Green Growth/Green Industrialisation in Africa: Rationale, Strategies and Challenges

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Introduction

- The United Nations Conference on Sustainable Development (Rio+20) identified the green economy as one of many approaches to sustainable development.
- African countries recognized that transition to a green economy is an opportunity to drive inclusive growth in the continent.
- Thus, many African countries adopted green-growth strategies now pursued in selected sectors.
- As of June 2015, several countries had developed, or were in the process of developing green industrialisation action plans at the national level.
- These include Ethiopia, Kenya, Mozambique, Rwanda, Senegal, South Africa and Tunisia.

Greening industrialization ensures that the structural transformation process avoids stranded assets; copes with accelerated urbanization; reduces resource inputs and increases efficiency in the production process; cuts back on harmful waste emissions, strengthens infrastructure to reduce environmental impacts; and improves the natural resource base.

The overarching goal for green growth is to establish incentives or institutions that increase well-being by:

- improving resource management and boosting productivity;
- encouraging economic activity to take place where it is of best advantage to society over the long-term; thus leading to innovation.

Rationale for green growth in Africa
1. Natural Capital Depletion

- Africa is home to some:
- 30% of the world's mineral reserves,
- 8% of the world's natural Gas
- 12 per cent of the world's oil reserves.
- 40% of the world's gold
- 90% of its chromium and platinum
- Largest reserves of cobalt, diamonds, platinum and uranium in the world
- 65% of the world's arable land
- 10% of the planet's internal renewable fresh water source.

- In some African countries, natural capital accounts for between 30% and 50% of total wealth.
- Over 70% of people living in sub-Saharan Africa depend on forests and woodlands for their livelihoods.
- THE DANGER: A Significant share of these resources is used unsustainably.
- Most are lost through illegal activities, reducing streams of benefits from these resources over time.
- For instance, Africa loses an estimated USD 195 billion annually of its natural capital through illicit financial flows, illegal mining, illegal logging, the illegal trade in wildlife, unregulated fishing and environmental degradation and loss.

Rationale 2: Poverty and Food Insecurity

- Recently, poverty levels declined in most African countries: On average, the proportion of African households with a consumption level below the 1.9$/day poverty line declined from 40% in 2010 to **34% in 2019**. At below 3.2 $/day, the poverty rate fell from 63% to 59%; and at below 5.5 $/day, it fell from 83% to 80% (United Nations Conference on Trade and Development).
- In 2019, **one in three** Africans— 422 million people—live below the global poverty line (Brookings, 2019).
- In 2020, the proportion of people living on less than $1.90 a day jumped from 2.3% to **2.9%** due to COVID (United Nations)
- UN-backed report, West Africa is hit by its worst food crisis in a decade. For instance, according to World Bank the number of *poor* Nigerians is projected to hit 95.1 million in *2022.*

- About 70% of Africans rely on agriculture for their basic income.

But, current agricultural practices are jeopardizing future productive processes, which could in turn throw many more Africans into a state of poverty and food insecurity.

Most obviously, soil productivity is diminishing as a result of poor land and water management practices, inappropriate fertilization, a decrease in the application and duration of fallow cycles, excess grazing and logging

Rationale 3: Employment Creation and Capital-Intensive Enclaves

The non-inclusiveness of Africa's economic growth can be primarily attributed to the capital-intensive enclave sectors.

This means less use of labour force, which entail little benefits for the majority of the population (AFDB, 2012).

African economic growth has not yielded a commiserate increase in job opportunities– especially for women and the youth.

For growth to be inclusive, high levels of employment must be sustained over the long-term across a variety of different sectors (World Bank, 2012).

Of serious concern is that majority of African jobs are essentially dependent, or inextricably connected, to the extraction of natural resources.

For example, 80% of Africa's employment comes from the agricultural, mineral, fishing, and forestry sectors (UNESEC, 2011).

Promoting inclusive green growth agenda in Africa is vital. This will enhance economic opportunities while sustaining valuable natural capital, serving as the foundation for sustainable employment growth.

Rationale 4: Climate Change

- Over 60% of Africans depend directly on agriculture for their livelihoods.
- Agriculture contributes about 50% of Africa's total export value and approximately 21% of its total Gross Domestic Product.
- But, agricultural activity is highly sensitive to climate change, largely because it depends on biodiversity and ecosystems.
- Dwindling agricultural productivity and biodiversity losses are caused by excessive extraction of natural resources, deforestation and forest degradation, large-scale monocropping and use of chemical fertilisers and pesticides (FAO, 2003).

- Drought is one of the most serious hazards for Africa's agricultural sector in certain areas.
- By 2100, regions of arid and semi-arid land are expected to expand by 60-90 million hectares, resulting in agricultural losses of nearly 7% of GDP in northern, western, central and southern Africa.
- Studies have demonstrated that net revenue derived from crop production could decrease to 90% by 2100.
- It is expected that African countries will lose close to 20% of agricultural productivity to climate change by 2050.
- Source: IPCC (2007).

