organic, environmentally friendly, and aligned with traditional farming practices.[7] Consequently, NGs gained prominence locally, becoming a popular and strategic destination for eco-tourism and organic farm products in the Bungeni area of Limpopo Province. However, in recent years, the venture has faced developmental setbacks in not only failing to expand the self-catering units from four to nine by the end of 2018 as intended but also shutting down operations. The specific factors responsible for the challenges remain unclear, highlighting the exigency to engage the grassroots eco-entrepreneurs involved in the project, in critical discourse, to identify the obstacles and any intervention measures.

A multi-level analytical framework incorporating Innovation Systems Theory, Institutional Theory, and Sustainability Transitions Theory was harnessed in this empirical enquiry. Institutional Theory gives insights into how cultural norms, formal rules, regulatory frameworks, and societal beliefs shape organisational orientation and influence innovation trajectories.[8] Navigating the enquiry from this perspective helps showcase how institutional structures, within the NGs context, can either facilitate or impede sustainability. Complementing this, the Innovation Systems Theory elucidates the significance of networks among diverse actors - such as firms, research institutions, and governments - in fostering technological advancements, emphasising knowledge exchange, institutional collaboration, and coordinated support systems as key drivers of innovation and sustainable development.[9] Lastly, the Sustainability Transitions Theory discusses the complex process of transitioning from unsustainable to sustainable practices, emphasising the interplay between innovative niches, existing socio-technical regimes, and broader landscapes. This framework focuses on the gradual disruption of entrenched systems driven by innovation and supported by external influences, such as policy changes and evolving market conditions.[10] Together, the theories offer a comprehensive approach to understanding and overcoming the multifaceted challenges in advancing sustainability-driven eco-entrepreneurship.

This research is primarily focused on agroecology entrepreneurship and rural development issues in Limpopo Province in South Africa; however, its methodologies and insights have global relevance and, hence, are applicable in various international contexts not only to advance essential knowledge but also to facilitate sustainability-driven agroecology-related entrepreneurship. The subsequent section provides a theoretical discussion on agroecology venturing - a branch of green entrepreneurship. It also explores the impediments to agroecology entrepreneurship from a global perspective. The final section outlines the methodology used to reach conclusions, followed by a discussion of the findings based on the empirical results from the qualitative scientific inquiry.

Green Entrepreneurship Imperatives

Agroecology entrepreneurship is emerging as a transformative force in the business world and the broader global agenda on environmental sustainability in the 21st century. It represents a crucial intersection between economic innovation and environmental stewardship, positioning itself as a linchpin for mitigating the interconnected challenges of climate change, resource depletion, and ecological degradation.[11] Agroecology entrepreneurs, unlike conventional business actors, are distinct by their explicit commitment to embedding sustainability within the core of their business models. They seek to develop and implement intervention measures that reconcile economic profitability with environmental responsibility.[12] Based on this premise, agroecology entrepreneurship, a branch of the broader green venturing concept, not only responds to the growing environmental crises of the century but also presents a pathway and paradigm shift in how businesses can operate ecologically.

[7] United Nations Development Programme, " Nombhela Gardens & Cultural Village Cooperative Agro Ecology Project."
[8] D.C. North, *Institutions, Institutional Change, and Economic Performance* (Cambridge: Cambridge University Press, 1990).
[9] C. Freeman, *Technology Policy and Economic Performance: Lessons from Japan* (Pinter Publishers, 1987); B.-Å. Lundvall, *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning* (Pinter Publishers, 1992).
[10] Frank W. Geels, "The Multi-Level Perspective on Sustainability Transitions: Responses to Seven Criticisms," *Environmental Innovation and Societal Transitions* 1, no. 1 (June 2011): 24–40, https://doi.org/10.1016/j.eist.2011.02.002.
[11] Rocío Blanco-Gregory et al., "Agroecological Entrepreneurship, Public Support, and Sustainable Development: The Case of Rural Yucatan (Mexico)," *Land* 9, no. 11 (October 23, 2020): 401, https://doi.org/10.3390/land9110401.
[12] Bienvenu Akowedaho Dagoudo et al., "Agroecological Business Model: A Pillar Stone for Women's Entrepreneurship in Agroecology and Sustainable Food Systems," *International Journal of Current Science Research and Review* 06, no. 01 (January 14, 2023), https://doi.org/10.47191/ijcsrr/V6-i1-31.

Fundamentally, green initiatives drive sustainable development by fostering entrepreneurial practices that minimise negative environmental impact.[13] In contrast to traditional ventures, which tend to maximise profit and prioritise short-term financial gains, green entrepreneurship aligns profitability with long-term environmental stewardship, showcasing a symbiotic relationship between business success and ecological preservation.[14] This profound paradigm shift reflects a growing recognition of the systemic threats caused by environmental degradation and the necessity for businesses to assume a pragmatic position in safeguarding natural ecosystems. [15] Green entrepreneurs recognise the interconnectedness between economic principles, the adoption of renewable energy and sustainable resource management,[16] infusing these crucial elements into their business operations rather than treating them as unrelated goals. These practices, ultimately position green enterprises as inherently transformative, and future-oriented ventures that challenge traditional notions of entrepreneurial efficacy - a vision connected to global initiatives like the Green Economy Coalition's drive for sustainable ecosystems, which links directly with key Sustainable Development Goals - 1 (No Poverty); 6 (Clean Water); 7 (Clean Energy); 12 (Responsible Consumption); 13 (Climate Action) and 15 (Life on Land).

The significant role of green entrepreneurship in addressing environmental susceptibility to climate change cannot be exaggerated. As the world wrestles with the increasing frequency of climate-related disasters, mitigating greenhouse gas emissions through sustainable entrepreneurial practices becomes a crucial intervention.[17] Green entrepreneurs facilitate the shift from non-renewable sources to renewable energy domains like biomass, solar systems and wind energy while championing sustainable consumption and production processes and improving the livelihood of the masses. By advancing energy efficiency, eradicating carbon footprints, and motivating circular economy's recycling and waste reduction strategies, agroecology entrepreneurship presents a critical path to decarbonisation.[18] It is against this premise that green entrepreneurs have become agents of change, spearheading the systemic transition required to arrest environmental vulnerability and bolster long-term ecological balance. According to the Green Economy Coalition, the urgency of tackling the effects of climate change and biodiversity loss is well-recognised globally.[19] This is because more than 70 governments globally have set up green economic plans, with the expectation that more countries will join over time. Otherwise, a complementary effort from nascent initiatives such as NGs that prioritises environmental sustainability alongside economic growth should be properly acknowledged. Such initiatives present a compelling blueprint for enterprises striving to thrive in an increasingly eco-conscious century.

In shifting to healthy consumption, the absolute necessity for advancing organic food systems within the framework of sustainable agriculture is paramount. As people around the globe contend with

[13] Lahcene Makhloufi, Jing Zhou, and Abu Bakkar Siddik, "Why Green Absorptive Capacity and Managerial Environmental Concerns Matter for Corporate Environmental Entrepreneurship?," *Environmental Science and Pollution Research* 30, no. 46 (September 4, 2023): 102295–312, https://doi.org/10.1007/s11356-023-29583-6; Nelson Amowine et al., "Transitions towards Green Productivity in Africa: Do Sovereign Debt Vulnerability, Eco-entrepreneurship, and Institutional Quality Matter?," *Sustainable Development* 32, no. 4 (2024): 3405–22; Ashok Sharma, "Eco-Entrepreneurship and Sustainable Development in Mizoram's Mountainous Landscape: Unleashing Potentials for Positive Change," in *Natural Resources Management and Sustainable Livelihoods in the Mountainous Region: Evidence, Gap and Future Strategies* (Springer, 2024), 45–59.

