

Chapter 1

Green Businesses for an Inclusive and Sustainable Future in Africa



Dorothe Yong Ngondjeb and Calvin Atewamba

1.1 Introduction

The emergence of the green economy is attracting a lot of attention around the world and more so in Africa. This economic model, promoted by several major international organizations, derives from the urgency of solving environmental problems such as climate change and biodiversity loss. It is also seen as a real alternative to the current models of economic growth and is positioned as the one that would allow the responsible use of resources while at the same time ensuring economic development. This emergence of the green economy can also be explained by the market and job creation opportunities to be seized, which stem from environmental issues. There is a strong demand for clean technologies and associated expertise. This demand, which comes mainly from emerging economies (including China and India), contains significant business opportunities and quality job creation (Écotech 2012). Finally, the green economy is gradually being borne out of the failures of the current economic system such as its inability to solve the problems of global poverty, the degradation of natural capital, the financial crisis of 2008 and soaring food prices (UNEP 2011).

The theme “green economy” emerged in 1989 in a report entitled *Blueprint for a Green Economy* (Pearce et al. 1989). This widely circulated report was written by a group of economists for the UK Government. The term was later taken up in various international documents, including the popular and recent 2009 *Global Green New*

D. Y. Ngondjeb (✉) · C. Atewamba
United Nations University Institute for Natural Resources in Africa, Accra, Ghana
e-mail: njedora@gmail.com

C. Atewamba
e-mail: atewamba@gmail.com

D. Y. Ngondjeb
Faculty of Economics and Management, University of Yaoundé II, 1365, Yaoundé, Cameroon

Deal, which proposed that states invest heavily in green stimulus to restart the economy and exit the financial crisis of 2008 (PNUE 2009). Even though the “green economy” theme is relatively recent, several components of this concept (internalization of environmental costs, use of economic instruments, elimination of unsustainable production and consumption patterns, etc.) existed earlier and were enshrined in the 1992 Rio Declaration, Agenda 21 and the Johannesburg Plan of Implementation (UNDESA 2012). For UNEP (2011), the green economy is “an economy that results in improved human well-being and social equity while significantly reducing environmental risks and resource scarcity. In its simplest form, it is characterized by low carbon emissions, rational use of resources and social inclusion”. Lacarrière (2011) defines it as “a development model less dependent on carbon energies, but without renouncing the lifestyles and habits of consumption that characterize them”. This type of economy represents a perfect reconciliation of environmental sustainability and economic growth to form what Jurgensen (2009) calls “econology”.

According to Perret (2010), the green economy is based on six main principles: Favor renewable resources; use scarce resources efficiently; reuse, repair, recycle; prioritize use of local resources to avoid energy costs associated with transportation; maintain diversity by avoiding, “one-way best, specialization and standardization”; take account of interdependencies and foster cooperation. According to the United Nations (UN) and other international organizations, environmental, social and financial crises are due to a bad investment of capital, that is to say that the public and private actors invest mainly, and for a long time, in sectors that deplete natural capital. They are also the result of development policies that take little or no account of environmental and social externalities. In the same vein, the price of consumer products is also pointed out because it does not reflect the real cost it brings to society in terms of environmental impact. This failure to take into account externalities in policies and in the price of products leads to the issuance of poor signals to producers and consumers. In this context, the major international organizations urge countries to join the global transition movement toward the green economy in order to mitigate the growing risks of crises and shocks inherent in the existing economic model and to allow the protection and restoration of natural capital.

In Africa, the continent where small and medium enterprises (SMEs) and the informal sector are the engines of economies, the promotion of eco-initiatives poses as many challenges as opportunities. It then seems appropriate to look at examples that show how the green economy (despite its potential) creates many challenges for the continent. This book highlights, through studies in some African countries, the factors that condition the promotion of the green economy in Africa. It must be said that poverty in most of Africa can hamper any eco-initiative since the very people who are supposed to be the vectors of this new form of the economy are having difficulties to change the way in which their activities operate to meet the conditions for sustainable societal development. As Verreault (2011) points out, the transition to the green economy must be financed both by public and private actors.

African SMEs, which are one of the driving forces of the economy in many African countries, suffer from limited skills, lack of investment and sometimes insufficient

technologies to guarantee wealth creation within the traditional growth model. Moreover, much of the continent's wealth is created by informal structures that occupy a significant place in the current African economies. Therefore, relying on these SMEs and to some extent, on the African informal sector to adopt and support eco-initiatives while expecting growth rates higher than those currently experienced by African countries, is a real challenge. The green economy as understood requires that the constraints and barriers to Africa's emergence be lifted and overcome.

