

A comparative discourse of sustainable finance options for agribusiness transformation in Nigeria and Brunei: implications for entrepreneurship and enterprise development

Sustainable
finance options

325

Received 16 May 2021
Revised 15 June 2021
Accepted 18 June 2021

Lukman Raimi

*Department of Business (Entrepreneurship), School of Business and Economics (SBE),
Universiti Brunei Darussalam, Gadong, Brunei Darussalam*

Rabiu Olowo

Ministry of Finance, Lagos State Government, Ikeja, Nigeria, and

Morufu Shokunbi

Centre for Entrepreneurship Development, Yaba College of Technology, Yaba, Nigeria

Abstract

Purpose – The growing adoption of sustainable finance for inclusive agribusiness requires a cross-country comparison. In this paper, a comparative discourse of sustainable finance (SF) options for agribusiness transformation in Nigeria and Brunei is attempted; as well as examining the implications on entrepreneurship and enterprise development in both countries.

Design/methodology/approach – A mixed research method was adopted for this cross-country comparative analysis. To gain deeper insight into agribusiness and SF, the authors sourced the required data from scholarly articles, texts, World Bank data (2000–2016), national policy documents, working papers, national development plan reports, and other online resources on agribusiness and SF. The authors adopted mixed data (non-numeric and numeric data) because they allow for combining content analysis and secondary data in quantitative analysis (Williams and Shepherd, 2017). This mixed method approach follows a three-stage, namely: Data sourcing, Data development and conversion and Data analysis.

Findings – This discourse based on the mixed data produced four findings. Firstly, it was found that both countries have different statuses in the agribusiness sector, but Brunei had better growth performance in the crop, food, livestock, cereal production indices compared to Nigeria. Secondly, the challenges facing agribusiness in both countries include inadequate funding, misuse/mismanagement of land resources, deployment of extractive farming practices, application of ozone-depleting chemicals and pesticides among others have harmed the vegetation, the farmland, and the chemistry of the ocean resulting in low productivity. Thirdly, the SF options that are suitable for agribusiness transformation are green loans, green bonds, green credit, green investment funds, green mortgage scheme and other green financial support instruments given mostly as grants, subsidies and tax reliefs. The key guidelines for entrepreneurs seeking SF options for agribusiness are Principles 2, 4, 5, 6, 8, 9 and 10 of the EPs.

Research limitations/implications – The main limitation of the study is that the analysis and interpretation of the findings are based on descriptive statistics. However, future research should consider using rigorous econometric tests such as the Co-Integration Test, Test of Causality and Inferential Statistics that would enhance stronger generalisation and prediction.

Practical implications – The practical implication is that agribusiness transformation through sustainable finance options (SFOs) would bring about a structural change from the current subsistence agricultural practices to large-scale agriculture practices characterised by the deployment of agricultural information systems (AGRIS), precision agriculture and agricultural technologies. Flowing from the first implication, the nexus between agribusiness and SFOs will systematically improve agricultural productivity in the areas of crop production, fishing, livestock and forestry in both countries. Thirdly, an improved agribusiness would boost food production and availability thereby mitigating the rising trends in food insecurity, food inflation, food poverty, and ultimately will help actualize SDG 1(No poverty), SDG 2 (Zero Hunger), and SDG 3 (Good Health and Wellbeing).



World Journal of Science,
Technology and Sustainable
Development
Vol. 18 No. 4, 2021
pp. 325-350
© Emerald Publishing Limited
2042-5945

DOI 10.1108/WJSTSD-05-2021-0051

Originality/value – The authors contribute to the literature on SF and agribusiness in emerging economies by identifying an inclusive strategy that matters for agribusiness transformation in high-income and low-income economies.

Keywords Agribusiness, Brunei, Entrepreneurship, Enterprise development, Nigeria, Sustainable finance

Paper type Conceptual paper

Introduction

After the launching of the United Nations' sustainable development goals (SDGs) as a new development blueprint, the leaders of member countries took ownership of the SDGs by establishing national frameworks for the achievement of the anticipated 17 Goals ([United Nations, 2018](#); [Raimi, 2020](#)). The SDG agenda comprises 17 goals, 169 targets and 230 indicators with the mission of eradicating poverty and hunger in the world, protecting the environment and fostering peace and inclusive societies, among others ([Bello-Bravo and Lutomia, 2020](#)). After the adoption of the SDGs by several world leaders ([Buse and Hawkes, 2015](#)), discussions around sustainability, sustainable development, sustainable lifestyle, sustainable diets, sustainable finance have become pervasive in sectors such as manufacturing/production, business, consumption, energy, architecture, finance and investment, tourism, banking, and other financial services, and education ([Kopnina and Blewitt, 2014](#); [Hagbert and Bradley, 2017](#); [Mason and Lang, 2017](#); [Sareen and Haarstad, 2018](#)). This study focuses on agribusiness and sustainable finance because they have the structural and productive capacities to boost economic development through food production, increase the GDPs, and could directly strengthen the actualization of SDG 1, SDG 2, SDG 3, SDG 8, SDG 9, SDG 10, SDG 11, SDG 12, SDG 14, SDG 15, SDG 17 and indirectly impact other SDGs ([Dhahri and Omri, 2020](#); [Raimi et al., 2021](#)).

Moreover, the importance of agribusiness to the sustainable economic development of low, medium and high-income economies have extensively been discussed and justified ([Dhahri and Omri, 2020](#); [Rashid, 2021](#)), because all countries irrespective of income levels require agriculture products for consumption, production and exports. Brunei and Nigeria are the study contexts because of their strategic positions in the South-East Asia and Sub-Saharan Africa respectively. Brunei was reported to be doing well in agribusiness until oil was discovered in commercial quantities at Seria in 1929 ([Cleary and Wong, 2016](#)). Similarly, Nigeria's agribusiness flourished for several decades before oil was discovered in commercial quantity in Oloibiri in 1956 ([Okotie, 2018](#)). Subsequently, successive governments in Nigeria neglected the agricultural sector, as oil was considered a more viable resource for economic development ([Matemilola, 2017](#)).

The structural change in both countries from agrarian economies to oil-driven economies are similar, and coincidentally both nations have embraced agribusiness transformation in their economic diversification strategies. To make agriculture an important driver of both economies once again, there is a need for agribusiness transformation in terms of operations and financing. When systematically transformed, it is believed that the sector has the capacity to raise the income of the poor and productive capacity of farmers in both countries in three stages as explained in the literature. In the first stage, agricultural transformation leads to realignment in the labour market by pushing surplus labour out of the agriculture sector thereby increasing farmers' real wages. In the second stage, surplus labour displaced from the agriculture are absorbed or pulled into other sectors that use agriculture as inputs such as manufacturing, retailing and services. In the third stage, agricultural transformation increases the supply of affordable food in the economy and create a win-win situation for all ([Alvarez-Cuadrado and Poschke, 2011](#); [Otchiai, 2014](#)).

Attempts to transform agribusiness for optimal productivity in different parts of the world have been slowed down by overuse and mismanagement of land resources through

unsustainable and extractive farming practices (Mainguet, 2012; Lal, 2020). In North-East India, the mismanagement of land resources through the use of toxic chemicals and pesticides have altered the quantity and quality of water resources (Sharma, 2003). In South-East Asia and Pacific, humans through mismanagement of the forest reserves have triggered a number of forest fires through carelessness, negligence or misuse of the land resources leading to depletion of land resources and environmental degradation (Dahlan and Puat, 2000). The forceful and compulsory acquisition of land using statutory powers of the state in Asia have also made agribusiness unsustainable because of loss immediate and future financial investments committed to the improvement of land (Price, 2020). Worse still, in several parts of the world, the use of ozone-depleting chemicals, toxic pollutants and pesticides have negatively affected the vegetation, the farmland on which farming takes place, and has altered the chemistry of the ocean and increased the concentration of atmospheric greenhouse gases – a situation which scholars explained portends grave danger and existential threat to lives of humans, flora and fauna (Kolbert *et al.*, 2017).

From the foregoing incidences, it is obvious that the Earth system cannot support the unsustainable use of land resources for agricultural and industrial activities. To mitigate the ugly incidences mentioned above, the transformation of agribusiness is being enhanced and up scaled in the developed countries through the use of disruptive technologies, automation, agricultural information system (AGRIS) and precision agriculture (PA) but the financing of agriculture is not operationally, economically, socially and environmentally sustainable. To redress the sustainability challenges facing agribusiness, the academic and policymakers propose that agribusiness and its financing sources have to be built on inclusive business models in the context of the sustainable development goals (SDGs) and the promotion of the circular economy (Oostendorp *et al.*, 2019). Similarly, Schmidt-Traub and Shah (2015) had long argued that for the actualisation of the targets of SDGs, incremental investment is needed by the low- and lower-middle-income countries from both private commercial financing and public financing. The World Bank (2021) also remarked that Africa's agribusiness market valued at US\$313 billion has a greater prospect of being tripled by 2030, when massively funded by private investments in order to complement scarce public resources in order to actualise the SDGs.

For any paradigm shift that requires the adoption of sustainable production and consumption patterns, sustainable finance is required (Ryszawska, 2016). Agribusiness requires sustainable finance because when funded by sustainable finance (inclusive finance) has the prospect of creating a climate-smart agricultural production that is supportive of sustainable development, green economy, low carbon economy and adaptation to and mitigation of climate change, while maintaining agribusiness productivity and profitability (Musvoto *et al.*, 2015; Ryszawska, 2016). Most previous studies finance for funding short-term input purchases but ignore the climate-smart agriculture that would help transform agribusiness value chain in a manner that is operationally, economically, socially and environmentally sustainable (Oostendorp *et al.*, 2019).

For bridging the observed research gap on sustainable finance for agribusiness transformation in the developing and emerging markets, this chapter undertakes a comparative discourse of SF options for agribusiness transformation in Nigeria and Brunei including examining the implications for entrepreneurship and enterprise development in both countries. In specific terms, the study provides answers to the following research questions: (1) What is the status of agribusiness in Nigeria and Brunei? (2) What are the challenges facing agribusiness in Nigeria (low-income economy) and Brunei (high-income economy)? (3) What are the SF options suitable for agribusiness in Nigeria and Brunei? (4) What are the guidelines for entrepreneurs on SF options for agribusiness in both countries? Nigeria and Brunei were chosen for this comparative analysis because of their strategic positions in Sub-Saharan Africa (SSA) and South-East Asia (SEA) respectively.

Both oil-rich nations have sustainable development plans with the goal of becoming one of the Top 10 economies in the world.

