

Reducing Africa's Carbon Footprint for Green Growth

Kariuki Muigua

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Kariuki Muigua*

Abstract

Green growth is vital in achieving Sustainable Development by reconciling developing countries' urgent need for rapid growth and poverty alleviation with the need to avoid irreversible and costly environmental damage. Green growth therefore offers Africa an opportunity to achieve inclusive growth and Sustainable Development. For Africa to achieve green growth, there is need to reduce the continent's carbon footprint. Failure to achieve this goal could worsen the impacts of climate change in the continent pushing millions of people into extreme poverty while wiping out Africa's hard earned economic growth. This paper critically discusses the need to reduce Africa's carbon footprint. It argues that achieving this goal is vital in confronting climate change and accelerating green growth in the continent. The paper examines the progress and challenges towards reducing Africa's carbon footprint. In addition, it offers proposals towards reducing Africa's carbon footprint for green growth.

1.0 Introduction

Green growth refers to economic growth that is efficient in its use of natural resources, clean in that it minimizes pollution and environmental impacts, and resilient in that it accounts for natural hazards and the role of environmental management and natural capital in preventing physical disasters¹. According to the Organisation for Economic Co-operation and Development, green growth involves fostering economic growth and development, while ensuring that natural assets continue to provide the resources and

* PhD in Law (Nrb), FCI Arb (Chartered Arbitrator), OGW, LL. B (Hons) Nrb, LL.M (Environmental Law) Nrb; Dip. In Law (KSL); FCPS (K); Dip. in Arbitration (UK); MKIM; Mediator; Consultant: Lead expert EIA/EA NEMA; BSI ISO/IEC 27001:2005 ISMS Lead Auditor/ Implementer; ESG Consultant; Advocate of the High Court of Kenya; Professor at the University of Nairobi, Faculty of Law; Member of the Permanent Court of Arbitration (PCA) [April, 2024].

¹ The World Bank Group., 'Inclusive Green Growth: The Pathway to Sustainable Development' Available at <https://documents1.worldbank.org/curated/en/368361468313515918/pdf/691250PUB0Publ067902B09780821395516.pdf> (Accessed on 18/04/2024)

environmental services on which our well-being relies². Green growth has also been defined as a socially inclusive economic growth and development path that is low-carbon, climate-resilient, and resource efficient; and maintains and enhances biodiversity and ecosystems³.

According to the United Nations Environment Programme (UNEP), green growth or green economy is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities⁴. It further notes that a green economy can be considered as one that is low in carbon, resource efficient and socially inclusive⁵. The idea of green growth therefore involves the pursuit of economic development in an environmentally sustainable manner⁶.

The concept of green growth is therefore synonymous with green economy⁷. The idea of green economy is one that results in improved human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities⁸. This concept emphasizes environmentally sustainable economic progress to foster low-carbon,

² Organisation for Economic Co-operation and Development., 'What is Green Growth and How Can it Help Deliver Sustainable Development?' Available at <https://www.oecd.org/greengrowth/whatisgreengrowthandhowcanithelpdeliversustainabledevelopment.htm> (Accessed on 18/04/2024)

³ African Development Bank Group., 'Climate and Green Growth Strategic Framework: Projecting Africa's Voice' Available at https://www.afdb.org/sites/default/files/documents/publications/african_development_bank_-_climate_change_and_green_growth_policy.pdf (Accessed on 18/04/2024)

⁴ United Nations Environment Programme., 'Green Economy' Available at <https://www.unep.org/regions/latin-america-and-caribbean/regional-initiatives/promoting-resource-efficiency/green#:~:text=The%20UN%20Environment%20Programme%20has,in%20carbon%2C%20resource%20efficient%20and> (Accessed on 18/04/2024)

⁵ Ibid

⁶ African Development Bank Group., 'Climate and Green Growth Strategic Framework: Projecting Africa's Voice' Op Cit

⁷ Ibid

⁸ United Nations Economic Commission for Europe., 'Greening the Economy: Mainstreaming the Environment into Economic Development.' Available at <https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=796&menu=1515> (Accessed on 18/04/2024)

socially inclusive development⁹. It aims to ensure that economic prosperity can go hand-in-hand with ecological sustainability while simultaneously fostering social progress¹⁰.