Climate Change 4: Water

- Long-term declines in rainfall have increased the spread of deserts in southern and western Africa, resulting in shifting sand dunes and the loss of biodiversity (IPCC, 2007).
- Rise in sea water temperatures will cause coral bleaching.
- Based on a variety of scenarios, climate change is expected to cause losses of about 5,000 African plant species, over 50% of some bird and mammal species, and decline the productivity of Africa's lakes by between 20 and 30% by 2100 (IPCC, 2007).

Climate Change 4: Cities/settlements

- Africa's urban populations is estimated at 746 million by 2030, when half of the continent's population is expected to be living in cities, most of who live in coastal cities (UN-HABITAT, 2008).

- More than a quarter of Africa's population lives within 100km of the coast (Nkomo et al., 2002).
- By 2100, Africa's coastlines and river deltas with densely populated low-lying areas will be affected by about one-metre high sea level rise , resulting in increased flooding and coastal erosion, and unpredictable disasters occurring without warning (Nkomo et al., 2006).

Efforts By African Countries

- Africa has over 388 policy frameworks designed to initiate and entrench green growth (International Energy Agency).
- national cleaner production centres and the leather industry of Uganda
- Ghanaian timber value chain
- Agribusiness in Côte d'Ivoire
- agro-led industrialization: catfish farming in Nigeria
- biofuels in Malawi
- solar energy in Rwanda
- solar energy in Morocco
- geothermal energy in Kenya
- trade-offs and choices for energy in Nigeria
- renewable energy developments in South Africa

THE CASE OF RWANDA AND KENYA AS EXAMPLES

The Case of Rwanda

- Rwanda is landlocked and has limited transport infrastructure. It is entirely dependent on oil imports which accounted for 16% of total imports by cost in 2010. This results in very high transport charges, accounting for some 40% of costs.
- Rwanda's main energy source is biomass, sourced mainly from on-farm trees and plantations of fast growing eucalyptus trees.
- As at 2011, only 13% of the population has access to electricity.
- Electricity generation capacity was low at 95MW, dominated by hydropower and oil-fuelled power plants.
- Yet, Rwanda has over 1,000MW potential from renewable sources.

- Industry employs 4% of the national workforce and contributes 14% to GDP, half of which comes from the construction sector.
- Prior to adoption of Green Growth strategy, Rwanda had:

✓uncertain socio-economic development future,

✓growing population issues

✓vulnerability to climate change,

✓low tax revenue,

✓narrow export base

✓limited infrastructure

This led the Government of Rwanda (GoR) to embark on a programme of mobilising private investments to transform the industry.

- Fastforward -----
- Rwanda has recently seen impressive economic growth of 8.5% GDP per year for the past 5 years.
- Its recent reforms in doing business have gained international recognition and increased foreign investment. GDP reached USD5.5 billion in 2010, translating into USD541 per capita from USD200 in 2000.
- Vision 2020 was a roadmap that guided Rwanda's development over the last decade and contributed to its impressive economic growth and stability.

- Yet, it’s future socio-economic development was uncertain with growing population and vulnerability to climate change esp. due to its reliance on rain-fed agriculture for rural livelihoods and export of produce.
- Has reached 1.4°C since 1970, higher than the global average, and can expect an increase in temperature of up to 2.5°C by the 2050s.
- The vision to transform – 2020 and 2050.
- Vision 2020 aims to transform Rwanda from a subsistence agriculture economy to a knowledge-based society earning 900 USD per capita, making Rwanda a middle-income country by 2020.

National Greening Efforts: Updated Nationally Determined Contribution

Rwanda submitted its updated Nationally Determined Contributions to UNFCCC in 2020 in fulfilment of its 2015 Paris Agreement.

At the 2019 Climate Action Summit, 47 LDCs presented a vision to reach net zero GHG emissions by 2050 “in the context of resources being available to do so.” LDCs also emphasized their goal to deliver climate-resilient development pathways and secure full access to sufficient and affordable renewable energy for all by 2030.

(International Institute for Sustainable Development)

- Its updated NDC emphasizes the country's key concern of adaptation, given its high vulnerability to climate change, and informs about its recent policies:

✓National Strategy for Transformation (2018-2024)

✓National Environment and Climate Change Policy enacted in 2019, highlighting the goal of achieving climate resilience.

✓Regarding mitigation targets, Rwanda presents an estimated total emissions reduction potential of around 4.6 million tonnes of carbon dioxide equivalent (tCO2e) in 2030, or a 38% reduction against the BAU emissions.

Rwanda Green Growth and Climate Resilience Strategy

- Rwanda Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development 2011–2050.

- This vision for 2050 envisages Rwanda as a developed country, with a strong services sector, low unemployment and low levels of poverty. It is a country where agriculture and industry have a minimal negative impact on the environment.