Beyond oil revenues, both countries have embraced economic diversification with a focus on industry, construction, agriculture, tourism, ICT and services. Massive investments are required to strengthen agribusiness, and the SF options would also, be the right step in the right direction for the following reasons. Firstly, many countries are focusing on the sustainability of their public finances, and it is more expedient for oil-dependent countries because they are having hard times with their fiscal policies and budgets, and the future looks very bleak in the face of dwindling oil revenues generated from natural resources effortlessly (Raimi and Aljadani, 2020). Secondly, oil-dependent economies are embracing economic diversification – a concept that the [United Nations Framework Convention on Climate Change \(2014\)](#) defines as the process by which a country expands its growing range of economic outputs by increasing the markets for exports thereby broadening existing income sources away from domestic economic activities. Thirdly, the ravaging COVID-19 pandemic has adversely exposed countries to economic shocks and other vulnerabilities (Raimi, 2020; Dzingirai *et al.*, 2021). Restrictions on movement through lockdowns and suspension of imports had devastating consequences on the countries that heavily depend on imported agricultural products and migrant farmworkers who are particularly vulnerable to COVID-19 (Altieri and Nicholls, 2020). The pandemic has therefore underscored the importance of agribusiness for food security, food availability and food sustainability for citizens (Pulighe and Lupia, 2020). The three arguments above justify the need to strengthen agribusiness with SF options.

Apart from the introduction (Section 1), there are ten sections in this paper. Section 2 explains the methods and estimation technique. Section 3 discusses the concepts of agribusiness and sustainable finance. Section 4 explicates the theoretical foundation. Section 5 reviews the extant literature on sustainable financing in both countries to situate the discourse within the body of knowledge. Section 7 focuses on the Spatio-Temporal audit of SF principles. Section 8 focuses on the status of agribusiness in Nigeria and Brunei (agriculture output and productivity statistics). Section 9 presents the findings and discusses the thematic issues. Section 10 concludes with contextualising of findings, practical implications, limitations and policy recommendations.

Methods and estimation technique

A mixed research method was adopted for this cross-country comparative analysis. To gain deeper insight into agribusiness and SF, the authors sourced the required data from scholarly articles, texts, World Bank data (2000–2016), national policy documents, working papers, national development plan reports, and other online resources on agribusiness and SF. We adopted mixed data (non-numeric and numeric data) because they allow for combining content analysis and secondary data in quantitative analysis (Williams and Shepherd, 2017). Content analysis is a logical procedure for quantifying the contents of texts, writings, interview, picture speeches, books, correspondences and other verbal data (Denscombe, 2017). It allows the texts, words and other visual and verbal data to be compressed, classified, summarized and tabulated into fewer content categories for meaningful and useful interpretation in a research (Horn, 2012; Saunders *et al.*, 2012), on the basis of which meanings and inferences are made (Horn, 2012). For more clarity, our mixed method approach follows a three-stage process explained further.

- (1) *Stage 1: Data sourcing* – This stage focuses on sourcing the required numeric and non-numeric secondary data to address the formulated research questions. For data sourcing, we previewed explored Science Direct, EbscoHost, JSTOR, Google Scholar and ProQuest for articles from which over 100 relevant articles were selected through the purposive sampling technique.

-
- (2) *Stage 2: Data development and conversion* – This relates to compiling the secondary data and previewing for suitability in readiness for analysis data.
 - (3) *Stage 3: Data analysis* – This focuses on quantitative data analysis drawing on the rich qualitative data that provided insights into the research problem. The data gathered from mixed sources were appraised and analysed using a combination of content analysis and descriptive statistics to provide answer to the four research questions that the study set out to answer. This methodological approach is supported by (Jepson, 2009; Williams and Shepherd, 2017).

We opted for a mixed methods research design in this comparative discourse because it provides pragmatic advantages when exploring complex research questions. The qualitative aspect of the mixed methods provides a deeper insight for understanding the statistics/statistical analysis, the quantitative method however allows for classification of features, counting numbers and statistics and constructing statistical models that explain what is observed (McCusker and Gunaydin, 2015; Whiffin, 2020).

Conceptual issues

Agribusiness defined

Agribusiness describes all aspect of agriculture value-chain starting with growing, nurturing, harvesting, transporting, processing and distributing agricultural products (food and cash crops) throughout a country (Barnard *et al.*, 2020). But, Chait (2020) describes agribusiness as agricultural entities spanning small, large, corporate and independent companies that understand the business of food production, processing, and distribution. From the definition above, agribusiness covers all segments of commercial agriculture, and extends to marketing and distribution of agricultural products through retailing and wholesaling. In the past, agriculture was described an unproductive sector when compared with industry. Specifically, Arthur Lewis in his write-up of 1954 described agriculture as a backward unproductive subsistence sector having observed the rapid economic transformation that industrialisation generated in the 1970s, 1980s and early 1990s, but Lewis model has been challenged and debunked on the basis of sound empirical evidences (Christiaensen *et al.*, 2011). The contemporary view depicts agriculture as a leading and productive sector that contributes, energizes and supports the growth in other sectors such manufacturing, food processing, construction, hospitality, services and retailing. The backwardness witnessed in the low agricultural productivity is linked to agricultural policy reforms especially poor investments in commercial agriculture and delayed transformation of agricultural activities through technologies (Christiaensen *et al.*, 2011). Moreover, Agriculture is the most effective sector that helps reduce poverty by creating large employment opportunities and food availability (Otchia, 2014).

The relevance of agribusiness to economic development is strongly supported by the historical experiences of Europe and America. The contribution of agriculture to the development of capitalism in England is linked to the increasing surplus earnings from agriculture in the throes of systematic technical and social transformations in Great Britain. Even the subsequent developments leading to the rise of industry has not in any way has not relegated agriculture, but was rather strengthened at each stage of the development process (Magdoff *et al.*, 2000). In the United States, agriculture was the dominant sector of the economy, and was largely instrumental to the development of modern industrial society. Agriculture in the US for a long time (1750–2000) played multiple developmental roles – it provided a regular source of food for consumption for the people; and also the needed raw materials for the factories and food processing plants were made available by suppliers/vendors in the agribusiness, and more importantly, agriculture provided employment

opportunities for the growing American population and by extension contributed to poverty reduction (Bresciani and Valdés, 2007). The World Bank (2021) also asserted that Africa's agribusiness food market currently valued at US\$313 billion has higher prospect of being tripled by 2030, when massive funded by public and private investments.

Sustainable finance and options

The definition of sustainable finance (SF) draws from several sustainability principles such the Triple theme of sustainable development (SD), environmental, social and governance (ESG) dimensions, the SDGs, the Equator principles (EPs) among others. Specifically, sustainable development (SD) refers to a development strategy which addresses socio-economic and environmental needs of the present generation and, which by design would not endanger nor compromise the needs of upcoming generation (Nagesha and Subrahmanya, 2006; Adebakin and Raimi, 2012; Raimi, 2015). This presuppose that humans and corporations should utilise natural resources ethically without stressing the Earth system.

Sommer (2020) defines SF as the integration of sustainability aspects in the decision-making processes of financial market actors, financial market policy and related institutional and market arrangements that contribute to the achievement of strong, sustainable, balanced and inclusive growth. Whereas, the European Commission (2020) defines SF as the process of taking due account of environmental, social and governance (ESG) considerations when making investment decisions in the financial sector, which ultimately leads increased longer-term investments into sustainable economic activities and projects.

Therefore, SF considers how finance (investing and lending) interacts with economic, social and environmental issues (Schoenmaker, 2017). Having become part of the lexicon among different stakeholders in recent times, sustainable finance has been described as “the provision of finance to investments taking into account environmental, social and governance considerations”. It requires a deep transformation of our socio-economic behaviour, structures and norms in order to ensure the stability and resilience of our livelihood. *SF is highly important because* several studies alarmed that achieving the SDGs requires a substantial investment annually to deliver the SDGs by 2030 (Stenberg *et al.*, 2017; Franks *et al.*, 2018; Sachs *et al.*, 2019). Also, reaction to sustainability issues is escalating, as governments, business organizations, investors, customers, investors, banks and other financial institutions are now integrating sustainability factors into their operations, management models and governance frameworks (Calabrese *et al.*, 2019; Rogers and Serafeim, 2019).

Theoretical foundation

This policy paper disregards the resource-led development or resource-led growth theory (Barma *et al.*, 2012; Findlay and Lundahl, 2017), which presumes that resource-rich countries are comparatively fortunate to have natural resources that can be used to accelerate economic growth and development (Karl, 2007; Mukund, 2016). The resource-led development perspective has failed in several oil-rich nations because studies have found that there is a negative relationship between resource abundance and economic growth, and a positive relationship between a resource abundance and internal conflicts, leading to phenomena of rentierism and Dutch disease (Tadjoeddin, 2007; Blomqvist, 2010; Lashitew and Werker, 2020; Raimi and Aljadani, 2020).

Consequently, the inclusive green agricultural business model innovation (IGABMI) provides a more enduring and robust theoretical underpinning for this study. The IGABMI is an integrated framework formed from two models, namely: (1) inclusive business model innovation (IBMI), and (2) green business model innovation (GBMI), which collaboratively support the conservation of natural resources and their prudent utilisation

for economic growth and sustainable development (Danse *et al.*, 2020; Méda and Atewamba, 2020). The IGABMI is also more consistent with the inclusive green economy concept and provides pathway to achieving sustainable development because it is an innovative policy response that redresses the socio-economic and environmental challenges facing farm holders in their quest for agribusiness transformation (Méda and Atewamba (2020). Both models are structurally and functionally supportive of agribusiness and sustainable finance.

The inclusive business model innovation (IBMI) is a broad-based business model that integrates and mainstreams the small farm holders and petty traders into the competitive agricultural value chains through the public sector intervention that provides an enabling environment for reinventing the underlying business principles and tools in a manner that is mutually beneficial and supportive the competitive business community (Kelly *et al.*, 2015). Besides, the IBMI unlike the traditional business model embeds inclusive finance as a synergetic component of business development including the recognition of the crucial role of the private sector players (Oostendorp *et al.*, 2019). The IBMI emerged as a frontrunner issue in recent times because of the need to transform agribusiness through the expertise of the private sector players that have been identified as the activators of economic transformation and catalysts for actualisation of sustainable development goals (SDG2) and food and nutrition security (FNS) in the developing and emerging markets (Mawdsley, 2015; Mawdsley *et al.*, 2018; Oostendorp *et al.*, 2019). From another perspective, the IBMI is an approach that reinvents agribusiness value chains to become climate-smart through access to inclusive financing, technical support services and other benefits to the farming population comprising of the well-integrated large commercial farmers and the small subsistence farmers producing agricultural products for the local markets in remote locations (Oostendorp *et al.*, 2019).