[14] Makhloufi, Zhou, and Siddik, "Why Green Absorptive Capacity and Managerial Environmental Concerns Matter for Corporate Environmental Entrepreneurship?"; Maria Denisa Vasilescu, Gina Cristina Dimian, and Giani Ionel Gradinaru, "Green Entrepreneurship in Challenging Times: A Quantitative Approach for European Countries," *Economic Research-Ekonomska Istraživanja* 36, no. 1 (March 31, 2023): 1828–47, https://doi.org/10.1080/1331677X.2022.2093767.

[15] Kartika Nuringsih and Nuryasman MN, "Understanding Relationship Green Entrepreneurship And Circular Economy," *Jurnal Manajemen* 26, no. 2 (June 15, 2022): 200–224, https://doi.org/10.24912/jm.v26i2.970.

[16] Gratiela Dana Boca and Sinan Saraçlı, "Environmental Education and Student's Perception, for Sustainability," *Sustainability* 11, no. 6 (March 14, 2019): 1553, https://doi.org/10.3390/su11061553.

[17] Surajit Bag, "From Resources to Sustainability: A Practice-Based View of Net Zero Economy Implementation in Small and Medium Business-to-Business Firms," *Benchmarking: An International Journal* 31, no. 6 (July 5, 2024): 1876–94, https://doi.org/10.1108/BIJ-01-2023-0056; Andrew Emuobosa Esiri, Olusile Akinyele Babayeju, and Ifeanyi Onyedika Ekemezie, "Implementing Sustainable Practices in Oil and Gas Operations to Minimize Environmental Footprint," *GSC Advanced Research and Reviews* 19, no. 3 (June 30, 2024): 112–21, https://doi.org/10.30574/gscarr.2024.19.3.0207.

[18] Mohammad Wasiq, Mustafa Kamal, and Nazim Ali, "Factors Influencing Green Innovation Adoption and Its Impact on the Sustainability Performance of Small- and Medium-Sized Enterprises in Saudi Arabia," *Sustainability* 15, no. 3 (January 30, 2023): 2447, https://doi.org/10.3390/su15032447.

[19] Green Economy Coalition, "Global Status of the Transition: From Crisis to Opportunity," 2019, https://www.greeneconomycoalition.org/assets/reports/Cape-Town-Global-Meet-2019/GEC-Global-Meeting-2019-Event-Report-FINAL-WEB.pdf.

increasing health issues and environmental degradation,[20] a shift from non-organic to typical organic farming practices is paramount for human health.[21] and environmental conservation.[22] Organic food producers, a relevant subset of agroecology entrepreneurship, focus on using natural farming techniques void of synthetic pesticides, fertilisers, and genetically modified organisms, hence promoting not only soil health and biodiversity but also human wellness.[23] Its associated practices, such as composting, crop rotation, and integrated pest management, contribute significantly to restoring ecosystems, thereby decreasing the agricultural sector's reliance on harmful chemicals frequently utilised in conventional farming settings. Producing and consuming organic products results in healthier lifestyles, simultaneously minimising the carbon footprint associated with conventional farming practices.[24] Aligning with this argument is the notion that organic food entrepreneurs serve as engineers for systemic change, influencing sustainable agricultural methods that safeguard human well-being and the environment for future generations.

The significance of green entrepreneurship extends beyond health and environmental impact. The burgeoning green economy is an emerging sector globally, paving the way for considerable economic opportunities. Industries such as green buildings, renewable energy, and sustainable agriculture, for instance, are creating new market offerings, promoting innovation, and generating employment channels.[25] These industries are critical in developing regions, like Sub-Saharan Africa, where green entrepreneurship can drive inclusive growth and provide livelihoods in rural and marginalised areas. They improve health while simultaneously addressing local environmental challenges. These capacities reinforce the necessity of fostering a robust green entrepreneurship sector; however, despite these potentials, green entrepreneurship, especially the agroecology venture component, is frequently fraught with challenges that threaten its scalability and sustainability. As evidenced in the NGs, the road to success for green entrepreneurs is riddled with complex barriers. Using this project as a case analysis, this paper seeks to comprehensively profile deterrents and propose a strategic intervention framework to mitigate them. This, it is anticipated, will offer actionable insights for entrepreneurs, investors, and policymakers to foster a robust green entrepreneurship ecosystem.

Green Entrepreneurship Impediments

Green entrepreneurship-related challenges are not unique to NGs. The Green Economy Coalition, for instance, demonstrated that green enterprises in most countries frequently confront significant financial constraints, primarily due to the considerable upfront investment required for green technologies, organic inputs, and sustainable infrastructure.[26] Contrary to conventional agriculture, which benefits from substantial state subsidies and financial incentives, agroecology frequently operates in a financial void, affecting scalability and expansion.[27] The reluctance of financial institutions to support green ventures

[20] Muhammad Tariq Majeed and Ilhan Ozturk, "Environmental Degradation and Population Health Outcomes: A Global Panel Data Analysis," *Environmental Science and Pollution Research* 27, no. 13 (May 25, 2020): 15901–11, https://doi.org/10.1007/s11356-020-08167-8; Ayesha Mumtaz et al., "Impact of Environmental Degradation on Human Health: An Assessment Using Multicriteria Decision Making," *Frontiers in Public Health* 9 (January 20, 2022), https://doi.org/10.3389/fpubh.2021.812743.

[21] Jasim Uddain, "Enhancing Food Safety and Security through Organic Agriculture and Innovative Fertilizer Management," *Asian-Australasian Journal of Food Safety and Security* 8, no. 2 (2024): 27–31; Theodoros Varzakas and Slim Smaoui, "Global Food Security and Sustainability Issues: The Road to 2030 from Nutrition and Sustainable Healthy Diets to Food Systems Change," *Foods* 13, no. 2 (2024): 306.

[22] Grazia Calabro and Simone Vieri, "Limits and Potential of Organic Farming towards a More Sustainable European Agri-Food System," *British Food Journal* 126, no. 1 (2024): 223–36; Ebiuwa Gladys Obahiagbon and Matthew Chidozie Ogwu, "Organic Food Preservatives: The Shift towards Natural Alternatives and Sustainability in the Global South's Markets," in *Food Safety and Quality in the Global South* (Springer, 2024), 299–329.

[23] Anushree Tandon et al., "Why Do People Buy Organic Food? The Moderating Role of Environmental Concerns and Trust," *Journal of Retailing and Consumer Services* 57 (2020): 102247; Chye Fhern Yeap, Najibah Suhaimi, and M. Khalid M. Nasir, "Issues, Challenges, and Suggestions for Empowering Technical Vocational Education and Training Education during the COVID-19 Pandemic in Malaysia," *Creative Education* 12, no. 08 (2021): 1818–39, https://doi.org/10.4236/ce.2021.128138.

[24] John P. Reganold and Jonathan M. Wachter, "Organic Agriculture in the Twenty-First Century," *Nature Plants* 2, no. 2 (February 3, 2016): 15221, https://doi.org/10.1038/nplants.2015.221.

[25] Wasiq, Kamal, and Ali, "Factors Influencing Green Innovation Adoption and Its Impact on the Sustainability Performance of Small- and Medium-Sized Enterprises in Saudi Arabia."

[26] Green Economy Coalition, "Global Status of the Transition: From Crisis to Opportunity."