This book highlights the factors explaining the success or not of the green economy in Africa through case studies carried out in select African countries with unique socio-economic and even political characteristics. Most of this work is trying to identify the factors that hinder the emergence of the green economy or its drivers. This research shows that raising awareness of the green economy is a major factor in the emergence of eco-initiatives. At the SME level, barriers include transaction costs, market factors, access to finance, technological capacity, lack of knowledge and access to information. In a more geographical approach, agricultural enterprises in forest or coastal zones have more potential to engage in green initiatives than those in the Sahelian zones. Rural agriculture also suffers from access to credit. It can also be noted that the regulatory environment in the countries studied is a relevant factor in the adoption of eco-initiatives.

This introductory chapter comprises six sections. The section following the introduction will present some perspectives of the green economy in the literature with a focus on innovation, green entrepreneurship, business diversification, corporate social responsibility and environmental finance. The third section highlights the challenges and opportunities of the green economy for Africa. The fourth section reviews the purpose of this book, its importance and its justification. The contribution of the other chapters is discussed in the fifth section and the conclusion in the last section.

1.2 Prospects for Green Business

Promoting the economy is like looking at opportunities and constraints for development by people and businesses. These constraints and opportunities may be related to the introduction of a new business model that respects the environment or to a new form of entrepreneurship that can create markets for environmental products and services. They may also be related to business diversification in order to internalize environmental externalities or to improve corporate social responsibility. It is also about understanding how corporate financing constraints and opportunities encourage not only investment in productivity improvement, but also investment in environmental protection.

1.2.1 Green Business Model and Innovation

The term “business” and the various concepts associated with it, such as “entrepreneurs, entrepreneurship,” are used to describe a social activity with an economic vocation. The modern meaning of these notions takes shape from the eighteenth century (Peredo and McLean 2006). Precisely, they refer to associating and action of control with an economic activity allowing either the creation of economic wealth pertaining to the industry, the creation of social wealth for the purpose of equity, or finally the creation of political wealth according to Say (Fontan 2011). The achievements of a company are sources of positive or negative externalities. They generate events that reflect situations of imperfection or incompleteness in terms of the regulation of society. This usually leads the company to readjust its production plans, hence the concept of innovation. Defined as a process of creative destruction according to Schumpeter (1935), innovation in the enterprise is the realization of an economic activity capable of creating new institutional arrangements, which take the form of new products, new processes, new ways of organizing work or new uses for existing products (Fontan 2011).

When green innovation or eco-innovation occurs in a business, the new business model result is then called the green business model and innovation. According to FORA (2011), the green business and innovation model is a new way of doing business that refers to non-technological “green” innovation between businesses, which pushes core businesses to produce services rather than integrate sustainability into the operating and management process. The green business and innovation model is also seen as a new way of approaching products and service-oriented R&D, value chain, organizational models, operations management, incentive contracts, marketing, etc. (Rajala et al 2016; Morioka et al. 2016).

Innovation is therefore increasingly driving the progress of the economy and society at the national (macro) level, as well as driving business success and competitive advantage at the enterprise (micro) level. Porter and Kramer (2006) also state that “innovation is the central problem of economic prosperity”. Many governments are now considering eco-innovation as a part of their growth strategy. In light of the great global challenges of economic slowdown, environmental degradation and resource scarcity, eco-innovation is seen as a way of reconciling economic and environmental priorities—and opening new sustainable avenues for the industry.

1.2.2 Green Entrepreneurship

Entrepreneurship from the Schumpeterian perspective is defined as an attitude to help innovative ideas become reality by establishing new business models and replacing conventional business systems and making them obsolete (Korres et al. 2011). The

concept of “green entrepreneurship” stems from the combination of the main characteristics of entrepreneurship itself: innovation, risk, a new business idea and the ecological and social commitment of those who do business.

In order to reconcile the notion of entrepreneurship and sustainable development within the company, a hybrid form of business should emerge to redefine the boundaries of for-profit and non-profit organizations (Porter and Kramer 2011). Several characteristics of entrepreneurship are therefore stated by theoreticians. First, sustainable entrepreneurship, which is defined as a process of discovering, evaluating and exploiting economic opportunities that are presented in market failures and that go against sustainability (Dean and Mccullen 2007). Or even more recently authors like Shepherd and Patzeld (2011) and Chen and Sintov (2016) define it as a mode of business management focused on the preservation of the nature and supports to the life of the community by seeking opportunities to create goods, services and processes that produce economic and non-economic gains for individuals, the economy and society. Next, transition-oriented entrepreneurship, which also suggests that the transitioning firm puts into practice business strategies focused on improving social and environmental conditions rather than maximizing profit or just job creation (Hopkins 2016). Finally, green transition entrepreneurship, which represents the type of business that reduces and minimizes waste, cancels or improves the negative externalities of existing products and services (Farinelli et al. 2011). Located outside the circles of administrative pressure, the ecological transition firm is able to perceive the extent of the pressures exerted by the ecological crisis and climate change at the landscape level.