The green business model innovation (GBMI) on the other hand is linked to the green theory. Green theoretical perspective provides normative argument for sustainable behaviour by persuading individuals and corporations to be concerned with environmental and economic sustainability of their consumption and production activities in the society (Eckersley, 2010). The green theory logically advocates the use of green policies for regulation of consumption and production with a view to preserving the ecosystem, safeguarding the rights of the people, ensuing social justice, encouraging responsible citizenship, good governance/democracy and eco-clean environment among others (Dunne *et al.*, 2010; Eckersley, 2010). In other words, the various green concepts and nuances emphasise the need for more sustainable use of resources so that the future generations would be protected from extreme resource scarcities, existential threats and environmental risks (Henriksen *et al.*, 2012). The GBMI is therefore an operational process that fundamentally changes key parts of the traditional business model for the purpose of capturing both economic value (making profit) and ecological value (reduces the ecological footprint in a lifecycle perspective). And, the greener the business model innovation, the higher potential for creating radical eco-innovation in the economy because of emphasis on the sustainable use of resources (Henriksen *et al.*, 2012). The need for agribusiness transformation through SF is expedient because there have emerged in the agribusiness value-chain society the green activists, responsible lifestyle advocates, responsible investors, green policymakers, socially responsible investors (SRI) and other players with green orientations promoting and supporting the ideals smart agriculture, climate-friendly agriculture, inclusive agriculture, inclusive green agriculture and other variants of sustainable agriculture with inherent prospects of boosting food and nutrition security (FNS), improving revenue earning and accelerating the actualisation of the SDGs (Teng and Oliveros, 2016; Woodhill, 2016; Obayelu, 2018; Wangu *et al.*, 2020).

Literature review

To situate this study within the body of existing knowledge, let us explore the literature in Nigeria and Brunei on the prospects of inclusive green agricultural financing. In the quest to diversify the Nigeria economy away from oil to non-oil productive sectors, the policy makers build the foundations for long-term structural change on inclusive agribusiness transformation (including agro-allied industries) because it has the potential to stimulate inclusive growth, reduce poverty and create jobs. Increase competitiveness in the value chains and improve nutrition outcomes (Mghenyi *et al.*, 2021). Some of the previous agribusiness financing schemes implemented in Nigeria include Agricultural Transformation Agenda (ATA), Anchor Borrowers, Commercial Agriculture Credit Scheme (CACS), and Agricultural Credit Guarantee Scheme Fund (ACGSF) among others (Osabohien *et al.*, 2019; Gershon *et al.*, 2020; Romanus and Ngozi, 2020). Unfortunately, these financing schemes were counterproductive and failed to impact positively on food production because of poor agro-financing and implementation deficiencies.

The positive impact of inclusive financing on agribusiness productivity was affirmed in previous studies. Gershon *et al.* (2020) found that farmers in Nigeria with unhindered access to agricultural credit and agricultural production generated agricultural yields that are thrice those of their counterparts without access to credit facilities. Similarly, Osabohien *et al.* (2019) found that farmers with access to credit facilities tripled their agricultural outputs after the harvests. Another study by Romanus and Ngozi (2020) found that inclusive agro-financing when properly channelled would support the realisation of SDG2 that aims to “end hunger, achieve food security, improve nutrition and promote sustainable agriculture. An earlier study by Osabohien *et al.* (2018) found that access to credit facilities by farmers in Nigeria had dual impacts; it impacts positively on agricultural production and also enhances food security in the country. Besides, Ayeomoni and Aladejana (2016) found that there exist both short-run and long-run relationships between the provision of agricultural credit and economic growth, and an indication that the agricultural sector is very important for sustainable economic development.

Inclusive agribusiness financing has also been recognised in the South-Asia because it is considered to be effective in fast-tracking the realisation of the broader goals of inclusive development and poverty reduction in the ASEAN region (Teng and Oliveros, 2016). In Brunei, there are very few articles on inclusive agribusiness financing – an indication that there is a gap to be filled. The most relevant paper by Kamarulzaman (2017) noted that the country’s economic diversification encourages wet rice cultivation programme, which is aimed at achieving national food security and preventing food crisis. However, the outcomes of the programme indicated that productivity of farmers is low because of factors linked to poor irrigation and drainage system; inadequate knowledge and skills of farm management; lack of knowledge of diseases and pests control; and, the late payments of agricultural products/yield among others.

Overall, agribusiness transformation in developing and emerging markets requires enabling environments, deliberate policy reforms in the areas of seed regulations, fertilizers quality control, warehouse receipts and redesigning of the business model in agricultural trade. These afore-mentioned reforms increase competitiveness in the agribusiness value chains and snowball into the creation of jobs, reduction of poverty scourge and improved nutrition outcomes (Mghenyi *et al.*, 2021).

Spatio-temporal audit of SF principles

The SF draws its principles from several concepts and nuances, as the triple bottom line agenda of sustainable development that was recognised in Rio in 1992, which include integrating economic, and social development with environmental protection

(Mohammad, 2010; Savitz, 2013). These three agenda were framed under five fundamental themes, namely: (1) satisfaction of basic human needs, (2) achieving equity and social justice, (3) social self-determination and cultural diversity, (4) maintaining ecological integrity and biodiversity, (5) integrating environmental and economic considerations (Mohammad, 2010). From the Islamic finance perspective, the Eight Principles of sustainable development that underpin a balanced socio-economic development in Ibn Khaldun's Economic Thought include (1) collective entity (state), (2) rules and regulations, (3) law enforcement institutions, (4) people, (5) wealth or economic empowerment, (6) development, (7) justice, and (8) moral legitimacy (Chapra, 2006; Mohammad, 2010).

Whereas, Gladwin *et al.* (1995), identified five principles of sustainable development to include comprehensiveness, connectivity, equity, prudence and security. The principle of comprehensiveness presumes that sustainable development is holistic in terms of space, time and its component parts; connectivity explicates that sustainable development demands an understanding of the world's challenges as systemically interconnected and interdependent; equity advocates the need for a fair distribution of resources and property rights among the citizens; prudence emphasises keeping life-supporting ecosystems and interrelated socio-economic systems resilient, avoiding irreversible actions, and keeping the scale and impact of human activities within regenerative and carrying capacities; and security explains that sustainable development ensures a safe, healthy, high quality of life for current and future generations.

Besides, the Equator Principles (EPs) support the SF. It represents a baseline risk management framework developed by a coalition of 116 financial institutions across 37 countries for determining, assessing, and managing environmental and social risks inherent in projects financing (Equator Principles, 2020). In other words, it is a voluntary code developed by the environmentally-responsible commercial and investment banks to promote harmonised standards for green lending and investing in project financing (Richardson, 2005). Whereas, Lawrence (2009) describes the EPs as a voluntary code of conduct endorsed by a coalition of global financial institutions with a commitment to comply with the stipulated requirements in financing projects. The underlying principles of the code serve as a benchmark for these financial institutions to manage social and environmental issues encountered in project financing.

The EPs signify the commitment of socially responsible banks to ensuring that the projects and portfolios they financial support are eco-friendly (Scholtens and Dam, 2007). The Equator Principles Financial Institutions (EPFIs) that signed up to abide by the ten EPs cut across Asia, Africa, Middle-East, North America, Latin America and Oceania (Equator Principles, 2020). Structurally, the EPs are to be applied to five financial products of financial institutions when supporting new projects and investment portfolios with a total capital cost of \$10 million or more (Equator Principles, 2020; Panait *et al.*, 2022). The projects on which EPs are to be applied include Project Finance Advisory Service, Project Finance, Project-Related Corporate Loans, Bridge Loans, and Project-Related Refinance, and Project-Related Acquisition Finance. The ten self-regulating EPs are discussed in Table 1.

Status of agribusiness in Nigeria

Nigeria is an oil dependent economy, although with appreciable contribution from the agricultural, industrial and service sectors. Currently, it has a population of over 200 million citizens (Ibrahim and Olasinde, 2020; Kalu, 2020) that are distributed across 36 states and a Federal capital. According to FAO (2021a), Nigeria has a country area of 92,377 (1000 ha), land area of 91,077 (1000 ha), agricultural area of 68,796.8521 (1000 ha) and forest area of 22,280.1479 (1000 ha), which places it at a vantage position to transform Agribusiness in the SSA through sustainable finance. The trends in its GDPs from 2000 to 2019 as shown in

SN	Principles and themes	Explanations and applications
1	Principle 1: Review and Categorisation	<p>This principle stipulates that before project financing, the EPFIs as part of their internal environmental and social due diligence should categorise their proposed projects into A, B and C based on the magnitude of potential environmental and social risks and impacts, including those related to human rights, climate change, and biodiversity</p> <p>Category A are projects with potentially significant adverse social and environmental impacts that are diverse, irreversible, or unprecedented. Category B represents projects with potentially limited adverse social or environmental impacts while Category C represents projects with minimal social or environmental impacts</p>
2	Principle 2: Environmental and social assessment	<p>This principle requires the clients/beneficiaries to conduct an appropriate assessment process to the satisfaction of EPFIs to address, mitigate and minimize observed environmental and social risks and scale of impacts inherent in the proposed project to be financed</p>
3	Principle 3: Applicable environmental and social standards	<p>This requires the EPFIs (as corporate citizens) to comply with the laws, regulations, standards and permits in their respect host countries/markets that pertain to environmental and social issues</p>
4	Principle 4: Environmental and social management system and Equator principles action plan	<p>This principle obligates the EPFIs to request their clients to develop and/or maintain a robust environmental and social management system (ESMS), as well as requesting the project's host to comply with the applicable standards</p>
5	Principle 5: Stakeholder engagement	<p>This principle emphasises the need for a consultation process and engagement with the relevant stakeholders such as affected communities, workers among other in structured and culturally appropriate manner</p>
6	Principle 6: Grievance mechanism	<p>The principle explicates the need for clients to establish effective grievance mechanisms for the purpose of receiving and facilitating prompt resolution of concerns and grievances of the stakeholders arising from the project's environmental and social performance</p>
7	Principle 7: Independent review	<p>The principle stipulates that an independent environmental and social consultant carry out an independent review of the assessment process for all Category A and Category B projects, which will assist the EPFIs in reporting on due diligence and compliance with the EPs</p>
8	Principle 8: Covenants	<p>The EPFIs are to incorporate EPs as covenants that clients must comply with during the construction and operation of the projects. In the case of defaults in meeting environmental and social covenants of the projects, the EPFIs is empowered to exercise remedies, including bringing the project back into compliance with an agreed period of respite</p>

Table 1.
Ten equator principles

(continued)

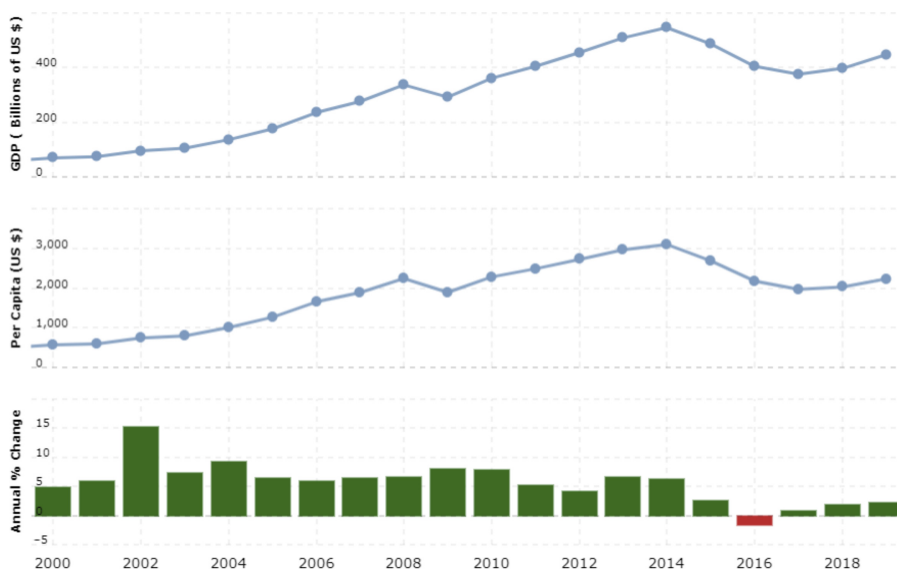
SN	Principles and themes	Explanations and applications
9	Principle 9: Independent monitoring and reporting	This principle requires EPIFs' independent environmental and social Consultants to report on project compliance with the EPs after financial close and over the life of the loan. The clients are also allowed retain qualified and experienced external experts carryout the monitoring and reporting of the projects
10	Principle 10: Reporting and Transparency	The principle requires that EPIFs and clients report voluntarily and transparently their EPs implementation and compliance for all Category A and, as appropriate, Category B projects on an annual basis

Source(s): [Equator Principles \(2020, pp. 1–8\)](#)

Table 1.