[27] Alexander Wezel et al., "Challenges and Action Points to Amplify Agroecology in Europe," *Sustainability* 10, no. 5 (May 16, 2018): 1598, https://doi.org/10.3390/su10051598; Talal Abdalla Osman Abdalla and Yao Chen, "A Case Study on the Opportunity and

stems from their perception of the high risk associated with the lengthy return on investments and markets' lack of knowledge of its benefits and their volatility. In addition, limited specialised financial instruments - such as green bonds or sustainability-linked loans - stretch the challenge, thus impeding these enterprises' ability to secure the necessary funding for innovative initiatives and expansion.[28] These challenges combined exacerbate financial huddles of eco-entrepreneurs.

Political instability, corruption, and institutional barriers also play a crucial role in the failure of agroecological ventures.[29] Predominantly, institutional frameworks are strategically skewed towards industrial agricultural practices, with policies, regulations and subsidies favouring monoculture, synthetic inputs, and genetically altered organisms. This institutional bias firmly entrenches the dominance of industrial agriculture, fostering a systemic disadvantage for green entrepreneurs. Similarly, challenges related to land tenure and governance structures further obstruct the progress of green initiatives, especially agroecology endeavours.[30] In regions where land is governed communally or by traditional authorities, securing land for agroecological projects can be contentious as the public is not knowledgeable about the benefits of such projects; hence, the process can be fraught with bureaucratic delays,[31] ultimately stifling green entrepreneurial growth.

Market volatility and consumer behaviour present additional strains for green-related ventures. The agroecological market is often characterised by fluctuating demand and price instability, which undermine the economic stability of these ventures. This capriciousness is exacerbated by the sector's nascent stage, which is deficient in market maturity and consumer biases of conventional agriculture.[32] Despite increasing global awareness, a significant "green gap" exists between consumer intentions and purchasing behaviours.[33] The resultant premium prices for organic products, due to specialised farming methods, combined with the lack of trusted certification systems, influence consumer scepticism and reduced demand for agroecological goods.[34] =Collectively, these factors undermine the financial viability of agroecological ventures, leading to higher failure rates. This concern merits research attention, systemic reforms and pragmatic interventions to support green venture development.

METHODOLOGY

An exploratory qualitative case study research design was adopted, employing a participatory community-led action research framework. This methodology was strategically chosen to interrogate the challenges inherent in agroecological practices, focusing on the NGs in South Africa. The participatory action research (PAR) approach requires active, collaborative engagement with grassroots stakeholders,

Challenges Faced by Organic Farming in Jiangsu Province," *Agroecology and Sustainable Food Systems* 45, no. 9 (October 21, 2021): 1327–74, https://doi.org/10.1080/21683565.2021.1932684.

[28] Lukman Raimi, Rabiu Olowo, and Morufu Shokunbi, "A Comparative Discourse of Sustainable Finance Options for Agribusiness Transformation in Nigeria and Brunei: Implications for Entrepreneurship and Enterprise Development," *World Journal of Science, Technology and Sustainable Development* 18, no. 4 (2021): 325–50; G. Styles, I. Talks, and H. Tomlinson, "The Attraction of Agroecology and the Barriers Faced by New Entrants Pursuing Agroecological Farming and Land Work," The Landworkers' Alliance, 2022, https://staging.landworkersalliance.org.uk/wp-content/uploads/2018/10/Landworkers-Alliance-The-Attraction-of-AgroecologyFINAL.pdf.

[29] Ogunlela G Oyebanjo, "Green Entrepreneurship: Why Now and What next? Sub Theme: Entrepreneurship and Sustainability," *Covenant Journal of Entrepreneurship (CJoE)* 2, no. 1 (2018): 15–25; Abdulrasheed Zakari et al., "The Impact of Corruption on Green Innovation: The Case of OECD and Non-OECD Countries," *Journal of Environmental Planning and Management* 66, no. 6 (2023): 1336–68; Nguyen Hoang Tien et al., "Green Entrepreneurship: A Game Changer in Vietnam Business Landscape," *International Journal of Entrepreneurship and Small Business* 48, no. 4 (2023): 408–31.

[30] Bienvenu Dagoudo Akowedaho et al., "Access to Land for Agricultural Entrepreneurial Activities in the Context of Sustainable Food Production in Borgou, According to Land Law in Benin," *Land* 11, no. 9 (2022): 1381; Jonathan Davies, "Opportunities and Challenges of the Green Transition for Pastoralism and Indigenous People in Africa: Workshop," 2024.

[31] R J Mokwena et al., "A Study of Land Restitution to Rural Communities in South Africa: An Analysis of Traditional Leaders Perceptives," *Gender & Behaviour* 18, no. 3 (2020): 16132–44; P. Pickering and A. Motala, " The Abuse of Interdicts by Traditional Leaders in South Africa," 2021, https://www.cambridge.org/core/books/abs/land-law-and-chiefs-in-rural-south-africa/abuse-of-interdicts-by-traditional-leaders-in-south-africa/B079AEF63024A21B9B5F6A04D733E5FF; Styles, Talks, and Tomlinson, "The Attraction of Agroecology and the Barriers Faced by New Entrants Pursuing Agroecological Farming and Land Work."

[32] Abdalla and Chen, "A Case Study on the Opportunity and Challenges Faced by Organic Farming in Jiangsu Province."

[33] Ghina ElHaffar, Fabien Durif, and Laurette Dubé, "Towards Closing the Attitude-Intention-Behavior Gap in Green Consumption: A Narrative Review of the Literature and an Overview of Future Research Directions," *Journal of Cleaner Production* 275 (2020): 122556; Swapnil Tawde, Renuka Kamath, and R V ShabbirHusain, "'Mind Will Not Mind'–Decoding Consumers' Green Intention-Green Purchase Behavior Gap via Moderated Mediation Effects of Implementation Intentions and Self-Efficacy," *Journal of Cleaner Production* 383 (2023): 135506.

[34] Tandon et al., "Why Do People Buy Organic Food? The Moderating Role of Environmental Concerns and Trust."

eliciting nuanced and first-hand perspectives from lived experiences. Before the main data collection, a community entry process was negotiated. This facilitated engagement and meaningful consultation with stakeholders. The process entails building rapport and relationships, understanding community cultural dynamics, and fostering trust – essential ethical participatory research principles in rural areas. A pilot study was conducted to refine the research instruments, specifically data collection tools, to ensure their clarity and cultural appropriateness. Purposive and snowball sampling strategies were employed to select key stakeholders, specifically agroecology entrepreneurs and Bungeni community members directly engaged in the cooperative. Consequently, informed consent forms were distributed to the target stakeholders during the community entry stage. These forms provided detailed information on the aim, objectives, scope and duration of the study and participants' rights, empowering them to make informed decisions about their participation. Following the informed consent, individual one-on-one meetings were scheduled with the stakeholders who willingly consented to partake in the study.

The venue and time of these data collection meetings were carefully negotiated to suit the convenience of stakeholders, respecting their comfort, cultural identity, and schedules. Semi-structured interviews were conducted to gather in-depth information, using a one-on-one interaction model to facilitate open dialogue. The data collection process was guided by the principle of saturation, where the information derived from subsequent participants no longer contributed novel insights to existing data, thus indicating the threshold for sufficient data acquisition. In total, 11 stakeholders participated in the study. During the data collection exercise, strict confidentiality measures were observed, ensuring participants' identities and privacy were protected.

The collected qualitative data were systematically processed through thematic analysis. This analytical framework enabled the identification of emerging patterns, key constraints, and actionable strategies to promote effective agroecological practices in the study area. In the analysis, identifiable details, such as the names and addresses of the interviewees, were deliberately omitted. This provided anonymity, ensuring that participants who shared insights freely would not harbour fear of being identified.