1.2.3 Business Diversification and Sustainable Business Growth

History shows us that the model of extensive industrial growth that allowed rich countries to develop during the twentieth century has adverse effects. These effects are considered externalities, insofar as they are situations in which the economic activity produces harmful effects for certain agents, without being involved in the action or compensated by the author of the effects. These externalities include cases of pollution and overexploitation of certain resources, leading to their rapid depletion and health risks. The urgency of these environmental challenges has prompted politicians to think about a new development model in which the aspects of social equity and environmental sustainability, as well as economic growth, will be of equal importance. This refers to the concept of sustainability that “contributes to sustainable development by simultaneously bringing economic, social and environmental benefits—the so-called triple bottom line”.

The sustainability of diversified enterprises in economies can be defined as the ability of a group of individuals or firms to cope with the internal and external pressures of cultural, economic, institutional and resource aspects through change

and innovation of specific products or services. Diversification strategies are widely known to have positive and negative implications for business efficiency (Kaulich 2012; Jara-Bertin et al. 2015). Tax benefits, redistribution of funds, reduction in cash flow volatility, reduction in business risk, synergy and economies of scope are the benefits that are extracted from diversification. In addition, the presence of diversified firms in an economy most often refers to an increase in profitability, risk reduction, increased debt capacity and growth and the extension of the business life cycle and effective use of human and financial resources because of its long-standing relationship with other institutions. These advantages are cited in an article by Jara-Bertin et al. (2015).

Some studies indicate that diversification destroys the value of the business in developing economies (Lins and Servaes 2002; Martin and Lorenzen 2016). In developing countries, diversified firms face many challenges due to the highly dynamic nature of institutional change, external shocks and crises, rival political links (Zhu and Chung 2014). These issues influence the market value and performance of these companies. In other words, we can say that these are the “sustainability issues,” which include environmental, social and economic aspects.

1.2.4 Social Responsibility and Sustainable Business Growth

The productivity growth model that the world has experienced in recent years has not been without impact. Economic growth with the pollution it generates through economic activity leads to a deterioration of the natural capital stock and the related social well-being. The world has gradually realized that economic growth does not necessarily lead to social progress and even threatens to jeopardize the natural balance of the planet. A new model has emerged—sustainable development. Concerns about protecting the environment are now more intense than ever, just as social and economic concerns are. At a time when sustainable development is an integral part of the global economy, every company must consider its impact on the environment. Whether it is through its transport logistics that generate greenhouse gases or by the management of its industrial waste that causes pollution, a company causes an impact that can be harmful. In order for the sustainable development policy to be effective, social responsibility is increasingly part of the business model of companies (Rahdari et al. 2016). Corporate social responsibility is defined as “*the way in which companies integrate, on a voluntary basis, social, environmental and ethical preoccupations in their economic activities as well as in their interactions with all stakeholders, whether they are internal (managers, employees, shareholders, etc.) or external (suppliers, customers, etc.)*” (Bocken et al 2015).

More clearly and simply stated, it is the responsibility of an organization to manage the effects it has on society (European Commission 2011). The most committed companies in this area are also those that are the most innovative, those with higher profitability, those with the highest productivities with a real ability to attract and

retain the best employees and the best reputation. In France, corporate social responsibility has been regulated. Article 116 of the law of May 15, 2001, on new regulations stipulates that publicly traded companies shall include in their annual report a series of information relating to the social and environmental consequences of their activities. In Africa, the ISO 26000 standard on corporate social responsibility came into force in November 2010. Indeed, in a globalized and highly competitive economy, the notion of societal responsibility is becoming a strategic positioning tool in the conquest of market shares.

1.2.5 Environmental Finance and Sustainable Business Growth

The environment as an inseparable part of the development was recognized at the United Nations Conference on the Environment in Stockholm and confirmed in 1992 by the United Nations Conference on Environment and Development. At the end of the conference, states reaffirmed that “the right to development must be achieved in a way that equitably meets the development and environmental needs of present and future generations” (Principle 3, Rio Declaration) and that “in order to achieve sustainable development, the protection of the environment must be an integral part of the development process and cannot be considered in isolation” (Principle 4, Rio Declaration). A healthy and sustainably managed environment is thus recognized as an essential condition for the development of a society.