Figure 1 has been steady and positive, except for a drop in 2017, which improved in 2017. The steady growth in Nigeria's GDPs over the years is a good indication that the economy is on the path of sustainable development.

Nigeria has a nominal GDP of \$375.77 billion and per capita income of \$5680 (World Development Indicators database (2018)). The country's industrial growth rates have consistently been very low over the years because of poor access to finance, rising cost of electricity/energy, transport, infrastructural neglect, multiple taxes, poor incentives, crime, insecurity, corruption and bad governance (Raimi and Aljadani, 2020). With regards to the status of agribusiness, official report indicated that apart from oil revenue, the bulk of the GDP comes from agriculture, and it provides the country with employment opportunities and foreign exchange earnings (Ayodele *et al.*, 2013; Omorogiwa *et al.*, 2014).



Source(s): Macrotrends (2021a)

Figure 1.
Nigeria GDP
1960–2019

The agribusiness sector in the Nigeria is divided into four broad areas, namely: crop production, fishing, livestock and forestry (Omorogiwa *et al.*, 2014). With respect to performance of each of the four areas, Oyaniyan (2020) reported that crop production accounts for about 87.6% while livestock, fishing and forestry at 8.1, 3.2 and 1.1% respectively. He noted further that despite the leading role of oil, the nation’s agribusiness remains the largest sector in Nigeria that contributed an average of 24% to the nation’s GDP and ranked as the highest employer of labour, absorbing more than 36% of the labour force. However, with a population of over 200 million people (Ibrahim and Olasinde, 2020; Kalu, 2020), the current agribusiness productivity is grossly insufficient to meet the food demanded of a growing population thus increasing the demand and supply gap in Nigeria (Muhammad-Lawal and Atte, 2016).

Over the past years, the country experienced very low yields per hectare of arable land due to small farm holdings, primitive farming methods, climate change effect, drought, pest attacks, desertification, shortages in the supply of inputs, inadequate irrigation, poor harvesting systems, low rainfall, oil spillages, government acquisition of farmland among others (Akinagbe and Ajayi, 2010; Odetola and Etumnu, 2013; Ahmadu and Egbodion, 2013; Tagliarino *et al.*, 2018). With desertification and water depletion in the northern part of the country, herdsman shifted towards the south in search of grazing fields and water for their animals, but this has led to violent conflict with farmers and communities in the southern Nigeria. And generally, increased violence in the food producing states in the North and South has caused decline in Nigeria’s food production output. Particularly, Omitoyin and Tosan (2012) reported that climate change has modified the distribution of fish species in the rivers and waterways in Nigeria with negative spillover over effect on habitat size, species diversity and productivity.

Nigeria’s agriculture output and productivity statistics from 2000 to 2016 in Table 2 below showed a crop production index of 80.5 (2000) and 118.9 (2016); food production index of 81.8 (2000) and 124.6 (2016). The crop and food production of Nigeria indices are lower when compared with the indices for the World average, South Africa, Sub-Saharan Africa, Low income and Lower middle income for the same periods.

For Table 3 however, Nigeria has a livestock production index of 86.3 (2000) and 118.9 (2016); and Cereal yield of 1,172kph (2000) and 1414kph (2016). The livestock and cereal indices fall below the figures for World average and South Africa, but higher than figures for Sub-Saharan Africa, Low income and Lower middle income. From the statistics, it is evident that Nigeria has lower crop, food, livestock and cereal production.

For Table 4, the agriculture value added per worker (a measure of agricultural productivity) showed that the agricultural productivity of Nigeria was 1,649.4 (2000) and

Countries	Crop production index 2004–2006 = 100		Food production index 2004–2006 = 100	
	2000	2016	2000	2016
Nigeria	80.5	118.9	81.8	124.6
World	87.8	128.1	88.5	125.6
South Africa	102.7	104.8	95.5	116.7
Sub-Saharan Africa	83.2	135.4	83.6	132.2
Low income	82.6	128.6	83.3	120.3
Lower middle income	86.3	137.9	86.8	138.1
Upper middle income	83.7	132.4	83.7	130.2
High income	98.0	109.3	97.7	109.8

Table 2.
Agriculture output and
productivity in Nigeria

Source(s): World Development Indicators (2017), The World Bank

Country	Livestock production index 2004–2006 = 100		Cereal yield kilograms per hectare	
	2000	2016	2000	2016
Nigeria	86.3	118.9	1,172	1,444
World	90	118.9	3,089	3,967
South Africa	87.9	131.1	2,766	3,819
Sub-Saharan Africa	85.9	112.7	1,182	1,400
Low income	83.9	99.7	977	1,329
Lower middle income	84.8	137.0	2,287	3,034
Upper middle income	85.1	126.4	3,165	4,366
High income	97.7	105.1	4,597	5,975

Source(s): World Development Indicators (2021), The World Bank

Table 3.
Agriculture output and
productivity in Nigeria

	Agricultural productivity Agriculture value added per worker 2010 \$	
	2000	2016
Nigeria	1,649.4	5,852.1
World	1,924.00	3,542.10
South Africa	6,393.6	9,716.5
Sub-Saharan Africa	846.1	1,430.8
Low income	601.4	794.5
Lower middle income	1,041.9	1,922.2
Upper middle income	1,754.3	4,394.1
High income	20,690.2	34,171.3

Source(s): World Development Indicators (2017), The World Bank. <http://wdi.worldbank.org/table/3.3#>

Table 4.
Agriculture output and
productivity in Nigeria

5,852.1 (2016). The agricultural productivity index falls below the figures for World average, South Africa, Sub-Saharan Africa, Upper middle income, High income countries, but higher than the figures for Low income and Lower middle income countries.

Status of agribusiness in Brunei

Brunei Darussalam is an oil-rich country located on the northwest coast of the island of Borneo with a land area of 5,765 km², out of which 68.7% is covered by protected forests, production forests, recreational forests, conservation forests and national forests (Brunei Forestry Department, 2014; FAO, 2021b). It has a population of 459,500 people spread across four districts, namely Brunei/Muara, Tutong, Belait and Temburong (Brunei Ministry of Finance and Economy, 2020). Brunei's agricultural area of 14.4 (1000 ha) is adequate for expanding the frontier of agribusiness in South-East Asia. Although agriculture is a complementary sector to oil and industry, yet it contributed appreciably to the gross output value in Brunei. According to the Department of Agriculture and Agrifood (2021), the contribution of agriculture increased by 14.1% within 4 years (2016–2020). The major drivers of the total gross output of the agriculture and agrifood sector are livestock industry (57%), Agrifood Industry (32%) and Crop Industry (11%). The main stream of revenue of Brunei is earning from crude oil and natural gas, which is complemented by revenues from rents, royalties, corporate tax and dividends from corporate entities. Agriculture was once an

important economic activity until the discovery of oil in Brunei in 1929 (Franz, 1990; World Bank, 2012; Ahad *et al.*, 2020).

The trends in Brunei's GDP from 2000 to 2018 as shown in Figure 2 have been consistent, steady and positive, except for a drop at different periods in 2008, 2009, 2013, 2014, 2015 and 2016, which has subsequently improved as evident in the GDP figures for 2017 to 2018. The positive growth in GDP is an indication that Brunei's economy is on the path of sustainable development courtesy of the transformational vision of the Sultan that shifted the economy from a low-income agriculture-based economy to a high-income modern state with oil and gas production as the catalyst of economic growth (Anaman and Mahmud, 2003). The Wawasan Brunei 2035 long-term development plan is another transformational agenda, which intends to expand agricultural output from BN\$1bn (733.3m) in 2020 to BN\$3.9bn (\$2.9bn) by 2035 (Oxford Business Group, 2021). The Brunei 2035 vision is built on three goals and thirteen strategies. The goals are: (1) highly educated, skilled and accomplished people; (2) high quality of life; and (3) dynamic and sustainable economy. The thirteen structured strategies for the actualisation of the Wawasan Brunei, 2035 development vision include: (1) Education strategy, (2) Economic strategy, (3) Security strategy, (4) Institutional development strategy, (5) Local business development strategy, (6) Infrastructure development strategy, (7) Social security strategy, (8) Environmental strategy, (9) Religious strategy, (10) Health strategy, (11) Land optimization strategy, (12) Communication and ICT strategy; and (13) manpower planning strategy (Government of Brunei Darussalam, 2012; Wawasan Brunei, 2035, 2016). Agricultural transformation in Brunei falls directly and indirectly under strategies 2, 5, 7, 8 and 11.

Agricultural productivity declined for several years because of labour scarcity, lack of access to finance, adverse effect of climate change, lack of state-of-the-art infrastructure and technology, and lack of exposure, poorly skilled farmers, ageing workforce and a high dependency on migrant labour (Alam *et al.*, 2013; Herbel *et al.*, 2010; Mimi and Jamous, 2010; Musa *et al.*, 2020). In 2018, Brunei recorded a gross output of agricultural production worth B\$436.3 million, which represented a 6.6% increase over B\$409.3 million in 2017 (Brunei Ministry of Finance and Economy, 2020).