PRESENTATION OF FINDINGS AND DISCUSSION

Land politics constitutes one of the primary obstacles confronting agroecology entrepreneurs' vulnerability (see Table 2). Traditional leaders frequently prioritise immediate economic gains over long-term sustainability, resulting in huddles like land repossession from entrepreneurs. Technological innovation, a cornerstone of agroecology entrepreneurship, is part of the challenge. The entrepreneurs struggle with limited access to advanced technologies and technical expertise to navigate successful agroecology entrepreneurial venturing. Customer behaviour and intentions, specifically purchasing power and preferences, diminish market viability and demand for organic offerings. Financial constraints represent another significant challenge; frequently, funding is restricted for green ventures, presumably due to the perceived high risk associated with long-term financial turnover in related entrepreneurial practices. These challenges impede agroecology entrepreneurs' ability to scale operations and achieve the substantial impact envisaged as in the situation with NGs in South Africa.

Factors	Challenges	Intervention
Land politics	Land is often communally owned and controlled by traditional leaders, complicating the acquisition of land for green projects. Traditional leaders prioritise immediate economic gains over long-term sustainability; therefore, they repossess and allocate the land designated for the agroecology project to other individuals.	Involve traditional leaders early in the planning and implementation stages of green projects to build support and align interests with sustainability goals. Provide targeted education and training to traditional leaders to increase their understanding of the benefits and long-term value of green entrepreneurship. Work towards simplifying and clarifying the formalisation and approval process for green projects to make them more transparent and less burdensome for entrepreneurs. Encourage collaboration between traditional authorities, policymakers, and green entrepreneurs to create a supportive environment for sustainable development initiatives. Showcase successful green projects and their benefits to traditional leaders and communities to demonstrate the positive impact of sustainable practices.
Financial constraints	The nascent nature of the green entrepreneurship sector, coupled with the high upfront capital requirements, creates a negative perception. Government agencies and traditional financial institutions often perceive ventures in the sector as high-risk investments, thus limiting the availability of financial resources needed to start and scale green enterprises.	Foster public-private partnership interactions towards establishing funding mechanisms like - green bonds and sustainability-linked loans. There is a need for a national index for targeted financial products and services that cater specifically to the needs of green ventures. Public financial incentives like tax breaks and grants can reduce the initial capital burden on green ventures.
Consumer behaviour	Consumer preferences often do not translate into sustainable purchasing decisions.	It is crucial to roll out a comprehensive public awareness campaign on green products and their imperatives to health, the environment and the economy. Certification schemes and eco-labels geared towards verifying the authenticity of green claims and building consumer trust are critical. Incentives such as discounts, as well as loyalty programmes for consumers who choose sustainable products, can be a source of motivation.

Technological barriers	Agroecology entrepreneurs struggle with limited access to advanced technologies and technical expertise.	Increased national investment in green technology incubators and accelerators will provide agroecological entrepreneurs with access to expert mentorship and the latest technologies. Government-led initiatives that subsidize the acquisition of green technologies for small and medium-sized enterprises (SMEs) must be put in place. Technological advancements require heightened collaborations between research institutions, green experts, entrepreneurial development agencies, and agroecology entrepreneurs.

Land Politics

There exists a complex dynamic of land politics in the study area, where traditional leadership and community interests occasionally clash, impacting the advancement of essential development projects. The discontinuation of the NGs project marked the collapse of a decade-long vision to create a natural green estate for community engagement and organic produce; this was due to the repossession and sale of the land by a new traditional leader. One of the agroecology entrepreneurs involved in the project explains:

> *"The gardens project has come to an end. Our long-term vision of establishing a natural green estate where tourists and community members could visit to relax, engage with nature, and purchase organic products has been shattered after a decade of dedicated effort* (Male, 36 years old, agroecology entrepreneur).

> *…the new traditional leader reclaimed the hectares of land previously granted to us by the former authority, subdivided the estate, and sold it to private individuals. As a result, the land has been deforested and developed into a residential area. All the facilities we painstakingly established—three borehole systems for irrigating our organic crops, shredding machines for organic manure production, and even the chalets—have been lost. We fought to retain the land but were unable to prevail due to financial constraints and a lack of necessary support. It's disheartening and deeply discouraging…"* (Female, 27 years old, agroecology entrepreneur).

Land politics pose substantial challenges to green entrepreneurship in South Africa, especially in rural areas where land ownership is communal and managed by traditional authorities. These leaders, while crucial in protecting cultural heritage, also frequently hold considerable influence over land-use decisions, which can hinder sustainable development initiatives. In the case of the NGs, the emphasis of traditional leaders on short-term economic gains rather than long-term environmental sustainability has created hurdles for green entrepreneurs. This dilemma is commonly observed across the Limpopo, North-West, and Mpumalanga Provinces.[35] Apart from conflicts of interest, the processes of land acquisition, often burdened by personal agenda and bureaucratic inefficiencies, are typically opaque and lack clear protocols, which can lead to significant delays or outright deterrence of investment in green ventures. Such systemic constraints deter potential investors, ultimately stifling the process of green venturing into befitting environments.[36] Mitigating land-related barriers, a strategic reform that allows for public-private collaborative partnerships between government, traditional leaders, and green entrepreneurs, is crucial. This initiative is necessary for facilitating meaningful interactions, ensuring that land-use decisions reflect both cultural values and sustainable development imperatives – a standpoint entrenched in the study by Mokwena et al.[37] They stressed that traditional leaders should be actively engaged in the planning and implementation of green projects at all stages. The implication of this call is twofold: creating an environment for leaders to learn and understand sustainable land practices and transforming their minds and ideas to align them with broader environmental goals and a sustainable local economy.

[35] Pickering and Motala, " The Abuse of Interdicts by Traditional Leaders in South Africa."
[36] Ben Cousins, "More Than Socially Embedded: The Distinctive Character of 'Communal Tenure' Regimes in South Africa and Its Implications for Land Policy," *Journal of Agrarian Change* 7, no. 3 (July 3, 2007): 281–315, https://doi.org/10.1111/j.1471-0366.2007.00147.x; Aninka Claassens, "Contested Power and Apartheid Tribal Boundaries: The Implications of'living Customary Law'for Indigenous Accountability Mechanisms," *Acta Juridica* 2011, no. 1 (2011): 174–209.
[37] Mokwena et al., "A Study of Land Restitution to Rural Communities in South Africa: An Analysis of Traditional Leaders Perceptives."

Financial Constraints

Access to finance poses a significant challenge for any endeavour, including agroecology entrepreneurs, as it restricts their capability to invest sufficiently, expand, and optimise returns. Finance, specifically access to meaningful capital, is crucial for the successful implementation of green projects, yet these entrepreneurs frequently struggle to secure the necessary resources from public and private entities, which is a notable feature contributing to the green ventures' vulnerability. One participant reflected on this challenge, stating:

> *"...I will not doubt the fact that we have received some form of financial support from the UNDP and GEF Small Grants Programme, however, it was insufficient to fully implement the garden project as initially planned. The funds did not even cover 10% of the plan, so it became a struggle for us to move forward with the project in terms of financing, especially procurement. It was because of these funding issues that we could not secure our land. We initially sought land from the traditional leaders instead of purchasing it outright just for the organic farm..."* (Female, 66 years old, agroecology entrepreneur).