Economic growth can pose a threat to the environment. It can increase the burden on the environment to intolerable limits. However, it is able to generate more resources to finance environmental policy, investments in clean technologies, the realization of necessary infrastructure and so on. On the other hand, it would be unrealistic to think that we can deal with the main current environmental problems in a situation of economic stagnation, unless we accept radical changes in the allocation of resources. The problem of financing the protection of the environment cannot be mentioned without recalling the question of the efficiency with which the available resources are used. In general, the first measures tend to be the most effective: Investing 1 million francs to reduce the pollution of an old-generation thermal power plant will have a much greater impact than the same amount invested in a modern power station with combined cycle. Therefore, there is no doubt that in some areas, it would be more efficient to use the resources devoted to combat environmental degradation in the former communist countries and in the developing countries of the world rather than in industrialized countries (Polzin et al. 2016).

In this overall situation, financing to eliminate poverty and ensure sustainable development remains very important. These needs include: (a) the financial resources to eradicate poverty and hunger, improve public health and education, ensure access to affordable energy resources and promote gender equality; (b) financing needs for

national sustainable development investment, including infrastructure, rural development, climate change adaptation and resilience and energy; and (c) the financing of global public goods, including the protection of the global environment and the fight against climate change and its effects. The cost of sustainable development also depends on the efficient use of resources. The estimates of the funds required therefore vary considerably. Environmental protection research can lead to a substantial reduction in costs thanks to energy savings, efficiency gains and less waste. Thus, in a “win-win” perspective, often called Porter’s hypothesis, the reduction in pollution tends to reduce the quantities of materials and energy used and thus to increase productivity (Boiral 2005). In addition, banks are increasingly considering environmental and social risk in their lending procedures (Barabel et al. 2007; Anderson 2016). A company that is truly committed to sustainable development will have easier access to sources of financing at a lower cost. The company is therefore faced with the need to first identify and then manage in the medium and long term the risks and opportunities related to its activities, with regard to their impact on different groups of its stakeholders. The sustainable approach leads to a redesign of the risk map and an integration of risk prevention (Notat 2003), whether it concerns environmental risk (impact of ecological accidents, challenges by new standards), social risk (for example, degradation of the image of the company following a denunciation of working conditions at a subcontract) or in terms of product or process safety.

1.3 Green Business, Challenges and Opportunities for Africa

Solid arguments encourage economic actors to engage in green business, the new economic transformation. For governments, this means setting more favorable rules for green products, i.e., proactively giving up subsidies from another time, reforming policies, adopting new incentives, strengthening market infrastructure and economic mechanisms, reorienting public investment and greening government procurement. In other words, it is a question of proposing a regulatory framework able to direct investments toward environmentally friendly and socially inclusive activities. It is also a question of reorienting public spending, limiting those that contribute to stimulating activities that are harmful to the planet and promoting those that fuel the transition to a green economy. For the private sector, this helps to understand and measure the real chance of transitioning to a green economy in many key sectors and to respond to policy reforms and price signals by increasing funding and investment levels. The 2013 UNEP report “GEO-5 for Business: The Impact of a Changing Environment on the Business Sector,” for example, states that the private sector could contribute more than 80% of the capital required to cope with the consequences of climate change. Beyond an obvious need, the report also highlights the expected benefits for companies that will anticipate and be part of a sustainable responsible approach. In fact, the ability of companies to innovate and develop goods and services

that are low in natural resources and have low environmental and climatic impacts will increasingly be one of the essential criteria for evaluation and reputation. Finally, citizens, through their choices and their consumption practices, can be real catalysts for the transition to a green economy. This is one of the major axes developed by the Ten-Year Programming Framework on Sustainable Consumption and Production (10YFP), launched in 2012 on the occasion of the Rio + 20 Conference. Indeed, “consumer information” is one of the five initial programs of the 10YFP, aimed at enabling citizens to make more sustainable consumption choices. The green economy thus appears not only as a social, economic and ecological imperative but also as a unique opportunity to generate growth, create jobs and help to eradicate poverty through investments in natural capital, all by preserving it to ensure the survival of the planet in the long run. In this perspective, the green economy appears as one of the main treasures for the development of African countries and would undoubtedly participate in the stability of the continent constructing peace and prosperity.