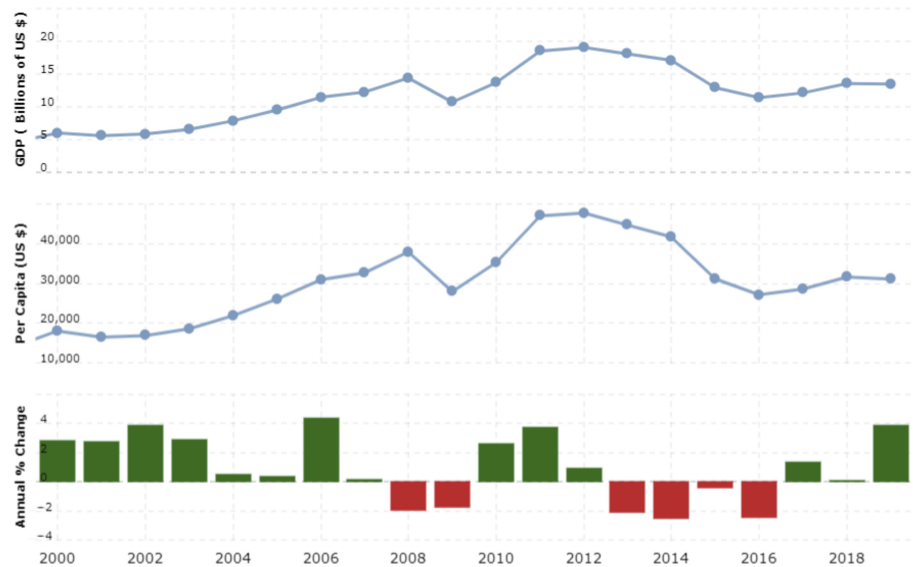


Figure 2.
Brunei GDP 2000–2019

Source(s): Macrotrends (2021b)

In recent times, agribusiness has been growing, after several years of setbacks as evident in the Tables below. Brunei's agriculture output and productivity statistics from 2000 to 2016 in Table 5 showed a crop production index of 90.9 (2000) and 96.9 (2016); food production index of 84 (2000) and 169.5 (2016). The crop and food production indices of Brunei are higher when compared with the indices for the World average, East Asia & Pacific, Malaysia, and upper middle income, but lower than South Asia average and high income countries. Overall, Brunei has commendable crop and food production indices.

Table 6 showed a livestock index of 82.1 (2000) and 187 (2016); cereal yield index 650kph (2000) and 1,558kph (2016). The livestock and cereal indices of Brunei are high when compared with Malaysia. Overall, Brunei needs to improve on livestock and cereal indices production.

For Table 7 showed that the agricultural productivity of Brunei was 44,770.5 (2000) and 57,910.6 (2016). The agricultural productivity index of Brunei was above the World average, East Asia & Pacific, Malaysia, South Africa, Upper middle income, Lower middle income, Upper middle income and high income countries. Overall, Brunei has impressive agricultural productivity.

Findings and discussions of thematic issues

RQ1. What is the status of agribusiness in Nigeria and Brunei?

Countries	Crop production index 2004–2006 = 100		Food production index 2004–2006 = 100	
	2000	2016	2000	2016
Brunei Darussalam	90.9	96.9	84	169.5
World	87.8	128.1	88.5	125.6
East Asia & Pacific	85.4	133.1	85	129.7
Malaysia	78.1	117.9	78.0	131.3
South Asia	91.5	141.1	90.9	140.4
Lower middle income	86.3	137.9	86.8	138.1
Upper middle income	83.7	132.4	83.7	130.2
High income	98.0	109.3	97.7	109.8

Table 5.
Agriculture output and
productivity in Brunei

Source(s): World Development Indicators (2017), The World Bank. <http://wdi.worldbank.org/table/3.3#>

Country	Livestock production index 2004–2006 = 100		Cereal yield kilograms per hectare	
	2000	2016	2000	2016
Brunei Darussalam	82.1	187	650	1,558
World	90	118.9	3,089	3,967
East Asia and Pacific	86.2	125.3	3,998	5,071
Malaysia	78.0	144.7	3,040	4,013
South Asia	85.2	140.2	2,376	3,128
Lower middle income	84.8	137.0	2,287	3,034
Upper middle income	85.1	126.4	3,165	4,366
High income	97.7	105.1	4,597	5,975

Table 6.
Agriculture output and
productivity in Brunei

Source(s): World Development Indicators (2017), The World Bank <http://wdi.worldbank.org/table/3.3#>

Table 7.
Agriculture output and
productivity in Brunei

	Agricultural productivity Agriculture value added per worker based on 2010 \$	
	2000	2016
Brunei Darussalam	44,770.5	57,910.6
World	1,881.6	3,350.9
East Asia and Pacific	1,447.7	3,525.4
Malaysia	11,348.0	17,310.8
South Asia	951.4	1,599.6
Lower middle income	1,041.9	1,922.2
Upper middle income	1,754.3	4,394.1
High income	20,690.2	34,171.3

Source(s): World Development Indicators (2017), The World Bank (2017). <http://wdi.worldbank.org/table/3.3#>

Our finding revealed that both countries have different statuses in the agribusiness sector. Brunei had better growth performance in all the indices compared to Nigeria. Brunei had a crop production index of 90.9 (2000) and 96.9 (2016); livestock production index of 82.1 (2000) and 187 (2016); Cereal yield of 650kph (2000) and 1,558kph (2016); and agricultural productivity/agriculture value added per worker of \$44,770.5 (2000) and \$57,910.6 (2016). Whereas, Nigeria had a crop production index of 80.5 (2000) and 118.9 (2016); food production index of 81.8 (2000) and 124.6 (2016); livestock production index of 86.3 (2000) and 118.9 (2016); and Cereal yield for 1,172kph (2000) and 1414kph (2016); and agricultural productivity of 1,649.4 (2000) and 5,852.1 (2016). Overall, the agribusiness is better in Brunei than Nigeria.

RQ2. What are the challenges facing agribusiness in Nigeria (low-income economy) and Brunei (high-income economy)?

Several themes emerged from the content analysis on the challenges facing agribusiness in Nigeria (low-income economy) and Brunei (high-income economy). In Nigeria, the 13 challenges facing agribusiness depicted in [Figure 3](#) below include small farm holdings,

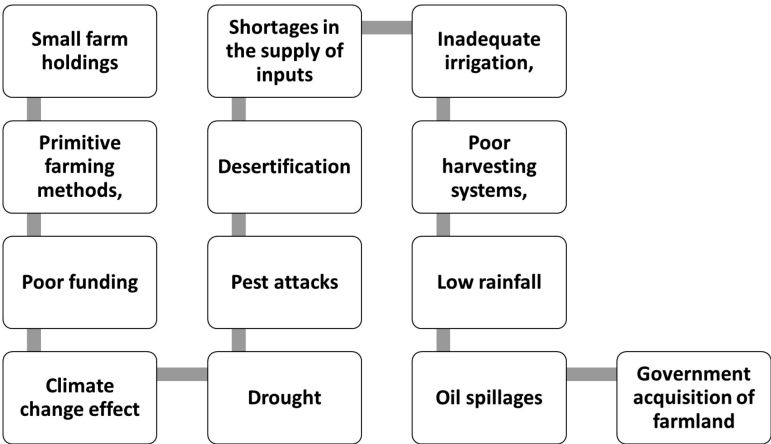


Figure 3.
Thirteen Key
Challenges facing
agribusiness in Nigeria

Source(s): (Ajayi *et al.*, 2010; Omitoyin and Tosan, 2012; Odetola and Etumnu, 2013; Ahmadu and Egbodion, 2013; Tagliarino *et al.*, 2018)

primitive farming methods, climate change effect, drought, pest attacks, desertification, shortages in the supply of inputs, inadequate irrigation, poor harvesting systems, low rainfall, oil spillages, government acquisition of farmland among others.

The 11 challenges facing agribusiness in Brunei depicted in Figure 4 include shifted the economy from a low-income agriculture-based economy to a high-income modern state with oil and gas production, labour scarcity, lack of access to finance, pests and diseases, late payment of incentives, adverse effect of climate change, lack of state-of-the-art infrastructure and technology, and lack of exposure, poorly skilled farmers, ageing workforce and a high dependency on migrant labour.

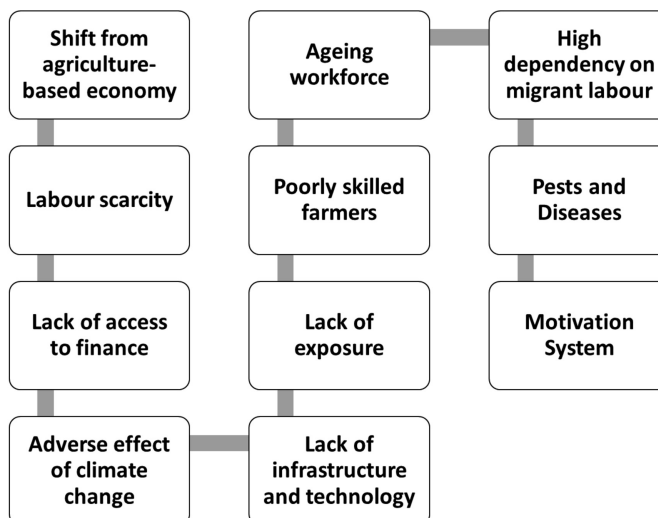
RQ3. What are the SF options suitable for agribusiness in Nigeria and Brunei?

The SF options that are suitable for agribusiness transformation in both countries include green finance, Islamic finance, ethical finance, social finance, and climate finance among others; they are unique because the EPFIs, green banks and other eco-financial institutions are guided by Ten Equator principles that give prominence to environmental, social, and governance (ESG) considerations when making investment decisions on projects that have a direct impact on humans, flora and fauna.

RQ4. What are the guidelines for entrepreneurs on SF options for agribusiness in both countries?

Seven out of the EPs are the guidelines that entrepreneurs seeking SF options for agribusiness in Nigeria and Brunei have to comply with. These guidelines relate to the following principles:

- (1) Principle 2: Agribusiness entrepreneurs must conduct an appropriate assessment process on their agricultural projects to the satisfaction of the EFPIs. Such assessment must address, mitigate and minimize observed environmental and social risks and scale of impacts inherent in their proposed agribusiness projects.



Source(s): Alam *et al.*, 2013; Herbel *et al.*, 2010; Mimi and Jamous, 2010; Kamarulzaman, 2017; Musa *et al.*, 2020

Figure 4.
Eleven Key Challenges
facing agribusiness in
Brunei

- (2) Principle 4: The agribusiness entrepreneurs are expected to develop and maintain a robust Environmental and Social Management System (ESMS), as well as complying with the applicable standards in their host countries.
- (3) Principle 5: Before launching the agribusiness projects in both countries, the entrepreneurs should initiate a consultation/engagement process of buy-in with relevant stakeholders such as host communities, workers among others for the purpose of briefing them of the benefits in structured and culturally appropriate manner.
- (4) Principle 6: In addition to stakeholder engagement, the agribusiness entrepreneurs are to establish effective grievance mechanisms for the purpose of receiving and facilitating prompt resolution of concerns and grievances of the stakeholders arising from the agricultural project's environmental and social performance.
- (5) Principle 8: The entrepreneurs are expected to comply with all environmental and social covenants contained in the EPs as well as local norms and national laws during the construction and operation of the agribusiness projects.
- (6) Principle 9: The agribusiness entrepreneurs are required to appoint qualified and experienced external experts to carry out oversight monitoring and reporting on the environmental, social and governance (ESG) dimensions of the agribusiness projects.
- (7) Principle 10: The entrepreneurs are required report voluntarily and transparently their EPs implementation and compliance to their bankers, in this case, the EPFIs.