> *"Several efforts were made – consultations with both public and private entities, travelling to engage with different stakeholders in towns and cities for support. All we needed was equipment to work with and actualise our dreams. ...despite submitting numerous funding proposals to the government and private organisations, we were unsuccessful. It remains conspicuous how such a viable initiative failed to receive the necessary support to thrive. ...after several years of putting both our heads, time and energy together for a common goal, the project was undermined by government insecurity combined with land politics from the traditional leadership"* (Female, 36 years, agroecology entrepreneur).

The experience of NGs highlights the ongoing struggle with insufficient financial support, which, when combined with other challenges such as bureaucratic inefficiencies and land politics, can render any venture vulnerable or prone to failure. According to the Green Economy Coalition report, approximately 70% of green ventures battle to secure the funds required for their ventures' growth and expansion.[38] High interest rates and strict collateral demands for non-established ventures, such as green entrepreneurs, when seeking loans, exacerbate the challenge. Empirical evidence substantiates that funders frequently hesitate to invest in green ventures, resulting from perceived high risk and the nascent stage of many green technologies.[39] Unfortunately, green ventures generally require substantial upfront capital and longer payback periods, which traditional lenders find less attractive and viable compared to short-term, high-yield investments in non-green sectors. The lack of proven models for many sustainable ventures further deters financial support, creating a substantial barrier for green entrepreneurs. In South Africa, numerous government grants and incentives for entrepreneurial practices exist; however, bureaucratic processes and the underdeveloped venture capital ecosystem in the country constrain access to funding,[40] especially for green ventures. Bridging

[38] Green Economy Coalition, "Global Status of the Transition: From Crisis to Opportunity."

[39] Joseph Amankwah-Amoah, Albert Danso, and Samuel Adomako, "Entrepreneurial Orientation, Environmental Sustainability and New Venture Performance: Does Stakeholder Integration Matter?," *Business Strategy and the Environment* 28, no. 1 (2019): 79–87.

[40] John Agwa-Ejon and Charles Mbohwa, "Financial Challenges Faced by SMMES in Gauteng South Africa," 2015; Prince Chukwuneme Enwereji, "Navigating the Hurdles: The Internal and External Challenges of Small, Medium and Micro Enterprises (SMMEs) in South Africa," *African Journal of Development Studies (Formerly AFFRIKA Journal of Politics, Economics and Society)* 13, no. 4 (January 31, 2024): 227–49, https://doi.org/10.31920/2634-3649/2023/v13n4a11; Thabisile Mhlongo and Preeya Daya, "Challenges Faced by Small, Medium and Micro Enterprises in Gauteng: A Case for Entrepreneurial Leadership as an Essential Tool for Success," *The Southern African Journal of Entrepreneurship and Small Business Management* 15, no. 1 (April 4, 2023), https://doi.org/10.4102/sajesbm.v15i1.591.

this financial gap, according to the United Nations Economic Commission for Africa (UNECA), requires innovative funding mechanisms like green bonds, impact investing, and public-private partnerships.[41]

Consumer Behaviour

Consumer behaviour towards organic products and the pricing systems for these products present significant challenges for agroecology entrepreneurs. One participant stated:

> *"The South African agricultural market is heavily saturated with inexpensive non-organic products, which are more cost-effective compared to organic alternatives. This is largely due to the easy accessibility and affordability of non-organic manure, as well as the visually appealing nature of products enhanced with chemical fertilizers. The lack of orientation and insufficient education regarding the health implications of non-organic products and the benefits of organic alternatives further exacerbates the difficulty of competing in this market"* (Female, 30 years old, agroecology entrepreneur).

> *"…initially, we struggled as our production often exceeded demand. However, as awareness grew, more people from both near and far began visiting our gardens to purchase our organic products, leading to a gradual increase in local market momentum. Although many compare and insist on paying the equivalent amount to non-organic products, leaving us with little benefit. We were left with the opportunity to explore international markets with potential for wholesale distribution, which would have allowed us to scale up production and maximize our gains"* (Male, 41 years old, agroecology entrepreneur).

This situation highlights the challenges posed by consumer behaviour, particularly the "green gap": the disparity between consumers' stated preferences for sustainable products and their actual purchasing decisions. Increasing environmental awareness helped in improving sales, despite this, many consumers still opted for cheaper, non-organic alternatives due to lower prices, limited trust in green claims, and economic disparities, especially in countries like South Africa where affordability is a primary concern.[42] To address these challenges, green entrepreneurs need to make organic products more accessible and competitively priced while fostering trust through transparency and robust educational campaigns on the long-term health and environmental benefits of organic consumption. This strategic shift will be key to driving demand and bridging the green gap, ultimately leading to more sustainable consumer behaviour.

Technological Barriers

Technological barriers significantly impede the growth of agroecology ventures by limiting their capacity to leverage advanced green technologies, which are essential for sustainable practices. The prohibitive costs of these technologies, coupled with a lack of local expertise and inadequate infrastructure, contribute to these challenges. The manual collection of water for irrigation and the lack of suitable transportation for agricultural goods, for instance, highlight broader systemic issues:

[41] United Nations. Economic Commission for Africa, *Economic Report on Africa 2024: Investing in a Just and Sustainable Transition in Africa* (Addis Ababa: UNECA, 2024).

[42] Hanli de Beer, Janice Harmse, and Annchen Mielmann, "Why Income Lacks to Ensure Household Food Security: Needs and Challenges Identified by Consumers from a Rural Community, South Africa," *International Journal of Consumer Studies* 44, no. 6 (November 2020): 521–30, https://doi.org/10.1111/ijcs.12584; Theresa Ryckman et al., "Affordability of Nutritious Foods for Complementary Feeding in Eastern and Southern Africa," *Nutrition Reviews* 79, no. Supplement_1 (March 9, 2021): 35–51, https://doi.org/10.1093/nutrit/nuaa137.

> *"The project requires specialized equipment and facilities, such as an efficient water supply for adequate irrigation. For over five years since its establishment, we have manually fetched water using buckets carried on our heads from a source located approximately two kilometres away from the farm each morning to irrigate the plants. The borehole facility had just been installed"* (Female, 45 years old, agroecology entrepreneur).

> *"…also, the absence of a private van or bakkie for transporting equipment and moving goods between the farm, warehouse, and market not only imposes significant financial strain but also causes considerable inconvenience. Delays in commercial vehicle availability often result in our arriving at the market very late, and similar issues occur with harvested products. These products are sometimes damaged by animals overnight due to the failure of arranged transport or a lack of transportation options following the harvest"* (Female, 58 years old, agroecology entrepreneur).

As noted by Musango et al., the cost of importing green technologies can be prohibitive, particularly in contexts where financial resources are already scarce, like rural South Africa.[43] The challenge worsens because of limited local technical expertise, which is pivotal for the installation, maintenance, and operation of these advanced technologies. In addition to this argument, inadequate infrastructure, such as unreliable electricity supply, poor road networks, and limited internet connectivity, all contribute significantly to the inefficiency and unsustainability of green ventures.[44] These factors combined, escalated operational costs and minimised the effectiveness of implementing green technologies, negatively impacting the scalability of these ventures. Intervention measures in this context include targeted investments in infrastructure and programmes geared toward hard skills development. An ecosystem featuring affordable technologies, local technicians trained with capacity, and enhanced logistical networks could significantly bolster South Africa's green entrepreneurial opportunities and sustainable local economy.