The opportunities are many and concern all sectors of activity: agriculture, energy, industry, tourism, transport, building, urban planning and the everyday life of the population. With regard to agriculture, the stakes are high given what this sector represents for Africa as well as the many challenges to overcome in the context of global warming. In this context, the transition to green agriculture seems inseparable to ensure the sustainable future of the region. The energy issue is also one of the main challenges while emphasizing that it brings with it multiple opportunities. Energy efficiency in buildings, the optimization of public transport, the deployment of renewable energies with considerable potential for development on the African continent, improvement of industrial processes and so on are all levers of action that make the prospects for a green and socially inclusive economy realizable.

The transition to the green economy in Africa faces many challenges; Africa faces a literature deficit in understanding the movement of the green economy within it. Since this understanding requires studies of the variables that constitute vectors or obstacles to the smooth running of eco-initiatives, it is essential to have a scientific platform that deals with this subject. More specifically, there is no consistent literature to understand how African SMEs, engines of economic activity are able to implement appropriate green initiatives. It is, however, essential to look at green economy incentives for SMEs, as they face enormous challenges. Large companies or large groups also have a role to play in the emergence of the green economy in Africa. Whether in the oil industry, manufacturing, and agribusiness, to mention only a few sectors, there is a screaming need for works or studies able to shed light on how multinationals, transnational corporations or simply large industrial groups and national authorities are able to contribute to the judicious exploitation of natural resources and respect for the environment. As for SMEs, the informal sector is no longer the subject of abundant literature in terms of how it could contribute to the emergence and development of green initiatives. It is nevertheless recognized as one of the major players in the economic life of African countries, by the number of people it employs, the income it generates and the many areas in which it is deployed. Africa is a continent still predominantly rural, and rural people, farmers, pastoralists

or simply rural dwellers have a huge impact on the environment through their economic activities or simply subsistence. However, at this level too, there is a lack of work elucidating the role of rural people in adopting green initiatives.

1.4 Objectives, Importance and Justification of this Book

This book seeks to highlight the constraints and opportunities for promoting green business in rural Africa. More specifically, it seeks to highlight, through studies done in select African countries, the factors that condition the promotion of the green economy in Africa.

It looks at the conditions, variables and factors that determine the contribution of each of the actors/sectors mentioned above in the emergence of the green economy in Africa. The studies presented in this book attempt to identify the factors that hinder not only innovation and innovation opportunities in green enterprises, but especially green entrepreneurship in general. They also try to highlight the difference in intensity in the adoption of green initiatives between rural and urban populations. They examine the sensitization, acceptability, uses and constraints associated with environmentally friendly infrastructure. They seek to identify the determinants of SME engagement in corporate social responsibility (CSR). They highlight and examine the barriers that limit the ability of SMEs to introduce eco-innovation into their activities. Finally, they provide a conceptual framework for transforming traditional farm business models in Africa into inclusive and green business models through the inclusive business innovation model and green innovation business model.

The enrichment of the economic literature on the subject of the conditions of the emergence of the green economy is the purpose of this book. This contribution seems essential in many respects. Researchers and other scientists interested in the evolution of the green economy in Africa will find in this book an early answer to some questions they are asking about this concept in African countries. This book also helps to understand the barriers that prevent green economy pioneers from developing their businesses. The timidity of small, medium and large businesses to adopt eco-initiatives is partly explained in this book. The behavior of populations and state actors is also one of the issues that case studies in this book address.

This book presents studies in several African countries with different socio-economic and political characteristics to help explain the factors determining the emergence or otherwise of the green economy in Africa. This approach seems to be necessary as countries are socially, economically and politically different, and the question of the green economy is different depending on the country being studied. This makes it possible to avoid falling into a sort of generalization and clichés that often constitute the error that occurs when analyzing African economies. Africa is a vast, multi-faceted continent with highly differentiated regions, and its economic characteristics are different from one country to another and even from one region to another within the same country. In other words, what is true in Ghana is not necessarily true in Cameroon. And sometimes even what is true in southern Cameroon

is not true in the North. However, such different studies may offer the possibility of extending the results to countries or regions with characteristics similar to the region or country under study.

The conditions for the success of the green economy could then be understood not by country or region, but rather by economic domains with the same characteristics. In fact, the characteristics encountered in an agricultural sector in southern Sudan may correspond to those of an agricultural sector in Chad or Mali. One could then explain the difficulty or the ease of adopting eco-initiatives according to the characteristics of these two sectors rather than comparing them by country or region. Africa is a vast laboratory where studies can lead to interesting and useful results in other parts of the world, provided that these studies are developed without clichés or preliminary considerations that do not always reflect reality.