Conclusion

We undertake a comparative discourse of SF options for agribusiness transformation in Nigeria and Brunei including examining the implications for entrepreneurship and enterprise development in both countries. At the end of the analysis, it was found that the status of agribusiness in Nigeria and Brunei are encouraging and re-assuring, but could be optimised through agribusiness transformation through injection of more investments by the public and private sectors. The key challenges facing agribusiness in Nigeria (low-income economy) and Brunei (high-income economy) are similar, and could be sustainably redresses through agribusiness modernisation and enhancement. The SF options that are suitable for agribusiness transformation in both countries include green finance, Islamic finance, ethical finance, social finance, and climate finance among others; they are unique because the EPFIs, green banks and other eco-financial institutions are guided by Ten Equator principles that give prominence to environmental, social, and governance (ESG) considerations when making investment decisions on projects that have a direct impact on humans, flora, and fauna. The seven guidelines to be followed by existing and aspiring entrepreneurs in the agribusiness sector in both countries are Principles 2, 4, 5, 6, 8, 9 and 10 of the EPs.

Implications for entrepreneurship and enterprise development

From the discourse, it is evident that agribusiness transformation through SF options are crucial for economic diversification of both countries, and the idea is also supportive of Brunei's ambitious goal of becoming a dynamic and sustainable economy with an income per capita comparable with the top 10 countries in the world by 2035 ([Gweshengwe and Hassan, 2019](#)), as well as Nigeria's goal of becoming one of the Top 20 economies in the world ([Onyeji, 2020](#)).

Therefore, exploring agribusiness transformation through SF options in both economies have far reaching implications.

The practical implication is that agribusiness transformation through SFs would bring about a structural change from the current subsistence agricultural practices to large-scale agribusiness fortified and supported by the agricultural information systems (AGRIS), precision agriculture, and disruptive agricultural technologies. Flowing from the first implication, the nexus between agribusiness and SFs will systematically improve agricultural productivity in the areas of crop production, fishing, livestock, and forestry in both countries. Thirdly, an improved agribusiness would boost food production and food availability, thereby mitigating the rising trends in food insecurity, food inflation, food poverty, and ultimately will help actualize the SDG 1(No poverty), SDG 2 (Zero Hunger) and SDG 3 (Good Health and Wellbeing).

Another implication is that agribusiness transformation has the propensity to create a strong eco-friendly value-chain in both countries, as well as stimulates massive employment opportunities for the growing population of unemployed people (male and female). The potential employment opportunities to be created would ultimately reduce poverty and income inequality, leading to the attainment of the SDG 1(No poverty), SDG 2 (Zero Hunger) and SDG 3 (Good Health and Wellbeing), SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 8 (Decent Work and Economic Growth) and SDG 12 (Responsible Production and Consumption).

Furthermore, well-funded agribusiness would generate surplus agricultural products, increase the gross domestic products (GDPs), expand agricultural exports to international markets, increase foreign exchange earnings, and attract foreign direct investment (FDIs) that would collectively trigger economic growth and sustainable development.

The main limitation of the study is that the analysis and interpretation of the findings are based on descriptive statistics. However, future research should consider using rigorous econometric tests such as the Co-Integration Test, Test of Causality, and Inferential Statistics that would enhance stronger generalisation and prediction.

References

- Adebakin, M.A. and Raimi, L. (2012), "National security challenges and sustainable economic development: evidence from Nigeria", *Journal of Studies in Social Sciences*, Vol. 1 No. 1, pp. 1-30.
- Ahad, Z.A., Rahmatullah, P., Safiullah, S., Zmarai, M. and Naqibullah, H. (2020), "Complex correlation between economic growth and oil earnings: empirical study from Brunei Darussalam using an ARDL-bound test approach and ECM", *PalArch's Journal of Archaeology of Egypt/Egyptology*, Vol. 17 No. 9, pp. 7301-7322.
- Ahmadu, J. and Egbodion, J. (2013), "Effect of oil spillage on cassava production in Niger Delta region of Nigeria", *Journal of Experimental Agriculture International*, Vol. 3 No. 4, pp. 914-926.
- Akinmagbe, O.M. and Ajayi, A.R. (2010), "Challenges of farmer-led extension approaches in Nigeria", *World Journal of Agricultural Sciences*, Vol. 6 No. 4, pp. 353-359.
- Alam, M.M., Siwar, C., Jaafar, A.H., Talib, B. and Salleh, K.O. (2013), "Agricultural vulnerability and adaptation to climatic changes in Malaysia: review on paddy sector", *Current World Environment*, Vol. 8 No. 1, pp. 1-12, doi: [10.12944/CWE.8.1.01](https://doi.org/10.12944/CWE.8.1.01).
- Altieri, M.A. and Nicholls, C.I. (2020), "Agroecology and the emergence of a post COVID-19 agriculture", *Agriculture and Human Values*, Vol. 37 No. 3, pp. 525-526.
- Alvarez-Cuadrado, F. and Poschke, M. (2011), "Structural change out of agriculture: labor push versus labor pull", *American Economic Journal: Macroeconomics*, Vol. 3 No. 3, pp. 127-158.
- Anaman, K.A. and Mahmood, T.H. (2003), "Determinants of supply of non-oil exports in Brunei Darussalam", *ASEAN Economic Bulletin*, Vol. 20 No. 2, pp. 144-157.

- Ayeomoni, I.O. and Aladejana, S.A. (2016), "Agricultural credit and economic growth nexus. Evidence from Nigeria", *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 6 No. 2, pp. 146-158.
- Ayodele, O.S., Obafemi, F.N. and Ebong, F.S. (2013), "Challenges facing the achievement of the Nigeria vision", *Global Advanced Research Journal of Social Sciences*, Vol. 27, pp. 143-157.
- Barnard, F.L., Foltz, J., Yeager, E.A. and Brewer, B. (2020), *Agribusiness Management*, Routledge, London.
- Barma, N., Kaiser, K. and Le, T.M. (Eds) (2012), *Rents to Riches?: The Political Economy of Natural Resource-Led Development*, World Bank Publications.
- Bello-Bravo, J. and Lutomia, A.N. (2020), "Supporting sustainability for a decent Work and economic growth in Ghana", in Filho, W.L., Azul, A.M., Brandli, L., Salvia, A.L. and Wall, T. (Eds), *Encyclopedia of the UN Sustainable Development Goals*, Springer Nature Switzerland. doi: [10.1007/978-3-319-71058-7_120-1](https://doi.org/10.1007/978-3-319-71058-7_120-1).
- Blomqvist, H.C.V. (2010), "Brunei Darussalam; resource curse and economic development", *Globalization and Development: Country Experiences*, Nova Science Publishers, pp. 93-101.
- Brunei Forestry Department (2014), "Agriculture in Brunei", Ministry of Development, Brunei Darussalam, in Shams, S., Shafiuddin, K.H., Sultan, A.M.S.B.H.M. and Juani, R.B.H.M. (Eds), *Agriculture Adaptation to Climate Change in Brunei Darussalam: A Step towards Food Security*, 2015, Environment and Urbanization Asia, Vol. 6 No. 1, pp. 59-70.
- Brunei Ministry of Finance and Economy (2020), *Mid-Year Population Estimates*, Department of Economic Planning and Statistics, Negara Brunei Darussalam, available at: http://www.deps.gov.bn/DEPD/%20Documents%20Library/DOS/POP/2020/RPT_MidYr_2020.pdf.
- Bresciani, F. and Valdés, A. (Eds) (2007), "Beyond food production: the role of agriculture in poverty reduction", *Food and Agriculture Org*, Edward Elgar Publisher.
- Buse, K. and Hawkes, S. (2015), "Health in the sustainable development goals: ready for a paradigm shift?", *Globalization and Health*, Vol. 11 No. 1, pp. 1-8.
- Calabrese, A., Costa, R., Levialdi, N. and Menichini, T. (2019), "Integrating sustainability into strategic decision-making: a fuzzy AHP method for the selection of relevant sustainability issues", *Technological Forecasting and Social Change*, Vol. 139, pp. 155-168.
- Chait, J. (2020), "What is agribusiness? Sustainable business – Dotdash publication", available at: <https://www.thebalancesmb.com/what-is-agribusiness-2538209>.
- Chapra, M.U. (2006), "Ibn khaldun's theory of development: does it help explain the low performance of the present-day Muslim world?", *The Journal of Socio-Economics*, Vol. 37, pp. 836-863.
- Christiaensen, L., Demery, L. and Kuhl, J. (2011), "The (evolving) role of agriculture in poverty reduction—an empirical perspective", *Journal of Development Economics*, Vol. 96 No. 2, pp. 239-254.
- Cleary, M. and Wong, S.Y. (2016), *Oil, Economic Development and Diversification in Brunei Darussalam*, Springer, available at: <https://link.springer.com/content/pdf/bfm%3A978-1-349-23485-1%2F1.pdf>.
- Dahlan, T. and Puat, D.M. (2000), "Forestry problems in South-east of Asia", *Air Pollution and the Forests of Developing and Rapidly Industrializing Regions*, Report No. 4 of the IUFRO Task Force on Environmental Change, pp. 143-164.
- Danse, M., Klerkx, L., Reintjes, J., Rabbinge, R. and Leeuwis, C. (2020), "Unravelling inclusive business models for achieving food and nutrition security in BOP markets", *Global Food Security*, Vol. 24, p. 100354.
- Denscombe, M. (2017), *EBOOK: The Good Research Guide: For Small-Scale Social Research Projects*, McGraw-Hill Education.
- Department of Agriculture and Agrifood (2021), "Brunei Darussalam agriculture and agrifood Brunei Darussalam statistics in brief", available at: <http://www.agriculture.gov.bn/SiteCollectionDocuments/Statistik/Agriculture%20and%20Agrifood%20Statistic%202020.pdf>.