The notion of green growth has emerged as a dominant policy response to climate change and other ecological breakdowns¹¹. It envisages that continued economic growth is plausible and compatible with our planet's ecology¹². Green growth is therefore one of the key strategies of realizing Sustainable Development. The idea of Sustainable Development seeks to achieve development that meets the needs of the present without compromising the ability of future generations to meet their own needs¹³. It aims to foster an integrated approach towards development that takes into consideration environmental conservation along with economic and social development¹⁴. Sustainable Development therefore envisions striking a balance between environmental conservation, economic development and social progress¹⁵.

Green growth aims to operationalize Sustainable Development by reconciling developing countries' urgent need for rapid growth and poverty alleviation with the need to avoid irreversible and costly environmental damage¹⁶. It has been noted that green growth is consistent with Sustainable Development as an ultimate objective by providing the means to reconcile its economic and environmental pillars, without

⁹ United Nations Economic and Social Commission for Asia and the Pacific., 'Green Growth Uptake in Asia-Pacific Region.' Available at https://unece.org/fileadmin/DAM/env/cep/CEP20/ppp/Item10_b_ESCAP_GreenGrowthUptake_esm.pdf (Accessed on 18/04/2024)

¹⁰ Ibid

¹¹ Hickel. J., & Kallis. G., 'Is Green Growth Possible?' Available at https://www.researchgate.net/profile/Jason-Hickel/publication/332500379_Is_Green_Growth_Possible/links/5dee151b299bf10bc34c7c04/Is-Green-Growth-Possible.pdf (Accessed on 18/04/2024)

¹² Ibid

¹³ World Commission on Environment and Development., 'Our Common Future.' Oxford, (Oxford University Press, 1987)

¹⁴ United Nations., 'Sustainability' Available at <https://www.un.org/en/academic-impact/sustainability> (Accessed on 18/04/2024)

¹⁵ Fitzmaurice. M., 'The Principle of Sustainable Development in International Development Law.' *International Sustainable Development Law.*, Vol 1

¹⁶ The World Bank Group., 'Inclusive Green Growth: The Pathway to Sustainable Development' Op Cit

ignoring social aspects¹⁷. OECD notes that green growth provides a practical and flexible approach for achieving concrete, measurable progress across the economic and environmental pillars of Sustainable Development while taking full account of the social consequences of greening the growth dynamic of economies¹⁸. Green growth strategies help in achieving Sustainable Development by ensuring that natural assets can deliver their full economic potential on a sustainable basis¹⁹. That potential includes the provision of critical life support services – clean air and water, and the resilient biodiversity needed to support food production and human health²⁰. Fostering green growth is therefore vital in realizing Sustainable Development.

Green growth is a vital agenda in Africa as espoused under Africa Union's *Agenda 2063*²¹. The Agenda sets out the aspirations of prosperous Africa based on inclusive growth and Sustainable Development²². It seeks to realize green growth in Africa through measures such as promoting sustainable and inclusive economic growth; ensuring sustainable management of natural resources in Africa; fostering sustainable consumption and production patterns; fostering climate resilience and natural disasters preparedness and prevention and embracing renewable energy in Africa²³. Green growth therefore offers Africa an opportunity to achieve inclusive growth and Sustainable Development.

It has been noted that in order for Africa to achieve green growth, there is need to reduce the continent's carbon footprint²⁴. Failure to achieve this goal could worsen the impacts

¹⁷ Ibid

¹⁸ Organisation for Economic Co-operation and Development., 'What is Green Growth and How Can it Help Deliver Sustainable Development?' Op Cit

¹⁹ Ibid

²⁰ Ibid

²¹ Africa Union., 'Agenda 2063: The Africa we Want.' Available at https://au.int/sites/default/files/documents/33126-doc-framework_document_book.pdf (Accessed on 18/04/2024)

²² Ibid

²³ Ibid

²⁴ Inamdar. A., 'Powering Africa's Green Growth – Beyond Adaptation and Resilience' Available at <https://climatechampions.unfccc.int/powering-africas-green-growth-beyond-adaptation-and-resilience/> (Accessed on 18/04/2024)

of climate change in the continent pushing millions of people into extreme poverty while wiping out Africa's hard earned economic growth²⁵. This paper critically discusses the need to reduce Africa's carbon footprint. It argues that achieving this goal is vital in confronting climate change and accelerating green growth in the continent. The writer examines the progress and challenges towards reducing Africa's carbon footprint. In addition, the paper offers proposals towards reducing Africa's carbon footprint for green growth.