1.5 Contribution of the Other Chapters

This book presents 11 studies conducted in Nigeria, South Africa, Ghana, Côte d'Ivoire and Uganda.

The second chapter “*Constraints and Opportunities for Innovation in Green Enterprises: Implications for Land and Water Management in Rural Uganda*” examines the factors that hinder innovation and innovation opportunities in green enterprises in rural Uganda. A descriptive analysis of the secondary data of 423 companies was made. In addition, a comparative analysis of the case studies of three green firms was also conducted to allow for more in-depth and contextualized investigation. The results show that cost and market factors are the main obstacles to innovation in green enterprises.

The third chapter, “*An Analysis of Factors Influencing Green Entrepreneurship Activities in South Africa*,” examines the factors affecting green entrepreneurship activities in South Africa. A mixed method approach is used. A total of 103 green entrepreneurs are asked about the factors that influence green entrepreneurship activities. In-depth interviews, key informants, observations and a comprehensive review of the literature were conducted for triangulation purposes. Access to finance, knowledge, skills, access to information and support from the government and the private sector are all factors that affect green entrepreneurship activities in South Africa. The study notes, however, that for green entrepreneurship to be a driving force in the global transition to a green economy, there is a need for legislation, government regulation and agencies that support the industry.

The fourth chapter, “*Analysis of crop yield volatility among smallholder farmers in Ghana*,” examines the instability of crop yields among small rural and urban farmers in Ghana. Data from the study come from the sixth round of the Ghana Living Standards Survey. The study used three separate models of ordinary least squares. It shows that education on agricultural technology and access to credit would help reduce the volatility of agricultural output of small farmers in coastal and forest areas.

The fifth chapter "*Prospects and Constraints to Investments in Environmentally Friendly Infrastructure in Western Nigeria*" examines the awareness, acceptability, uses and constraints of using environmentally friendly technologies in rural areas of the country in western Nigeria. The study analyzes field survey data from 160 households in the states of Ekiti and Ondo. Using descriptive statistics, the Likert scale, the Chi-square and the regression, the study establishes that the level of awareness of climate change, age and income level are the determinants of the adoption of green technologies or environmentally friendly infrastructure in these states.

The sixth chapter "*Sustainable development and SMEs: How to meet the challenges of mobilizing Ivorian SMEs?*" identifies the determinants of the commitment of Ivorian SMEs in sustainable development and corporate social responsibility. The study combines a qualitative and quantitative approach based on data from fifty-seven Ivorian SMEs from various sectors of activity. It follows that staff management, the environment and the organizational climate are areas that reflect the commitment of these Ivorian SMEs for sustainable development and corporate social responsibility.

The seventh chapter "*Environmental and Economic Burden of Sand Dredging on Artisanal Fishing in Lagos State, Nigeria*" examines the environmental effectiveness of fishermen in sand dredging and non-dredging areas. Using cost/benefit analysis, the study shows that education, fishing experience and sand dredging affect the environmental effectiveness of the fishermen in the sand dredging area, in contrast to the fishermen in the non-dredging area.

The eighth chapter "*Reducing the Impact of Grazing Livestock on Crop Production and its Consequences in Nigeria: The Way Out*" highlights the impact of livestock grazing on crop production in Abuja, Nigeria. Questionnaires were used to interview farmers on small-scale crops in agrarian communities. The analysis of the survey reveals several problems that require a viable policy to reduce the negative impact.

The ninth chapter, "*Climate Change-Induced Migration and Its Implication for Green SMEs Development and Rural Livelihoods in Nigeria,*" examines climate change caused by migration (CC-IM) and the potential it provides for the development of green SMEs and rural livelihoods in Nigeria. An agricultural and rural system approach was used, as well as a multi-stage random sampling technique on 120 households in rural Bende local government area of Abia State. Three systems were analyzed, the Resource Poor Labor Intensive System (RPLI), the Resource Rich Labor Intensive System (RRLI) and the Resource Poor Non-Labor Intensive System (RPNLI). The study shows that the "Resource Rich Labor Intensive System (RRLI)" is the most economically viable of the three systems with a relatively better standard of living.