- Dhahri, S. and Omri, A. (2020), "Foreign capital towards SDGs 1 & 2—ending Poverty and hunger: the role of agricultural production", *Structural Change and Economic Dynamics*, Vol. 53, pp. 208-221.
- Dunne, T., Kurki, M. and Smith, S. (Eds) (2010), *International Relations Theories: Discipline and Diversity*, 2nd ed., Oxford University Press, Oxford.
- Dzingirai, M., Chagwasha, M. and Mudzurandende, F. (2021), "Challenges and opportunities from covid-19 vis-à-vis informal cross-border women entrepreneurs scenario in Zimbabwe", in Baporikar, N. (Ed.), *Handbook of Research on Sustaining SMEs and Entrepreneurial Innovation in the Post-COVID-19 Era*, IGI Global, pp. 40-59.
- Eckersley, R. (2010), "(2010:260) green theory", in Dunne, T., Kurki, M. and Smith, S. (Eds), *Chapter 13, International Relations Theories Disciplines and Diversity*, 2nd ed., Oxford University Press, New York.
- Equator Principles (2020), "The Equator Principles July 2020 A financial industry benchmark for determining, assessing and managing environmental and social risk in projects", OECD Working Party on Export Credits and Credit Guarantees (ECG), Paris, available at: <https://equator-principles.com/wp-content/uploads/2021/02/The-Equator-Principles-July-2020.pdf>.
- European Commission (2020), "What is sustainable finance? European Commission website", available at: https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/overview-sustainable-finance_en.
- FAO (2021a), "Nigeria", available at: <http://www.fao.org/countryprofiles/index/en/?iso3=NGA>.
- FAO (2021b), "Brunei Darussalam", available at: <http://www.fao.org/countryprofiles/index/en/?iso3=BRN>.
- Findlay, R. and Lundahl, M. (2017), "Resource-led growth—a long-term perspective: the relevance of the 1870–1914 experience for today's developing economies", *The Economics of the Frontier*, Working Paper No. 162, pp. 315-366.
- Franks, M., Lessmann, K., Jakob, M., Steckel, J.C. and Edenhofer, O. (2018), "Mobilizing domestic resources for the Agenda 2030 via carbon pricing", *Nature Sustainability*, Vol. 1 No. 7, pp. 350-357.
- Franz, E.H. (1990), "Potential influence of climatic change on soil organic matter and tropical agroforestry", *Developments in Soil Science*, Elsevier, Vol. 20, pp. 109-120.
- Gershon, O., Matthew, O., Osuagwu, E., Osabohien, R., Ekhator-Mobayode, U.E. and Osabuohien, E. (2020), "Household access to agricultural credit and agricultural production in Nigeria: a propensity score matching model", *South African Journal of Economic and Management Sciences*, Vol. 23 No. 1, pp. 1-11.
- Gladwin, T., Kennelly, J. and Krause, T. (1995), "Shifting paradigms for sustainable development: implications for management theory and research", *Academy of Management Review*, Vol. 20 No. 4, pp. 874-907.
- Government of Brunei Darussalam (2012), *Wawasan Brunei 2035*, Brunei Government, available at: <https://www.gov.bn/SitePages/Wawasan%20Brunei%202035.aspx>.
- Gweshengwe, B. and Hassan, N.H. (2019), "Knowledge to policy: understanding poverty to create policies that facilitate zero poverty in Brunei Darussalam", *Southeast Asia: A Multidisciplinary Journal*, Vol. 19, pp. 95-104.
- Hagbert, P. and Bradley, K. (2017), "Transitions on the home front: a story of sustainable living beyond eco-efficiency", *Energy Research and Social Science*, Vol. 31, pp. 240-248.
- Henriksen, K., Bjerre, M., Maria Almasi, A. and Damgaard-Grann, E. (2012), *Green Business Model Innovation-Conceptualization Report*, Nordic Council of Ministers. Nordic Innovation Publication, pp. 1-82.
- Herbel, D., Croweley, E. and Lee, M. (2010), *Good Practices in Building Innovative Rural Institutions to Increase Food Security*, Food and Agriculture Organization (FAO), Rome.
- Horn, R. (2012), *Researching and Writing Dissertations: A Complete Guide for Business and Management Students*, Kogan Page Publishers, London.

- Ibrahim, O.R. and Olasinde, Y.T. (2020), "Coronavirus disease (COVID-19) in Nigeria: mitigating the global pandemic", *Journal of Clinical Medicine of Kazakhstan*, Vol. 1 No. 55, pp. 36-38.
- Jepson, D. (2009), "Studying leadership at cross-country level: a critical analysis", *Leadership*, Vol. 5 No. 1, pp. 61-80.
- Kalu, B. (2020), "COVID-19 in Nigeria: a disease of hunger", *The Lancet. Respiratory Medicine*, Vol. 8 No. 6, pp. 556-557.
- Kamarulzaman, N.H. (2017), *Economic Diversification in Brunei Darussalam*, MPhil thesis, University of Sussex, available at: <https://core.ac.uk/download/pdf/217284911.pdf>.
- Karl, T.L. (2007), "Oil-led development: social, political, and economic consequences", *Encyclopedia of Energy*, Vol. 4 No. 8, pp. 661-672.
- Kelly, S., Vergara, N. and Bammann, H. (2015), *Inclusive Business Models*, Food and Agriculture Organization of the United Nations, Rome.
- Kolbert, E., Wilson, E.O. and Lovejoy, T.E. (2017), *Living in the Anthropocene: Earth in the Age of Humans*, Smithsonian Institution Scholarly Press, Washington, DC.
- Kopnina, H. and Blewitt, J. (2014), *Sustainable Business: Key Issues*, Routledge, Oxfordshire.
- Lal, R. (2020), "Managing soils for negative feedback to climate change and positive impact on food and nutritional security", *Soil Science and Plant Nutrition*, Vol. 66 No. 1, pp. 1-9.
- Lashitew, A. and Werker, E. (2020), *Are Natural Resources a Curse, a Blessing, or a Double-Edged Sword?*, Brookings' Future Development Publication, available at: <https://www.brookings.edu/blog/future-development/2020/07/16/are-natural-resources-a-curse-a-blessing-or-a-double-edged-sword/>.
- Lawrence, P. (2009), "Equator Principles: or how I learned to stop worrying and love sustainability", *Impact Assessment and Project Appraisal*, Vol. 27 No. 1, pp. 3-6.
- Macrotrends (2021a), "Nigeria gross domestic product (GDP) from 2000-2021", available at: <https://www.macrotrends.net/countries/NGA/nigeria/gdp-gross-domestic-product>'>Nigeria-GDP-1960-2021. www.macrotrends.net.
- Macrotrends (2021b), "Brunei gross domestic product (GDP) from 2000-2021", available at: <https://www.macrotrends.net/countries/BRN/brunei-darussalam/gdp-gross-domestic-product>.
- Magdoff, F., Foster, J.B. and Buttel, F.H. (Eds) (2000), *Hungry for Profit: The Agribusiness Threat to Farmers, Food, and the Environment*, NYU Press.
- Mainguet, M. (2012), *Desertification: Natural Background and Human Mismanagement*, Springer Science & Business Media, Springer-Verlag, Berlin.
- Mason, P. and Lang, T. (2017), *Sustainable Diets: How Ecological Nutrition Can Transform Consumption and the Food System*, Taylor & Francis, London.
- Matemilola, S. (2017), "The challenges of food security in Nigeria", *Open Access Library Journal*, Vol. 4 No. 12, pp. 1-22.
- Mawdsley, E. (2015), "DFID, the private sector and the re-centring of an economic growth agenda in international development", *Global Society*, Vol. 29 No. 3, pp. 339-358.
- Mawdsley, E., Murray, W.E., Overton, J., Scheyvens, R. and Banks, G. (2018), "Exporting stimulus and 'shared prosperity': reinventing foreign aid for a retroliberal era", *Development Policy Review*, Vol. 36, pp. O25-O43.
- McCusker, K. and Gunaydin, S. (2015), "Research using qualitative, quantitative or mixed methods and choice based on the research", *Perfusion*, Vol. 30 No. 7, pp. 537-542.
- Méda, Y.J.M. and Atewamba, C. (2020), "Inclusive green agricultural business model innovation for Rural Africa: a conceptual framework", in Atewamba, C. and Yong Ngondjeb, D. (Eds), *Inclusive Green Growth, Advances in African Economic, Social and Political Development*, Springer, Cham, doi: [10.1007/978-3-030-44180-7_12](https://doi.org/10.1007/978-3-030-44180-7_12).
- Mghenyi, E.W., Dankers, C., Thurlow, J. and Anyiro, C. (2021), "Nigeria transforming agribusiness for inclusive recovery, jobs creation, and poverty reduction: policy reforms and investment priorities", Full Report, World Bank, Washington, DC.

- Mimi, Z.A. and Jamous, S.A. (2010), "Climate change and agricultural water demand: impacts and adaptations", *African Journal of Environmental Science and Technology*, Vol. 44, pp. 183-191.
- Mohammad, M.T.S.H. (2010), "Principles of sustainable development in Ibn Khaldun's economic thought", *Malaysian Journal of Real Estate*, Vol. 5 No. 1, pp. 1-18.
- Muhammad-Lawal, A. and Atte, O.A. (2016), "An analysis of agricultural production in Nigeria", *African Journal of General Agriculture*, Vol. 2 No. 1, pp. 1-6.
- Mukund, K. (2016), "The resource curse: the political and economic challenges of natural resource wealth", available at: <https://www.linkedin.com/pulse/resource-curse-the-political-economic-challenges-natural-kumar-mukund/>.
- Musa, S.F.P.D., Idris, P.S.R.P.H. and Basir, K.H. (2020), "Exploring the entrepreneurial motivations and barriers of agripreneurs in Brunei Darussalam", *Economics, Business, and Islamic Finance in ASEAN Economics Community*, IGI Global, pp. 31-56.
- Musvoto, C., Nortje, K., De Wet, B., Mahumani, B.K. and Nahman, A. (2015), "Imperatives for an agricultural green economy in South Africa", *South African Journal of Science*, Vol. 111 Nos 1-2, pp. 01-08.
- Nagesha, N. and Subramanian, M.B. (2006), "Energy efficiency for sustainable development of Small industry clusters: what factors influence it?", *International Journal of Economic Policy Studies*, Vol. 1 No. 1, pp. 133-153.
- Obayelu, A.E. (2018), "Public-private partnerships for inclusive agribusiness sustainability in Africa", *Agriculturae Conspectus Scientificus*, Vol. 83 No. 3, pp. 251-261.
- Odetola, T. and Etumnu, C. (2013), "Contribution of agriculture to economic growth in Nigeria", *Proceeding: the 18th Annual Conference of the African Econometric Society (AES), Accra, Ghana 22nd*, pp. 1-28.
- Okotie, S. (2018), "The Nigerian economy before the Discovery of crude oil", *The Political Ecology of Oil and Gas Activities in the Nigerian Aquatic Ecosystem*, Academic Press, pp. 71-81.
- Omitoyin, S.A. and Tosan, F.B. (2012), "Potential impacts of climate change on livelihood and food security of Artisanal Fisherfolks in Lagos State, Nigeria", *Journal of Agricultural Science*, Vol. 9 No. 4, pp. 20-30.
- Omorogiwa, O., Zivkovic, J. and Ademoh, F. (2014), "The role of agriculture in the economic development of Nigeria", *European Scientific Journal*, Vol. 10 No. 4, pp. 133-147.
- Onyeji, E. (2020), "Why Nigeria's Vision 20:2020 was bound to fail", *Premium Times*, available at: <https://www.premiumtimesng.com/news/top-news/373321-analysis-why-nigerias-vision-202020-was-bound-to-fail.html>.
- Oostendorp, R., van Asseldonk, M., Gathiaka, J., Mulwa, R., Radeny, M., Recha, J., ... and van Wessenbeeck, L. (2019), "Inclusive agribusiness under climate change: a brief review of the role of finance", *Current Opinion in Environmental Sustainability*, Vol. 41, pp. 18-22.
- Osabohien, R., Afolabi, A. and Godwin, A. (2018), "An econometric analysis of food security and agricultural credit facilities in Nigeria", *The Open Agriculture Journal*, Vol. 12 No. 1, pp. 227-239.
- Osabohien, R., Osuagwu, E., Osabuohien, E., Ekhator-Mobayode, U., Oluwatoyin, M. and Gershon, O. (2019), "Households access to agricultural credit and agricultural production in Nigeria: a PSM model", AGDI Working Paper, WP/19/063, pp. 1-12, available at: <http://www.afridev.org/RePEc/agd/agd-wpaper/Household-Access-to-Agricultural-Credit-in-Nigeria.pdf>.
- Otchia, C.S. (2014), "Agricultural modernization, structural change and pro-poor growth: policy options for the Democratic Republic of Congo", *Journal of Economic Structures*, Vol. 3 No. 1, pp. 1-43.
- Oxford Business Group (2021), "Brunei Darussalam looks to sustain agricultural growth", *Economic News*, available at: <https://oxfordbusinessgroup.com/news/brunei-darussalam-looks-sustain-agricultural-growth>.
- Oyaniyan, T. (2020), "Current state of Nigeria agriculture and agribusiness sector. PwC Nigeria", Presentation at the AfCFTA Workshop, available at: <https://www.pwc.com/ng/en/assets/pdf/afcfta-agribusiness-current-state-nigeria-agriculture-sector.pdf>.