Strategic Intervention

The multi-level theoretical frameworks - Innovation Systems Theory, Institutional Theory, and Sustainability Transitions Theory - were harnessed to establish a foundation for understanding and addressing the hurdles agroecology entrepreneurs grapple with. Sustainability Transitions Theory stresses systemic change, recognising that sustainable entrepreneurship, particularly in agroecology, functions at the intersection of niche innovations, entrenched socio-technical regimes, and external environmental pressures.[45] Agroecology entrepreneurs frequently operate in niches, struggling to break through socio-technical regimes governed by outdated land-tenure frameworks and immediate economic benefits which traditional authorities prioritise.[46] Intervention measures focused on mapping out protective niches, such as inclusive

[43] Josephine K. Musango, Alan C. Brent, and Andrea M. Bassi, "Modelling the Transition towards a Green Economy in South Africa," *Technological Forecasting and Social Change* 87 (September 2014): 257–73, https://doi.org/10.1016/j.techfore.2013.12.022.

[44] Theodore Anthony York et al., "Infrastructure Implications of a Green Economy Transition in the Western Cape Province of South Africa: A System Dynamics Modelling Approach," *Development Southern Africa* 34, no. 5 (September 3, 2017): 529–47, https://doi.org/10.1080/0376835X.2017.1358601; Zander S. Venter et al., "Green Apartheid: Urban Green Infrastructure Remains Unequally Distributed across Income and Race Geographies in South Africa," *Landscape and Urban Planning* 203 (November 2020): 103889, https://doi.org/10.1016/j.landurbplan.2020.103889.

[45] Geels, "The Multi-Level Perspective on Sustainability Transitions: Responses to Seven Criticisms."

[46] Mokwena et al., "A Study of Land Restitution to Rural Communities in South Africa: An Analysis of Traditional Leaders Perceptives"; Pickering and Motala, " The Abuse of Interdicts by Traditional Leaders in South Africa"; Styles, Talks, and Tomlinson, "The Attraction of Agroecology and the Barriers Faced by New Entrants Pursuing Agroecological Farming and Land Work."

governance, policy reforms, and targeted subsidies for sustainable land use, are pivotal in transforming these entrenched regimes. Eventually, these niches, influenced by external forces like climate change or increased global environmental awareness, hope to motivate the necessary shifts toward sustainability.

Congruent with Innovation Systems Theory, solving technological and financial constraints in agroecology needs a network of actors including local entrepreneurs, research institutions, private investors, and governments.[47] The theory stresses that innovation is not merely a product of individual efforts; it emerges from collaborative systems where knowledge exchange, institutional support, and resource mobilisation are essential. In agroecology, failures in technological diffusion—such as limited access to advanced irrigation technologies—combined with challenges in securing funding due to perceived high risks, delineate the gaps in this innovation ecosystem. Tangible and intangible capacity-building initiatives that strengthen technological know-how among local entrepreneurs, alongside market-aligned financial instruments such as green bonds or sustainability-linked loans, are critical. Implementing these mechanisms will mitigate the technological and financial-related constraints and create an environment where innovation can thrive, scaling agroecology entrepreneurship.

Institutional Theory is essential in understanding the socio-political dimensions of green entrepreneurship. Institutions, comprising formal structures like legal frameworks and informal norms, such as cultural practices, can either foster or constrain entrepreneurial endeavours.[48] In countries like South Africa, the place of traditional leaders in communal land control frequently creates huddles for entrepreneurs seeking to implement sustainable green initiatives. The prioritisation of immediate economic benefits over long-term development and environmental sustainability by these leaders, as demonstrated in the NGs, exemplifies the conflict between institutional norms and systems with sustainability goals. In this context, institutional reforms centred on improving transparency in land acquisition processes and fostering collaboration between traditional leaders and green entrepreneurs are necessary for tackling these challenges.[49] Interventions include adequate awareness and other initiatives focused on educating traditional authorities on green entrepreneurship's long-term economic, environmental and health gains. Likewise, addressing these issues necessitates the participation of traditional authorities in decision-making processes. This can help align institutional behaviour with sustainable development goals, thus reducing institutional and community resistance to innovative green initiatives.

A conglomeration of the multi-level framework - Sustainability Transitions Theory, Innovation Systems Theory, and Institutional Theory - provides a holistic understanding of intervention measures required to mitigate the entrenched obstacles agroecology entrepreneurs grapple with from the South African perspective. The intersection of these theories signifies that successful interventions must address systemic and institutional barriers while encouraging innovative ecosystems for green entrepreneurship. Policy reforms, financial mechanisms, stakeholder engagement, and technology diffusion are entwined levers that must be pulled to foster an enabling environment for green entrepreneurship to thrive. Mitigating land politics, improving funding opportunities, technological advancement, and influencing consumer behaviour through awareness initiatives and certification demonstrates a pragmatic pathway for scaling green entrepreneurship, contributing to local economic development and a broader global sustainability agenda.

[47] Styles, Talks, and Tomlinson, "The Attraction of Agroecology and the Barriers Faced by New Entrants Pursuing Agroecological Farming and Land Work."
[48] North, *Institutions, Institutional Change, and Economic Performance*.
[49] Mokwena et al., "A Study of Land Restitution to Rural Communities in South Africa: An Analysis of Traditional Leaders Perceptives."

RECOMMENDATION

Further scientific studies can triangulate these findings with the experiences of agroecology entrepreneurs in different locations in South Africa, thereby broadening the insights and facilitating the development of a comprehensive framework for successful outcomes.

CONCLUSION

Green ventures such as agroecology entrepreneurship promise environmental resilience, healthy food, and economic development; however, the realisation of these potentials hinges on concerted efforts to mitigate multifaceted obstacles that agroecology entrepreneurs confront. In South Africa, where this study was conducted, land politics, financial constraints, consumer behaviour, and technological challenges form the barriers that hinder the efficacy of agroecology enterprises. Mitigating these barriers requires a multi-faceted approach that combines policy intervention, financial support mechanisms, and capacity-building initiatives. Engaging and educating traditional leaders about the long-term benefits of sustainable agroecology entrepreneurial initiatives will potentially curb land politics-related issues and foster agreements that balance cultural values with environmental goals. Alleviating financial burdens involves concerted efforts toward designing tailored financial products and realistic funding pathways for agroecology enterprises, alongside investment channels capable of addressing the perceived risks associated with green ventures. Curbing technological challenges requires investing in training programmes and partnerships with technology providers to accelerate entrepreneurs' access to advanced tools and expertise. Boosting market demand for green products, targeted awareness campaigns, and educational initiatives are necessary interventions that can shift consumer preference towards green products.

ACKNOWLEDGEMENT

I am deeply grateful to the agroecology entrepreneurs of NGs, and community members in Bungeni village who participated in this study. This research initiative was partly funded by the National Research Foundation of South Africa (Reference: PSTD23032988088).

BIBLIOGRAPHY

Abdalla, Talal Abdalla Osman, and Yao Chen. “A Case Study on the Opportunity and Challenges Faced by Organic Farming in Jiangsu Province.” *Agroecology and Sustainable Food Systems* 45, no. 9 (October 21, 2021): 1327–74. https://doi.org/10.1080/21683565.2021.1932684.

Agwa-Ejon, John, and Charles Mbohwa. “Financial Challenges Faced by SMMES in Gauteng South Africa,” 2015.

Akowedaho, Bienvenu Dagoudo, Inoussa Guinin Asso, Bruno Charles Pierre O’heix, Soulé Akinhola Adéchian, and Mohamed Nasser Baco. “Access to Land for Agricultural Entrepreneurial Activities in the Context of Sustainable Food Production in Borgou, According to Land Law in Benin.” *Land* 11, no. 9 (2022): 1381.