The tenth chapter "*An Assessment of Factors Shaping Green Growth Uptake in the Forest Sector at Rural Community Level in South Africa*" is a study that evaluates the current pattern of forest use and management at the rural community level in South Africa in locating space for the growth of green initiatives and factors that could facilitate or hinder the adoption of such initiatives. The study was conducted in twenty rural communities with a total of 366 households selected and interviewed. The study shows that the informal forest sector is more likely than the formal forest

sector to contribute to the development of green initiatives. However, competence and technical capacity remain an obstacle to the adoption of green growth initiatives.

The eleventh chapter “*Effects of Barriers to Eco-Innovation within Small and Medium-Sized Manufacturing Firms in the Peripheral Regions of Lagos*” is a study that examines the obstacles to the viability of small and medium-sized manufacturing companies to introduce eco-innovation in the peripheral regions of the Lagos metropolitan area. Using the perspectives of the evolution of the economy and the theory of innovation, the study establishes that the technological capacity, the regulatory environment, the search for external knowledge and the sector of the enterprise are the key factors that improve eco-innovation in SMEs.

The twelfth chapter “*Inclusive Green Agricultural Business Model Innovation for Rural Africa: A Conceptual Framework*” is a study that proposes a conceptual framework for transforming traditional agribusiness in Africa into green and inclusive agribusiness through a model of inclusive innovation business and a green innovation business model. The main contribution is the development of an integrated framework of the two models in response to both types of innovations to address the socio-economic and environmental challenges facing small farmers in Africa.

1.6 Conclusion

This introductory chapter aimed to present the contribution of the book to the challenges and opportunities of operationalizing green economy in rural Africa. The chapter first looked at some green economy perspectives in the literature with a focus on innovation, green entrepreneurship, business diversification, corporate social responsibility and environmental finance. The purpose of this review was to find out if this new analytical framework offers potential for applications in the typical rural environment of Africa. Since the green economy model was designed from a general perspective, it could be applied to any economic sector, including agriculture. However, the emerging literature on developed green economy concepts pays more attention to the service and manufacturing sectors than to agriculture. Thus, they are not comprehensive enough to address the challenges facing rural Africa. This chapter then looked at the challenges and opportunities of the green economy for Africa. In particular, it highlighted the temptation that is often great for the authors to provide general conclusions when it comes to studying a concept in Africa, forgetting the specificities of each region. It then presented the importance and approach of this book as a collection of studies in different countries and regions to try to identify the factors that promote or hinder the growth of green initiatives in Africa. Through the studies presented in this book, the reader can understand why the adoption of green technologies in agriculture is more pronounced in one region than in another. Therefore, do not dwell on a factor observed in one country to generalize it across the continent.