- Panait, M., Raimi, L., Hysa, E. and Isiaka, A. (2022), "Are CSR programs of financial institutions targeted at development oriented issues or just greenwashing?", in Pérez, A. (Ed), *Future Advancements for CSR and the Sustainable Development Goals in a Post-COVID-19 World*, IGI Global. doi: [10.4018/978-1-7998-8065-3](https://doi.org/10.4018/978-1-7998-8065-3).
- Price, J. (2020), "The status of title to land in representative jurisdictions of Asia and the Pacific", *Equitable Land Use Asian Infrastructure*, Asian Development Institute, Vol. 2.
- Pulighe, G. and Lupia, F. (2020), "Food first: COVID-19 outbreak and cities lockdown a booster for a wider vision on urban agriculture", *Sustainability*, Vol. 12 No. 12, pp. 1-4.
- Raimi, L. (2015), *Entrepreneurship Development Through Corporate Social Responsibility – A Study of the Nigerian Telecommunication Industry*, Unpublished PhD. Thesis, Leicester Business School, De Montfort University, Leicester.
- Raimi, L. (2020), "Transitioning to decent Work and economic growth in Sub-Saharan Africa: implications for the attainment of sustainable development goal 8", *Global Journal of Human Social Science: E-Economics*, Version 1.0, Vol. 20 No. 6, pp. 23-30.
- Raimi, L. and Aljadani, A. (2020), "Sustainability of public finance of rentier states", in Gurtu, A. (Ed.), *Recent Advancements in Sustainable Entrepreneurship and Corporate Social Responsibility*, IGI Global, pp. 88-113, ISBN 9781799823476.
- Raimi, L., Che, F.N. and Mutiu, R.M. (2021), "Agricultural information systems (AGRIS) as a catalyst for sustainable development goals (SDGs) in Africa: a critical literature review", *Opportunities and Strategic Use of Agribusiness Information Systems*, pp. 109-133.
- Rashid, F.N. (2021), "Achieving SDGs in Tanzania: is there a nexus between land tenure security, agricultural credits and rice productivity?", *Resources, Conservation and Recycling*, Vol. 164, 105216.
- Richardson, B.J. (2005), "The Equator Principles: the voluntary approach to environmentally sustainable finance", *European Energy and Environmental Law Review*, Vol. 14 No. 11, pp. 280-290.
- Rogers, J. and Serafeim, G. (2019), "Pathways to materiality: how sustainability issues become financially material to corporations and their investors", Harvard Business School Accounting and Management Unit, Working Paper No. 20-056, available at: http://www.revelio.com/wp-content/uploads/2019/11/Pathways-to-Materiality_2019_SSRN-id3482546.pdf.
- Romanus, O. and Ngozi, A. (2020), "Agro-financing and food production in Nigeria", *Heliyon*, Vol. 6 No. 5, p. e04001.
- Ryszawska, B. (2016), "Sustainability transition needs sustainable finance", *Copernican Journal of Finance and Accounting*, Vol. 5 No. 1, pp. 185-194.
- Sachs, J.D., Woo, W.T., Yoshino, N. and Taghizadeh-Hesary, F. (Eds) (2019), *Handbook of Green Finance: Energy Security and Sustainable Development*, Springer, Singapore.
- Sareen, S. and Haarstad, H. (2018), "Bridging socio-technical and justice aspects of sustainable energy transitions", *Applied Energy*, Vol. 228, pp. 624-632.
- Saunders, M., Lewis, P. and Thornhill, A. (2012), *Research Methods for Business Students*, Pearson Education Limited, Edinburgh Gate, Harlow, England.
- Savitz, A. (2013), *The Triple Bottom Line: How Today's Best-run Companies are Achieving Economic, Social and Environmental Success-and How You Can Too*, John Wiley & Sons, NJ.
- Schmidt-Traub, G. and Shah, A. (2015), *Investment Needs to Achieve the Sustainable Development Goals*, Sustainable Development Solutions Network, Paris and New York, SDSN Working Paper Version 2, pp. 1-137.
- Schoenmaker, D. (2017), *From Risk to Opportunity: A Framework for Sustainable Finance*, Rotterdam School of Management, Erasmus University, Rotterdam.
- Scholtens, B. and Dam, L. (2007), "Banking on the equator. are banks that adopted the equator principles different from non-adopters?", *World Development*, Vol. 35 No. 8, pp. 1307-1328.

- Sharma, U.C. (2003), "Impact of population growth and climate change on the quantity and quality of water resources in the northeast of India", *International Association of Hydrological Sciences, Publication*, Vol. 281, pp. 349-357.
- Sommer, S. (2020), *Sustainable Finance: An Overview*, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Bonn and Eschborn, available at: https://www.giz.de/en/downloads/Sustainable%20Finance_English_version.pdf.
- Stenberg, K., Hanssen, O., Edejer, T.T.T., Bertram, M., Brindley, C., Meshreky, A., Rosen, J.E., Stover, J., Verboom, P., Sanders, R. and Soucat, A. (2017), "Financing transformative health systems towards achievement of the health Sustainable Development Goals: a model for projected resource needs in 67 low-income and middle-income countries", *The Lancet Global Health*, Vol. 5 No. 9, pp. e875-e887.
- Tadjoeddin, M.Z. (2007), "A future resource curse in Indonesia: the political economy of natural resources, conflict and development", CRISE Working Paper No. 35, Department of International Development, University of Oxford, London.
- Tagliarino, N.K., Bununu, Y.A., Micheal, M.O., De Maria, M. and Olusanmi, A. (2018), "Compensation for expropriated community farmland in Nigeria: an in-Depth analysis of the laws and practices related to land expropriation for the Lekki free trade zone in Lagos", *Land*, Vol. 7 No. 1, p. 23.
- Teng, P.S. and Oliveros, J.A. (2016), "The enabling environment for inclusive agribusiness in Southeast Asia", *Asian Journal of Agriculture and Development*, Vol. 13 Nos 1362-2017-769, pp. 1-20.
- United Nations (2018), "Take action for sustainable development goals", available at: <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>.
- United Nations Framework Convention on Climate Change (2014), "Economic diversification", available at: http://unfccc.int/adaptation/workstreams/nairobi_work_programme/items/3994.php.
- Wangu, J., Mangnus, E. and van Westen, A.C.M. (2020), "Limitations of inclusive agribusiness in contributing to food and nutrition security in a smallholder community. A case of mango initiative in Makueni county, Kenya", *Sustainability*, Vol. 12 No. 14, pp. 1-23.
- Wawasan Brunei 2035 (2016), *Wawasan Brunei 2035 – Journey towards 235*, Prime Minister's Office, Negara Brunei Darussalam, available at: <http://wawasanbrunei.gov.bn/SitePages/Our%20Strategy.aspx>.
- Whiffin, C.J. (2020), *Choose Your Methodology: Little Quick Fix*, SAGE, London.
- Williams, T.A. and Shepherd, D.A. (2017), "Mixed method social network analysis: combining inductive concept development, content analysis, and secondary data for quantitative analysis", *Organizational Research Methods*, Vol. 20 No. 2, pp. 268-298.
- Woodhill, J. (2016), *Inclusive Agribusiness: The State of Play*, Global Donor Platform for Rural Development, Bonn.
- World Bank (2012), "The World Bank data bank", available at: <http://databank.worldbank.org/data/views/reports/tableview.aspx>.
- World Bank (2021), "Agribusiness and value chains", World Bank Report, available at: <https://www.worldbank.org/en/topic/agribusiness>.
- World Development Indicators (2017), *Agriculture Output and Productivity*, The World Bank, available at: <https://eclass.aegean.gr/modules/document/file.php/GEO175/Agriculture%20Output%20and%20Productivity%20%28World%20Development%20Report%29.xls>.

Further reading

- Brunei Government (2015), *Brunei Darussalam Key Indicators 2014*, Department of Statistics, Department of Economic Planning and Development, Prime Minister's Office, Brunei Darussalam.

- Challinor, A.J. and Wheeler, T.R. (2008), "Crop yield reduction in the tropics under climate change: processes and uncertainties", *Agricultural and Forest Meteorology*, Vol. 148, pp. 343-356.
- Chan, Y., Hogan, K., Schwaiger, K. and Ang, A. (2020), "ESG in factors", *The Journal of Impact and ESG Investing*, Vol. 1 No. 1, pp. 26-45.
- Department of Agriculture and Agri-food (2009), "Mid-term plan 2008-2011", available at: <http://www.agriculture.gov.bn/DOA2009/pdf%20Publication/Pelan%20Strategik%202008-2013.pdf>.
- Dirk Schoenmaker (2018), "A framework for sustainable finance", Article in SSRN Electronic Journal January 2018, available at: <https://www.researchgate.net/publication/323764756>.
- Dunn, J., Fitzgibbons, S. and Pomorski, L. (2018), "Assessing risk through environmental, social and governance exposures", *Journal of Investment Management*, Vol. 16 No. 1, pp. 4-17.
- Ibietan, J. (2011), "Public policy making process: agricultural and Rural development policies in Nigeria (1960 to date)", *International Journal of Humanities and Social Science*, Vol. 8, pp. 95-108.
- International Fund for Agricultural Development (IFAD) (2009), *Gender in Agriculture Source Book*, WB, Washington, DC.
- Jibowo, A.A. and Ajayi, A.O. (2005), "History of agricultural extension in Nigeria. Agricultural extension Nigeria", pp. 1-15, available at: <https://www.agriculturenigeria.com/research/history-of-agriculture-in-nigeria>.

Corresponding author

Lukman Raimi can be contacted at: luq_man2001@yahoo.com