2.0 Examining Africa's Carbon Footprint

A carbon footprint refers to the number and amount of greenhouse gases released into the atmosphere due to the activities of individuals, organisations, communities and countries²⁶. These gases include carbon dioxide, water vapour, ozone, methane and nitrous oxide²⁷. Carbon footprint has also been defined as a measure of the total amount of carbon dioxide and methane emissions caused by a system, event, or activity²⁸. It can also refer to emissions of carbon dioxide or greenhouse gases expressed in carbon dioxide equivalent²⁹. Carbon footprint therefore refers to the total amount of greenhouse gases (including carbon dioxide and methane) that are generated by human actions³⁰.

Reducing carbon footprint is vital in confronting climate change and fostering green growth³¹. It has been noted that green growth can only be realized through the transition to low-carbon, more resilient future where we reduce emissions and ensure all sectors

²⁵ Ibid

²⁶ DBSA., 'DBSA's Plan to Reduce Africa's Carbon Footprint through Green Transport' Available at <https://www.dbsa.org/article/dbsas-plan-reduce-africas-carbon-footprint-through-green-transport> (Accessed on 18/04/2024)

²⁷ Ibid

²⁸ Wiedmann. T., & Minx. J., 'A Definition of 'Carbon Footprint' In: C. C. Pertsova, Ecological Economics Research Trends: Chapter 1, pp. 1-11, Nova Science Publishers, Hauppauge NY, USA. https://www.novapublishers.com/catalog/product_info.php?products_id=5999 (Accessed on 18/04/2024)

²⁹ Ibid

³⁰ The Nature Conservancy., 'What is a Carbon Footprint?' Available at <https://www.nature.org/en-us/get-involved/how-to-help/carbon-footprint-calculator/> (Accessed on 18/04/2024)

³¹ United Nations Environment Programme., 'The Sectoral Solution to Climate Change' Available at <https://www.unep.org/interactive/six-sector-solution-climate-change/> (Accessed on 18/04/2024)

can also adapt to the climate impacts that are expected³². UNEP notes that in a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow *reduced carbon emissions* and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services(Emphasis added)³³. In order to achieve this goal, countries are increasingly adopting policies to reduce greenhouse gas emissions, promote renewable energy, and encourage the adoption of sustainable practices by businesses and individuals³⁴.

It has been noted that Africa has low carbon dioxide emissions per capita compared to other parts of the world³⁵. Africa contributes just about 4 percent of global carbon emissions despite being the continent that will suffer the most from climate change³⁶. Africa therefore has the lowest per capita emissions of any region, while it is also home to crucial carbon sinks, with the Congo Basin Rainforest absorbing more carbon per year than the continent produces³⁷. It has been pointed out that the Congo Basin Rainforest absorbs 4 per cent of global carbon emissions every year, offsetting more than the whole African continent's annual emissions.*

Despite Africa having contributed negligibly to the changing climate, with just about two to three percent of global emissions, it stands out disproportionately as the most

³² Ibid

³³ United Nations Environment Programme., 'Green Economy' Available at <https://www.unep.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-economy> (Accessed on 18/04/2024)

³⁴ Hassan. A et al., 'Green Growth as a Determinant of Ecological Footprint: Do ICT Diffusion, Environmental, Innovation, and Natural Resources Matter?' Available at https://www.google.com/search?q=carbon+footprint+and+green+growth&oq=c&gs_lcrp=EgZjaHJvbWUqBggAEEUYOzIGCAAQRRg7MgYIARBFGEAyBggCEEUYPDIGCAMQRRg8MgYIBBBFGDwyBggFEEUYPDIGCAYQBRhAMgYIBxAFGEDSAQc4NzZqMG03qAIAAIA&sourceid=chrome&ie=UTF-8 (Accessed on 18/04/2024)

³⁵ DBSA., 'DBSA's Plan to Reduce Africa's Carbon Footprint through Green Transport' Op Cit

³⁶ Ibid

³⁷ Mo Ibrahim Foundation., 'Growth Without Emissions? Is carbon Needed for Africa's Development Goals and Economic Growth?' Available at <https://mo.ibrahim.foundation/sites/default/files/2022-11/growth-without-emissions.pdf> (Accessed on 18/04/2024)

vulnerable region in the world³⁸. This vulnerability is driven by the prevailing low levels of socioeconomic growth in the continent³⁹. Africa has been classified as the most vulnerable continent to the impacts of climate change⁴⁰. Despite having the lowest emissions, the continent faces exponential collateral damage, posing systemic risks to its economies, infrastructure investments, water and food systems, public health, agriculture, and livelihoods, threatening to undo its modest development gains and slip into higher levels of extreme poverty⁴¹. It has been asserted that historically, the continent has contributed the least of any global region to greenhouse gas emissions, yet it is already experiencing some of the world's most dramatic changes in terms of drought, flooding, heat waves, and loss of arable land⁴².