References

- Anderson J (2016) Environmental finance. Handbook of environmental and sustainable finance. Academic Press, San Diego, pp 307–333
- Barabel M, Huault I, Meier O (2007) Changing nature and sustainability of the industrial district model: the case of technic Valley in France. *Growth Change* 38(4):595–620
- Bocken N, Rana P, Short SW (2015) Value mapping for sustainable business thinking. *J Ind Prod Eng* 32(1):67–81
- Boiral O (2005) The impact of operator involvement in pollution reduction: case studies in canadian chemical companies. *Bus Strat Environ* 14(6):339–360. <https://doi.org/10.1002/bse.431>
- Chen B, Sintov N (2016) Bridging the gap between sustainable technology adoption and protecting natural resources: predicting intentions to adopt energy management technologies in California. *Energy Res Soc Sci* 22:210–223
- Dean TJ, McMullen JS (2007) Toward a theory of sustainable entrepreneurship: reducing environmental degradation through entrepreneurial action. *J Bus Ventur* 27:50–76
- Écotech Q (2012) Les technologies propres au Québec, Diagnostic de la chaîne de financement. In *Écotech Québec la grappe des technologies propres*. Publications. Études et mémoires. (Page consultée le 15 mars 2013). <http://www.ecotechquebec.com/publications/etudes-et-memoires/>
- European Commission (2011) Youth opportunities initiative (COM [2011] 933). Author, Brussels, Belgium. Retrieved from http://ec.europa.eu/social/BlobServlet?docId=7276&lan_gld=en
- Farinelli F, Bottini M, Akkoyunlu S, Aerni P (2011) Green entrepreneurship: the missing link towards a greener economy. *ATDP J* 8:42–48
- Fontan J-M (2011) *Entrepreneuriat social et entrepreneuriat collectif: synthèse et constats*. Can J Nonprofit Soc Econ Res/Revue Canadienne de recherche sur les OSBL et l'économie sociale 2(2):37–56
- FORA (2011) Project proposal green business model innovation [EB/OL]. www.ebst.dk/file/170960/projectproposal.pdf
- Hopkins V (2016) Institutions, incentives, and policy entrepreneurship. *Policy Stud J* 44(3):332–348
- Jara-Bertin M, López-Iturriaga FJ, Espinosa C (2015) Diversification and control in emerging markets: the case of Chilean firms. *BRQ Bus Res Q* 1–16 (online). <http://doi.org/10.1016/j.brq.2015.01.002> (in press)
- Jurgensen Philippe (2009) *L'économie verte: Comment sauver notre planète*. Odile Jacob, Paris, p 313
- Kaulich F (2012) Diversification vs. specialization as alternative strategies for economic development: can we settle a debate by looking at the empirical evidence? Vienna. Retrieved from: http://www.unido.org/fileadmin/user_media/Publications/Research_and_statistics/Branch_publications/Research_and_Policy/Files/Working_Papers/2012/WP032012_Ebook.pdf
- Korres GM, Papanis E, Kokkinou A, Giavrimis P (2011) Measuring entrepreneurship and innovation activities in E.U. *Interdisc J Contemp Res Bus* 3(3):1155–1167
- Lacarrière S (2011) La croissance verte: un mythe salutaire pour un monde solidaire ? , *Revue internationale et stratégique* 1(81):183–188
- Lins KV, Servaes H (2002) Is corporate diversification beneficial in emerging markets? *Financ Manage* 31(2):5–31
- Martin SM, Lorenzen K (2016) Livelihood diversification in rural laos. *World Dev* 83:231–243
- Morioka SN, Evans S, De Carvalho MM (2016) Sustainable business model innovation: exploring evidences in sustainability reporting. *Procedia CIRP* 40:659–667
- Notat N (2003) La responsabilité sociale des entreprises, *Futuribles*, n°288, pp. 11–28. Orse, 2003. « Comment élaborer un rapport de développement durable? » Synthèse des réunions du groupe de travail ORSE-EPE 2002, janvier
- Pearce D, Markandya A, Barbier EB (1989) *Blueprint for a green economy*. Earthscan Publications, London, p 192
- Peredo AM, McLean M (2006) Social entrepreneurship: a critical review of the concept (July 2, 2006). *J World Bus* 41(1):56–65

- Perret B (2010) Croissance verte ou développement humain? *Revue Projet* 4:49–55. (n° 317)
- Polzin F, von Flotow P, Klerkx L (2016) Addressing barriers to eco-innovation: exploring the finance mobilization functions of institutional innovation intermediaries. *Technol Forecast Soc Chang* 103:34–46
- Porter ME, Kramer MR (2006) Strategy and society: the link between competitive advantage and corporate social responsibility. *Harvard Bus Rev* 84(12):78–92
- Porter M, Kramer M (2011) Creating shared value. *Har Bus Rev* 89(1/2):62–77
- Programme des Nations Unies pour l'Environnement (PNUE) (2009) Global green new deal. Policy brief. In: PNUE. Publications. Search UNEP Books. http://www.unep.org/pdf/GGND_Final_Report.pdf
- Rahdari A, Sepasi S, Moradi M (2016) Achieving sustainability through Schumpeterian social entrepreneurship: the role of social enterprises. *J Clean Prod* 137:347–360
- Rajala R, Westerlund M, Lampikoski T (2016) Environmental sustainability in industrial manufacturing: re-examining the greening of interface's business model. *J Clean Prod* 115:52–61
- Shepherd DA, Patzelt H (2011) The new field of sustainable entrepreneurship: studying entrepreneurial action linking “what is to be sustained” with “what is to be developed”. *Entrepr Theory Pract* 35(1):137–163
- Schumpeter JA (1935) *Theorie de l'Evolution Economique*, Dalloz
- United Nations Department of Economic and Social Affairs (UNDESA) (2012) A guidebook to the green economy. Issue 2: exploring green economy principles. In UNDESA—sustainable development knowledge platform. Publications series, Green Economy Guidebooks
- United Nations Environmental Programme-UNEP (2011) Towards a green economy. Pathways to sustainable development and poverty reduction. Available online at https://www.unep.org/green_economy. Accessed 11/03/2015. ISBN 978-92-801-3143-9
- Verreault L (2011) L'émergence de l'économie verte: quel rôle pour les acteurs publics ? In ÉNAP. Publications. <http://leppm.enap.ca/leppm/1091/Environnement.enap>. (Page le 29 septembre 2016)
- Zhu H, Chung C-N (2014) Portfolios of political ties and business group strategy in emerging economies: evidence from Taiwan. *Adm Sci Q* 59(4):599–638