Amankwah-Amoah, Joseph, Albert Danso, and Samuel Adomako. “Entrepreneurial Orientation, Environmental Sustainability and New Venture Performance: Does Stakeholder Integration Matter?” *Business Strategy and the Environment* 28, no. 1 (2019): 79–87.

Amowine, Nelson, Tomas Balezentis, Zhixiang Zhou, and Dalia Streimikiene. “Transitions towards Green Productivity in Africa: Do Sovereign Debt Vulnerability, Eco-entrepreneurship, and Institutional Quality Matter?” *Sustainable Development* 32, no. 4 (2024): 3405–22.

Andrew Emuobosa Esiri, Olusile Akinyele Babayeju, and Ifeanyi Onyedika Ekemezie. “Implementing Sustainable Practices in Oil and Gas Operations to Minimize

Environmental Footprint." *GSC Advanced Research and Reviews* 19, no. 3 (June 30, 2024): 112–21. https://doi.org/10.30574/gscarr.2024.19.3.0207.

Bag, Surajit. "From Resources to Sustainability: A Practice-Based View of Net Zero Economy Implementation in Small and Medium Business-to-Business Firms." *Benchmarking: An International Journal* 31, no. 6 (July 5, 2024): 1876–94. https://doi.org/10.1108/BIJ-01-2023-0056.

Beer, Hanli de, Janice Harmse, and Annchen Mielmann. "Why Income Lacks to Ensure Household Food Security: Needs and Challenges Identified by Consumers from a Rural Community, South Africa." *International Journal of Consumer Studies* 44, no. 6 (November 2020): 521–30. https://doi.org/10.1111/ijcs.12584.

Blanco-Gregory, Rocío, Leonor Elena López-Canto, María Victoria Sanagustín-Fons, and Violante Martínez-Quintana. "Agroecological Entrepreneurship, Public Support, and Sustainable Development: The Case of Rural Yucatan (Mexico)." *Land* 9, no. 11 (October 23, 2020): 401. https://doi.org/10.3390/land9110401.

Boca, Gratiela Dana, and Sinan Saraçlı. "Environmental Education and Student's Perception, for Sustainability." *Sustainability* 11, no. 6 (March 14, 2019): 1553. https://doi.org/10.3390/su11061553.

Calabro, Grazia, and Simone Vieri. "Limits and Potential of Organic Farming towards a More Sustainable European Agri-Food System." *British Food Journal* 126, no. 1 (2024): 223–36.

Chukwuneme Enwereji, Prince. "Navigating the Hurdles: The Internal and External Challenges of Small, Medium and Micro Enterprises (SMMEs) in South Africa." *African Journal of Development Studies (Formerly AFFRIKA Journal of Politics, Economics and Society)* 13, no. 4 (January 31, 2024): 227–49. https://doi.org/10.31920/2634-3649/2023/v13n4a11.

Claassens, Aninka. "Contested Power and Apartheid Tribal Boundaries: The Implications of'living Customary Law'for Indigenous Accountability Mechanisms." *Acta Juridica* 2011, no. 1 (2011): 174–209.

Cousins, Ben. "More Than Socially Embedded: The Distinctive Character of 'Communal Tenure' Regimes in South Africa and Its Implications for Land Policy." *Journal of Agrarian Change* 7, no. 3 (July 3, 2007): 281–315. https://doi.org/10.1111/j.1471-0366.2007.00147.x.

Dagoudo, Bienvenu Akowedaho, Charles Ssekyewa, Silvère D. Tovignan, Joseph Ssekandi, and Pius M. Nina. "Agroecological Business Model: A Pillar Stone for Women's Entrepreneurship in Agroecology and Sustainable Food Systems." *International Journal of Current Science Research and Review* 06, no. 01 (January 14, 2023). https://doi.org/10.47191/ijcsrr/V6-i1-31.

Davies, Jonathan. "Opportunities and Challenges of the Green Transition for Pastoralism and Indigenous People in Africa: Workshop," 2024.

ElHaffar, Ghina, Fabien Durif, and Laurette Dubé. "Towards Closing the Attitude-Intention-Behavior Gap in Green Consumption: A Narrative Review of the Literature and an Overview of Future Research Directions." *Journal of Cleaner Production* 275 (2020): 122556.

Freeman, C. *Technology Policy and Economic Performance: Lessons from Japan*. Pinter Publishers, 1987.

Geels, Frank W. "The Multi-Level Perspective on Sustainability Transitions: Responses to Seven Criticisms." *Environmental Innovation and Societal Transitions* 1, no. 1 (June 2011): 24–40. https://doi.org/10.1016/j.eist.2011.02.002.

Green Economy Coalition. "Global Status of the Transition: From Crisis to Opportunity," 2019. https://www.greeneconomycoalition.org/assets/reports/Cape-Town-Global-Meet-

2019/GEC-Global-Meeting-2019-Event-Report-FINAL-WEB.pdf.
Kartika Nuringsih, and Nuryasman MN. "Understanding Relationship Green Entrepreneurship And Circular Economy." *Jurnal Manajemen* 26, no. 2 (June 15, 2022): 200–224. https://doi.org/10.24912/jm.v26i2.970.
Lundvall, B.-Å. *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. Pinter Publishers, 1992.
Majeed, Muhammad Tariq, and Ilhan Ozturk. "Environmental Degradation and Population Health Outcomes: A Global Panel Data Analysis." *Environmental Science and Pollution Research* 27, no. 13 (May 25, 2020): 15901–11. https://doi.org/10.1007/s11356-020-08167-8.
Makhloufi, Lahcene, Jing Zhou, and Abu Bakkar Siddik. "Why Green Absorptive Capacity and Managerial Environmental Concerns Matter for Corporate Environmental Entrepreneurship?" *Environmental Science and Pollution Research* 30, no. 46 (September 4, 2023): 102295–312. https://doi.org/10.1007/s11356-023-29583-6.
Mhlongo, Thabisile, and Preeya Daya. "Challenges Faced by Small, Medium and Micro Enterprises in Gauteng: A Case for Entrepreneurial Leadership as an Essential Tool for Success." *The Southern African Journal of Entrepreneurship and Small Business Management* 15, no. 1 (April 4, 2023). https://doi.org/10.4102/sajesbm.v15i1.591.
Mokwena, R J, L L Motsepe, W Maluleke, and S N Shandu. "A Study of Land Restitution to Rural Communities in South Africa: An Analysis of Traditional Leaders Perceptives." *Gender & Behaviour* 18, no. 3 (2020): 16132–44.
Mpongwana, Zibongiwe, Kemist Shumba, and Sarah Bracking. "Reflections on Rural Household Water Insecurity: Evidence from Goboti and Khubvi in the Eastern Cape and Limpopo Provinces, South Africa." *African Journal of Inter/Multidisciplinary Studies* 4, no. 1 (2022): 217–33.
Mumtaz, Ayesha, Erum Rehman, Shazia Rehman, and Iftikhar Hussain. "Impact of Environmental Degradation on Human Health: An Assessment Using Multicriteria Decision Making." *Frontiers in Public Health* 9 (January 20, 2022). https://doi.org/10.3389/fpubh.2021.812743.
Musango, Josephine K., Alan C. Brent, and Andrea M. Bassi. "Modelling the Transition towards a Green Economy in South Africa." *Technological Forecasting and Social Change* 87 (September 2014): 257–73. https://doi.org/10.1016/j.techfore.2013.12.022.
North, D.C. *Institutions, Institutional Change, and Economic Performance*. Cambridge: Cambridge University Press, 1990.
Obahiagbon, Ebiuwa Gladys, and Matthew Chidozie Ogwu. "Organic Food Preservatives: The Shift towards Natural Alternatives and Sustainability in the Global South's Markets." In *Food Safety and Quality in the Global South*, 299–329. Springer, 2024.
Oyebanjo, Ogunlela G. "Green Entrepreneurship: Why Now and What next? Sub Theme: Entrepreneurship and Sustainability." *Covenant Journal of Entrepreneurship (CJoE)* 2, no. 1 (2018): 15–25.
Pickering, P., and A. Motala. " The Abuse of Interdicts by Traditional Leaders in South Africa," 2021. https://www.cambridge.org/core/books/abs/land-law-and-chiefs-in-rural-south-africa/abuse-of-interdicts-by-traditional-leaders-in-south-africa/B079AEF63024A21B9B5F6A04D733E5FF.
Raimi, Lukman, Rabiu Olowo, and Morufu Shokunbi. "A Comparative Discourse of Sustainable Finance Options for Agribusiness Transformation in Nigeria and Brunei: Implications for Entrepreneurship and Enterprise Development." *World Journal of Science, Technology and Sustainable Development* 18, no. 4 (2021): 325–50.
Rankoana, Sejabaledi Agnes. "Climate Change Impacts on Water Resources in a Rural Community in Limpopo Province, South Africa: A Community-Based Adaptation to