Climate change is already having a devastating impact on the African continent creating food insecurity, stressing water resources, depleting human health, displacing populations and impeding socio-economic development⁴³. It has been observed that in Africa, approximately 50 million people are on the brink of falling below the poverty line for reasons connected to climate change, 100 million people are at risk of being displaced by climate change, and about 600 million people lack energy access⁴⁴. Due to climate change, increasing temperatures and sea levels, changing precipitation patterns and more extreme weather are threatening human health and safety, food and water security and

³⁸ United Nations Environment Programme., 'Responding to Climate Change' Available at <https://www.unep.org/regions/africa/regional-initiatives/responding-climate-change> (Accessed on 18/04/2024)

³⁹ Ibid

⁴⁰ Africa Development Bank Group., 'Climate Change in Africa' Available at <https://www.afdb.org/en/cop25/climate-change-africa> (Accessed on 18/04/2024)

⁴¹ Ibid

⁴² Goldstone. J., 'The Battle for Earth's Climate Will be Fought in Africa' Available at <https://www.wilsoncenter.org/article/battle-earths-climate-will-be-fought-africa> (Accessed on 19/04/2024)

⁴³ Rao. V., & Yadav. P., 'Confronting Climate Change in Africa.' Available at <https://knowledge.insead.edu/responsibility/confronting-climate-change-africa> (Accessed on 18/04/2024)

⁴⁴ Ibid

socio-economic development in Africa⁴⁵. Climate change is having a growing impact on the African continent, hitting the most vulnerable hardest, and contributing to food insecurity, population displacement and stress on water resources⁴⁶.

In light of the impacts of climate change in Africa coupled with the continent's low greenhouse gas emissions, it has been argued that Africa needs to pursue a different path towards development, driven exclusively by green growth, absolutely decoupled from carbon emissions⁴⁷. Africa has immense potential in making an important contribution to tackling climate change globally by leading the world in limiting emissions, driving climate restoration and orienting the continent towards its strengths which translate into major new segments of economic opportunity⁴⁸. It has been noted that Africa holds the key to accelerating global climate action⁴⁹. For example, the continent does not have old economies that needs to be decarbonized⁵⁰. Africa can therefore invest right away in green growth for prosperity of its people and the planet⁵¹. Green growth provides an opportunity for the African continent to decouple its growth from high emissions intensity and build resilience into its development priorities, through low-carbon and climate-resilient development strategies and investments⁵².

Africa has immense opportunities for growth. For example, the continent is blessed with a young and growing work force⁵³. It has been noted that the continent has a uniquely

⁴⁵ United Nations Framework Convention on Climate Change., 'Climate Change is an Increasing Threat to Africa.' Available at <https://unfccc.int/news/climate-change-is-an-increasing-threat-to-africa> (Accessed on 18/04/2024)

⁴⁶ Ibid

⁴⁷ Mo Ibrahim Foundation., 'Growth Without Emissions? Is carbon Needed for Africa's Development Goals and Economic Growth?' Op Cit

⁴⁸ Kimani. J., 'Africa's Role in Decarbonizing the Planet' Available at <https://climatechampions.unfccc.int/africas-role-in-decarbonizing-the-planet/> (Accessed on 18/04/2024)

⁴⁹ Ibid

⁵⁰ Ibid

⁵¹ Ibid

⁵² African Development Bank Group., 'Climate and Green Growth Strategic Framework: Projecting Africa's Voice' Op Cit

⁵³ Ibid

dynamic economic landscape, youthful demographic, and opportunities for decarbonization, digital transformation and for leveraging an Environmental, Social and Governance (ESG) framework for sustainability⁵⁴. Africa is also a continent that is rich in natural resources. The continent holds a huge proportion of the world's natural resources, both renewables and non-renewables⁵⁵. Africa is endowed with renewable sources of energy such as wind, solar, hydro, bioenergy, ocean tidal waves, and geothermal energy sources⁵⁶. These sources of energy have become increasingly important as the world faces the challenge of mitigating the negative impacts of climate change and reducing the dependence on finite and polluting fossil fuels⁵⁷. There is need to effectively harness Africa's natural resources including its renewable sources of energy in order to reduce the continent's carbon footprint for green growth. If properly deployed, these assets could be crucial in driving global mitigation efforts, while creating new economic opportunities for the continent towards green growth⁵⁸.

It is therefore necessary to reduce Africa's carbon footprint for green growth. It has been posited that while Africa's carbon footprint remains relatively small compared to the rest of the world and is derived largely from deforestation and poor land use practices, it will rapidly intensify if nothing is done to transition towards greener growth⁵⁹. For example, the lack of access to electricity leads to the reliance on fossil fuels and the overexploitation of Africa's natural resources already constitute a major cause of deforestation and land

⁵⁴ United Nations Environment Programme., 'Africa's Green Business Opportunities are Abundant, UNEP Study Shows' Available at <https://www.unep.org/news-and-stories/press-release/africas-green-business-opportunities-are-abundant-unep-study-shows> (Accessed on 18/04/2024)

⁵⁵ United Nations Environment Programme., 'Our work in Africa' Available at <https://www.unep.org/regions/africa/ourworkafrica#:~:text=Collectively%2C%20the%20continent%20has%20a,oriented%2C%20climate%20resilient%20and%20sustainable> (Accessed on 18/04/2024)

⁵⁶ Muigua. K., 'Fostering Energy Justice in Africa' Available at <https://kmco.co.ke/wpcontent/uploads/2023/11/Fostering-Energy-Justice-in-Africa.pdf> (Accessed on 18/04/2024)

⁵⁷ Verma. A., 'The Role of Renewable Energy Technologies in Sustainable Development.' Available at <https://timesofindia.indiatimes.com/blogs/voices/the-role-of-renewable-energy-technologiesinsustainable-development/> (Accessed on 18/04/2024)

⁵⁸ Kimani. J., 'Africa's Role in Decarbonizing the Planet' Op Cit

⁵⁹ African Development Bank Group., 'Climate and Green Growth Strategic Framework: Projecting Africa's Voice' Op Cit

degradation which are factors that can increase greenhouse gas emissions in the continent⁶⁰. It has been noted that the growing use of fossil fuels such as coal, oil, lignite and natural gas in Africa continues to reinforce greenhouse gas emissions⁶¹.

Africa's continued transformation will involve both rapid increase in population and major increases in energy use per capita⁶². The trajectory of how that energy is produced, whether Africa follows the fossil-fuel path taken by other developing regions, or embarks on a novel trajectory in which renewable energy dominates, will therefore have a large impact on the global response to climate change⁶³. In light of these concerns, it has been argued that the solution to climate change and development in Africa and globally relies heavily on the socio-economic transition from resource-dependent fossil fuel economies, to equitable low carbon and green economies⁶⁴. Climate decision-making and investment that is not inclusive of Africa's green economic growth priorities and does not support a clean energy transition on the continent will undercut the world's efforts to achieve desired global emissions reductions⁶⁵. It has been noted that increases in African countries emissions per person to very moderate levels over the coming decades would produce total emissions growth so large as to overwhelm efforts made elsewhere by high-emitting countries to reduce global carbon dioxide emissions⁶⁶. Reducing Africa's carbon footprint is therefore not only beneficial for the continent but also to the entire world's response to climate change⁶⁷. It is therefore necessary to reduce Africa's carbon footprint for green growth.

⁶⁰ Ibid

⁶¹ DBSA., 'DBSA's Plan to Reduce Africa's Carbon Footprint through Green Transport' Op Cit

⁶² Goldstone. J., 'The Battle for Earth's Climate Will be Fought in Africa' Op Cit

⁶³ Ibid

⁶⁴ DBSA., 'DBSA's Plan to Reduce Africa's Carbon Footprint through Green Transport' Op Cit

⁶⁵ Goldstone. J., 'The Battle for Earth's Climate Will be Fought in Africa' Op Cit

⁶⁶ Ibid

⁶⁷ Ibid

3.0 Reducing Africa's Carbon Footprint for Green Growth

In order to reduce Africa's carbon footprint for green growth, there is need to harness renewable sources of energy that are abundant in the continent⁶⁸. Renewable energy has been identified as a climate-smart opportunity for Africa to achieve net-zero transition and reduce its carbon footprint for green growth⁶⁹. Africa can become a trailblazer in renewable energy solutions due to its abundance in solar, wind, hydro, biomass, and geothermal resources among other renewables⁷⁰. It is therefore necessary for Africa to accelerate the development and deployment of its renewable sources of energy particularly for electricity generation in order to reduce the continent's carbon footprint for green growth⁷¹. Adopting renewable energy is key in reducing Africa's carbon footprint. Generating renewable energy creates far lower greenhouse gas emissions than burning fossil fuels such as oil and natural gas⁷². The economic, societal and environmental benefits of renewable sources of energy are numerous. These sources of energy are available in abundance, cheaper and are a healthier option for people and the planet⁷³. Embracing renewable sources of energy is therefore key in combating climate change and accelerating energy transition for development⁷⁴. Renewable energy can therefore enable Africa to transition towards a cleaner and decarbonized future⁷⁵. It is therefore necessary to accelerate the adoption and investments in renewable energy in Africa.