Water Insecurity." *International Journal of Climate Change Strategies and Management* 12, no. 5 (December 9, 2020): 587–98. https://doi.org/10.1108/IJCCSM-04-2020-0033.

Reganold, John P., and Jonathan M. Wachter. "Organic Agriculture in the Twenty-First Century." *Nature Plants* 2, no. 2 (February 3, 2016): 15221. https://doi.org/10.1038/nplants.2015.221.

Ryckman, Theresa, Ty Beal, Stella Nordhagen, Kudakwashe Chimanya, and Joan Matji. "Affordability of Nutritious Foods for Complementary Feeding in Eastern and Southern Africa." *Nutrition Reviews* 79, no. Supplement_1 (March 9, 2021): 35–51. https://doi.org/10.1093/nutrit/nuaa137.

Sharma, Ashok. "Eco-Entrepreneurship and Sustainable Development in Mizoram's Mountainous Landscape: Unleashing Potentials for Positive Change." In *Natural Resources Management and Sustainable Livelihoods in the Mountainous Region: Evidence, Gap and Future Strategies*, 45–59. Springer, 2024.

Styles, G., I. Talks, and H. Tomlinson. "The Attraction of Agroecology and the Barriers Faced by New Entrants Pursuing Agroecological Farming and Land Work." The Landworkers' Alliance, 2022. https://staging.landworkersalliance.org.uk/wp-content/uploads/2018/10/Landworkers-Alliance-The-Attraction-of-AgroecologyFINAL.pdf.

Tandon, Anushree, Amandeep Dhir, Puneet Kaur, Shiksha Kushwah, and Jari Salo. "Why Do People Buy Organic Food? The Moderating Role of Environmental Concerns and Trust." *Journal of Retailing and Consumer Services* 57 (2020): 102247.

Tawde, Swapnil, Renuka Kamath, and R V ShabbirHusain. "'Mind Will Not Mind'– Decoding Consumers' Green Intention-Green Purchase Behavior Gap via Moderated Mediation Effects of Implementation Intentions and Self-Efficacy." *Journal of Cleaner Production* 383 (2023): 135506.

Tien, Nguyen Hoang, Nguyen Van Tien, Nguyen Phuong Mai, and Le Doan Minh Duc. "Green Entrepreneurship: A Game Changer in Vietnam Business Landscape." *International Journal of Entrepreneurship and Small Business* 48, no. 4 (2023): 408–31.

Uddain, Jasim. "Enhancing Food Safety and Security through Organic Agriculture and Innovative Fertilizer Management." *Asian-Australasian Journal of Food Safety and Security* 8, no. 2 (2024): 27–31.

United Nations. Economic Commission for Africa. *Economic Report on Africa 2024: Investing in a Just and Sustainable Transition in Africa*. Addis Ababa: UNECA, 2024.

United Nations Development Programme. " Nombhela Gardens & Cultural Village Cooperative Agro Ecology Project," 2024. https://www.undp.org/south-africa/nombhela-gardens-cultural-village-cooperative-agro-ecology-project.

Varzakas, Theodoros, and Slim Smaoui. "Global Food Security and Sustainability Issues: The Road to 2030 from Nutrition and Sustainable Healthy Diets to Food Systems Change." *Foods* 13, no. 2 (2024): 306.

Vasilescu, Maria Denisa, Gina Cristina Dimian, and Giani Ionel Gradinaru. "Green Entrepreneurship in Challenging Times: A Quantitative Approach for European Countries." *Economic Research-Ekonomska Istraživanja* 36, no. 1 (March 31, 2023): 1828–47. https://doi.org/10.1080/1331677X.2022.2093767.

Venter, Zander S., Charlie M. Shackleton, Francini Van Staden, Odirilwe Selomane, and Vanessa A. Masterson. "Green Apartheid: Urban Green Infrastructure Remains Unequally Distributed across Income and Race Geographies in South Africa." *Landscape and Urban Planning* 203 (November 2020): 103889. https://doi.org/10.1016/j.landurbplan.2020.103889.

Wasiq, Mohammad, Mustafa Kamal, and Nazim Ali. "Factors Influencing Green Innovation Adoption and Its Impact on the Sustainability Performance of Small- and Medium-Sized

Enterprises in Saudi Arabia." *Sustainability* 15, no. 3 (January 30, 2023): 2447. https://doi.org/10.3390/su15032447.

Wezel, Alexander, Margriet Goris, Janneke Bruil, Georges F. Félix, Alain Peeters, Paolo Bàrberi, Stéphane Bellon, and Paola Migliorini. "Challenges and Action Points to Amplify Agroecology in Europe." *Sustainability* 10, no. 5 (May 16, 2018): 1598. https://doi.org/10.3390/su10051598.

Yeap, Chye Fhern, Najibah Suhaimi, and M. Khalid M. Nasir. "Issues, Challenges, and Suggestions for Empowering Technical Vocational Education and Training Education during the COVID-19 Pandemic in Malaysia." *Creative Education* 12, no. 08 (2021): 1818–39. https://doi.org/10.4236/ce.2021.128138.

York, Theodore Anthony, Alan Colin Brent, Josephine Kaviti Musango, and Imke Hanlu de Kock. "Infrastructure Implications of a Green Economy Transition in the Western Cape Province of South Africa: A System Dynamics Modelling Approach." *Development Southern Africa* 34, no. 5 (September 3, 2017): 529–47. https://doi.org/10.1080/0376835X.2017.1358601.

Zakari, Abdulrasheed, Vincent Tawiah, Babajide Oyewo, and Rafael Alvarado. "The Impact of Corruption on Green Innovation: The Case of OECD and Non-OECD Countries." *Journal of Environmental Planning and Management* 66, no. 6 (2023): 1336–68.

ABOUT AUTHORS

Dr. Ishmael Iwara, a rated researcher by the South African National Research Foundation (NRF), is a development economist. His evolving research focuses on agrobusiness, entrepreneurial universities, enterprise efficacy, rural development and sustainability.

Dr. Beata Kilonzo (Senior Lecturer, University of Venda, Phd) is an academic and researcher specializing in sustainable rural development. Kilonzo has a strong background in social sciences, particularly in rural areas, and her work focuses on the economic benefits of sustainable rural development. She has researched widely on topics related to entrepreneurship, environmental sustainability and energy access in developing regions.