⁶⁸ United Nations Environment Programme., 'Africa's Green Business Opportunities are Abundant, UNEP Study Shows' Op Cit

⁶⁹ Ibid

⁷⁰ Ibid

⁷¹ Mo Ibrahim Foundation., 'Growth Without Emissions? Is carbon Needed for Africa's Development Goals and Economic Growth?' Op Cit

⁷² United Nations., 'What is Renewable Energy?.' Available at <https://www.un.org/en/climatechange/what-is-renewable-energy> (Accessed on 19/04/2024)

⁷³ United Nations., 'Climate Action.' Available at <https://www.un.org/en/climatechange/howcommunities-are-embracing-renewable-energy> (Accessed on 19/04/2024)

⁷⁴ Ibid

⁷⁵ African Development Bank Group., 'Climate and Green Growth Strategic Framework: Projecting Africa's Voice' Op Cit

It is also crucial to regulate fossil fuel subsidies in the continent in order to incentivize the uptake of renewable sources of energy⁷⁶. According to UNEP, the production and use of fossil fuels in many countries is encouraged through large subsidies⁷⁷. It has been noted that the transition to clean energy alternatives such as renewable energy remains a challenge in countries where fossil fuel subsidies have still not been phased out⁷⁸. Subsidizing the production and consumption of fossil fuels distorts energy pricing, incentivizes overconsumption, deters investment in renewable energy, creates unsustainable fiscal costs, and locks households and energy systems into inefficient fuel-use patterns that perpetuate the underlying energy crisis⁷⁹. Phasing out inefficient fossil fuel subsidies that do not address energy poverty or just transition is vital in strengthening climate action⁸⁰. It is therefore necessary for African countries to phase out inefficient fossil fuels in order to enhance the uptake of renewable energy towards reducing the continent's carbon footprint for green growth.

Another key approach in reducing Africa's carbon footprint for green growth involves greening all sectors of the economy in the continent⁸¹. It has been noted that the continent has huge potential to achieve green growth and the transition into green economies⁸². In addition to renewable energy which is being embraced in the continent, there is need for

⁷⁶ World Resources Institute., '4 Ways to Shift from Fossil Fuels to Clean Energy.' Available at <https://www.wri.org/insights/4-ways-shift-fossil-fuels-clean-energy> (Accessed on 19/04/2024)

⁷⁷ United Nations Environment Programme., 'Fossil Fuel Subsidy Reform.' Available at <https://www.unep.org/explore-topics/green-economy/what-we-do/economic-and-fiscalpolicy/fiscalpolicy/policy-analysis-3> (Accessed on 19/04/2024)

⁷⁸ International Energy Agency., 'World Energy Outlook: 2023.' Available at <https://iea.blob.core.windows.net/assets/42b23c45-78bc-4482-b0f9-eb826ae2da3d/WorldEnergyOutlook2023.pdf> (Accessed on 19/04/2024)

⁷⁹ Kende-Robb. C., 'How Africa can Show the World the Way to a Low-Carbon Future: 10 Facts, 10 Actions' Available at <https://www.brookings.edu/articles/how-africa-can-show-the-world-the-way-to-a-low-carbon-future-10-facts-10-actions/> (Accessed on 19/04/2024)

⁸⁰ United Nations Climate Change., 'Decision -/CMA.5: Outcome of the First Global stocktake' Available at <https://unfccc.int/documents/636584> (Accessed on 19/04/2024)

⁸¹ Muigua. K., 'Actualizing Africa's Green Dream' Available at <https://kmco.co.ke/wp-content/uploads/2023/07/Actualizing-Africas-Green-Dream.pdf> (Accessed on 19/04/2024)

⁸² Ibid

Africa enhance investments and interventions that embody green growth⁸³. These interventions include embracing low-carbon and climate-resilient infrastructure, the circular economy (reducing waste and re-using and recycling to extend materials' lifetimes), the blue economy (sustainable use of marine resources), climate-smart agriculture, sustainable forestry, sustainable water management, and ecotourism, among others⁸⁴. Greening economies is an effective way of achieving net-zero and reducing carbon footprint therefore achieving green growth⁸⁵. It is therefore necessary for Africa countries to green their economies in order to reduce their carbon footprint for green growth.

It is also vital for the continent to accelerate the implantation of a green African Continental Free Trade Area (AfCFTA)⁸⁶. It has been argued that the AfCFTA could be a double-edged sword in reducing Africa's carbon footprint for green growth depending on how it is designed and implemented⁸⁷. On one hand, AfCFTA could exacerbate environmental degradation and climate change as the expected expansion in trade and economic growth can contribute to greenhouse gas emissions through increased transportation and deforestation⁸⁸. On the positive side, AfCFTA could help advance Africa's green transition agenda by fostering the development of sustainable technologies, industries, and infrastructure⁸⁹. African countries should therefore harness the opportunities presented by AfCFTA to accelerate green growth in areas such as trade in environmentally sound technologies; investments in sustainable infrastructure; and embracing sustainable trade practices such as sustainable material sourcing, recycling,

⁸³ African Development Bank Group., 'Climate and Green Growth Strategic Framework: Projecting Africa's Voice' Op Cit

⁸⁴ Ibid

⁸⁵ Ibid

⁸⁶ Songwe. V., & Adam. J-P., 'Delivering Africa's Great Green Transformation' Available at <https://uneca.org/sites/default/files/ACPC/2023/Chapter-9-Delivering-Africas-great-green-transformation.pdf> (Accessed on 19/04/2024)

⁸⁷ Ibid

⁸⁸ Ibid

⁸⁹ Ibid

ethical manufacturing, rental and sharing models, and consumer education⁹⁰. African countries can also leverage upon AfCFTA protocols to incorporate environmental protection and sustainable development provisions in bilateral and multilateral trade agreements in order to address the trade and environment/climate nexus⁹¹.

Further, reducing Africa's carbon footprint and transition to an inclusive green economy will also necessitate a shift from low productivity, inefficient, wasteful production and consumption technologies to green technologies⁹². It has been pointed out that green technologies encompass green systems and the environment, emphasizing sustainability, efficiency in resource use, and reduction in waste and emissions to facilitate or accelerate improvements in economic and social well-being while minimizing negative impacts to the environment⁹³. Such technologies include those necessary to support the adoption of renewable energy, crop management, biotechnology, green chemistry or green nanotechnology for industrial production, energy-efficient appliances, waste management, and efficient vehicles⁹⁴. They also include technologies related to sustainable buildings, efficient water use, improved irrigation systems, and the group of technologies that provide protection against rise of sea levels⁹⁵. Adopting green technologies in Africa can promote the transition towards environmentally oriented lifestyles and reduce carbon emissions⁹⁶. Green technologies are therefore a key approach to achieving green growth. These technologies can effectively reduce carbon emissions

⁹⁰ United Nations Environment Programme., 'Africa's Green Business Opportunities are Abundant, UNEP Study Shows' Op Cit

⁹¹ Songwe. V., & Adam. J-P., 'Delivering Africa's Great Green Transformation' Op Cit

⁹² United Nations Economic Commission for Africa., 'Enabling Measures for an Inclusive Green Economy in Africa' Available at

https://www.greenpolicyplatform.org/sites/default/files/downloads/resource/UNECA_Enabling%20measures%20for%20an%20inclusive%20green%20economy%20in%20Africa.pdf (Accessed on 19/04/2024)

⁹³ Ibid

⁹⁴ Ibid

⁹⁵ Ibid

⁹⁶ Cai. A et al., 'How Does Green Technology Innovation Affect Carbon Emissions? A Spatial Econometric Analysis of China's Provincial Panel Data' Environmental Economics and Management Volume 9 – 2021 available at <https://doi.org/10.3389/fenvs.2021.813811> (Accessed on 19/04/2024)

by improving energy utilization efficiency. Accessing green technologies can foster a low emissions and sustainable path to Africa's economic transformation by facilitating efficient resource extraction and use, production of newer environmental friendly outputs, as well as enabling sustainable industrialization⁹⁷. It is therefore necessary for Africa to adopt green technologies in order to reduce its carbon footprint for green growth.

Finally, it is imperative to unlock climate finance in Africa for development⁹⁸. Finance plays a vital role in the climate agenda by enhancing the mitigation and adaptation capabilities of countries especially in the developing world⁹⁹. Climate finance is crucial in combating climate change and reducing the carbon footprint of all countries since the adaptation and mitigation techniques vital in enhancing national, regional and global response to climate change require funding¹⁰⁰. Finance can play a key role in reducing Africa's carbon footprint for green growth by facilitating the implementation of inclusive green economy projects¹⁰¹. Financial resources are needed to support Africa's green transition in all major economic sectors including agriculture, fisheries, forestry, energy, industry, tourism, transport, water and infrastructure¹⁰². Unlocking climate finance can also enable Africa achieve effective management of natural resources, and provision of infrastructure for low-carbon development¹⁰³. It is therefore necessary for African countries to unlock climate finance through avenues such as strengthening domestic resource mobilization, unlocking private investments in green growth, and building

⁹⁷ United Nations Economic Commission for Africa., 'Enabling Measures for an Inclusive Green Economy in Africa' Op Cit

⁹⁸ Muigua. K., 'Unlocking Climate Finance for Development' Available at <https://kmco.co.ke/wp-content/uploads/2023/08/Unlocking-Climate-Finance-for-Development.pdf> (Accessed on 19/04/2024)

⁹⁹ Steckel. J. C., 'From Climate Finance toward Sustainable Development Finance.' *WIREs Climate Change*, 2017

¹⁰⁰ Climate Finance., 'Climate Finance Essential for Mitigating and Adapting to Climate Change.' Available at <https://www.iberdrola.com/sustainability/what-is-climate-finance> (Accessed on 19/04/2024)

¹⁰¹ United Nations Economic Commission for Africa., 'Enabling Measures for an Inclusive Green Economy in Africa' Op Cit

¹⁰² Ibid

¹⁰³ Ibid

capacity to unlock international funding¹⁰⁴. African countries should also embrace innovative options for climate and nature finance such as green bonds in order to increase the landscape of climate finance in the continent¹⁰⁵. Unlocking climate finance is key in reducing Africa's carbon footprint for green growth.

It is necessary to embrace the foregoing interventions in order to reduce Africa's carbon footprint for green growth.

4.0 Conclusion

Reducing carbon footprint is vital in confronting climate change and fostering green growth¹⁰⁶. Africa has low carbon dioxide emissions per capita compared to other parts of the world¹⁰⁷. However, despite its low greenhouse gas emissions, Africa stands out as the most vulnerable region in the world¹⁰⁸. Africa can therefore accelerate global climate action by reducing its carbon footprint and fostering green growth¹⁰⁹. The solution to climate change and development in Africa and globally relies heavily on the socio-economic transition from resource-dependent fossil fuel economies, to equitable low carbon and green economies¹¹⁰. Key interventions towards reducing Africa's carbon footprint for green growth include harnessing renewable sources of energy that are abundant in the continent¹¹¹; phasing out fossil fuel subsidies in the continent in order to incentivize the uptake of renewable sources of energy¹¹²; greening all sectors of the economy in the continent¹¹³; accelerating the implantation of a green AfCFTA¹¹⁴;

¹⁰⁴ Ibid

¹⁰⁵ Muigua, K., 'Unlocking Climate Finance for Development' Op Cit

¹⁰⁶ United Nations Environment Programme., 'The Sectoral Solution to Climate Change' Op Cit

¹⁰⁷ DBSA., 'DBSA's Plan to Reduce Africa's Carbon Footprint through Green Transport' Op Cit

¹⁰⁸ United Nations Environment Programme., 'Responding to Climate Change' Op Cit

¹⁰⁹ Kimani, J., 'Africa's Role in Decarbonizing the Planet' Op Cit

¹¹⁰ DBSA., 'DBSA's Plan to Reduce Africa's Carbon Footprint through Green Transport' Op Cit

¹¹¹ United Nations Environment Programme., 'Africa's Green Business Opportunities are Abundant, UNEP Study Shows' Op Cit

¹¹² World Resources Institute., '4 Ways to Shift from Fossil Fuels to Clean Energy.' Op Cit

¹¹³ Muigua, K., 'Actualizing Africa's Green Dream' Op Cit

¹¹⁴ Songwe, V., & Adam, J-P., 'Delivering Africa's Great Green Transformation' Op Cit

adopting green technologies¹¹⁵; and unlocking climate finance in Africa for development¹¹⁶. Reducing Africa's carbon footprint for green growth is a viable and key option for the continent's Sustainable Development.

¹¹⁵ United Nations Economic Commission for Africa., 'Enabling Measures for an Inclusive Green Economy in Africa' Op Cit

¹¹⁶ Muigua. K., 'Unlocking Climate Finance for Development' Op Cit

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