Rwanda's GE Strategy: Principles and Objectives

The vision is for Rwanda to be a developed, climate-resilient, low-carbon economy by 2050. Strategic objectives include:

- ✓To achieve Energy Security and a Low Carbon Energy Supply that supports the development of Green Industry and Services and avoids deforestation.
- ✓To achieve Sustainable Land Use and Water Resource Management that results in Food Security, appropriate Urban Development and preservation of Biodiversity and Ecosystem Services.
- ✓To ensure Social Protection, Improved Health and Disaster Risk Reduction that reduces vulnerability to climate change impacts

Revised Green Growth Strategy (2021)

- In 2021, The Ministry of Environment is revising the Green Growth and Climate Resilience Strategy (GGCRS) that was developed ten years ago.
- The strategy is keen on positioning Rwanda as a developed, climate-resilient and low-carbon economy by 2050.
- The strategy's review was based on the 2018 evaluation and lessons learned in implementing the current strategy.
- "Vision 2050 which is Rwanda's development agenda has to be aligned with the 2050 green growth agenda to avoid incoherence.

- For instance, in the green growth strategy, Rwanda has not included the targets of hectares to be irrigated by 2050.
- Did not include renewable energy targets in the green growth strategy which projected at 60% by 2020,"
- It found that the costs have not even been used for the intended planning purposes adding there was also inadequate human capacity for developing bankable projects to help implement the strategy.
- The eight programmes of actions of the strategy will rely on enabling pillars to support its implementation including finance, capability, training as well as digital transformation and innovation.
- Government projects that by 2024 every Rwandan should have access to electricity and other forms of power and also reduce its dependence on the use of biomass from 79.9% in 2018 to 42% by 2024.

- As an oil importer, Rwanda is also sensitive to oil price spikes. Moving to renewable energy sources would provide domestic energy security, reduce greenhouse gas (GHG) emissions and provide a major boost to the economy, as payments abroad for oil are replaced by local expenditure for energy production and other development needs
- Highpoint of progress is the creation of Rwanda's Fund for Environment and Climate Change (FONERWA) a national fund through which international and domestic climate finance can be managed.
- In June 2013, Rwanda's Fund for Environment and Climate Change (FONERWA) obtained financing from the British International Climate Fund (ICF) to the value of £22.5 million, making it the largest demand-based climate fund in Africa.

Only 16% of Rwandans are currently connected to the energy grid (up from 6% in 2008). An estimated geothermal potential of 700MW were to exceed domestic electricity demand by 2020, if exploited.

Under the Economic Development Poverty Reduction Strategy (EDPRS) the economy has grown at an average 8 per cent a year, which has translated into a fall in inequality, a significant reduction in absolute poverty and an increase in life expectancy from 43 to 64 years

(WHO, 2016).

Kenya's Green Growth/Industrialisation Strategy

Kenya has a growing population which will become a major driver of negative environmental changes and key impact in the nation's natural resources.

Poverty levels were high with 46.9 percent of the population living below the povery line in 2006.

In 2013, Kenya transitioned into developed system of government that promotes equitable growth.

And began to envision an economy low carbon climate resilient economy (United Nations Environmental Programme, 2016)

Kenya's economy derives almost half of its GDP from natural resources, while more than half of the households in the country rely on agricultural activities for income.

This inevitably reveals the vulnerability of the economy to environmental and climatic shocks (latest IPCC report)

To this end, Kenya has just released its Green Economy blueprint providing an interesting insight into how a low-income country can 'economically' transition to a green economy development, as well as building on the body of evidence supporting this transformational shift.

Kenya's Nationally Developed Contribution and Green Growth strategy

- 1. Kenya submitted her Nationally Determined Contribution (N DC) on 28th December 2016. The NDC sets out both adaptation and mitigation contribution based on conditional support. The mitigation contribution intended to abate greenhouse gas (GHG) emissions by 30% by 2030 relative to the business as usual (BAU) scenario.
- 2. Despite our first NDC being fully conditional to international support, most of the progress made in implementation to date is from domestic resources.
- 3. Compared to our first NDC target of 30 % emission reduction, our updated NDC commits to Abate GHG emissions by 32% by 2030 relative to the BAU scenario of 143 MtCO2eq; and in line with our sustainable development agenda and national circumstances. The timeframe for implementation of the NDC is up to 2030, with milestone targets at 2025.
- 4. The total cost of implementing mitigation and adaptation actions in the Updated NDC is estimated at USD 62 Billion (UNFCCC, 2020).

Kenya Green Growth Vision

Green Economy Strategy and Implementation Plan (GESIP, 2015).

The objective is to guide the transition to a green, low-carbon and climate-resilient economy. Scenario analysis shows that a green economy pathway delivers higher and more stable growth than business as usual (BAU).

Building on Kenya Vision 2030 and the constitutional provisions of 2010, the GESIP promotes infrastructural investment, resilience and sustainable livelihoods. The priorities and approach were defined through an inclusive, participatory process (UNEP, 2016).

Kenya Green Growth: Geothermal leadership and model for Africa

Before Kenya began its green industrialization, only 16 per cent of its population had access to electricity. The national grid was unreliable and costly due to drought affecting hydropower.

Geothermal power has the potential to provide reliable, cost-competitive power with a small carbon footprint.

Then, Kenya set its target of producing 5,000 MW from geo-thermal sources by 2030. If this is achieved, it could power 15 million homes (ESI, 2012).

Progress

- Kenya was in 2019 ranked **ninth** in geothermal production globally but resolutely accounted for the third-largest geothermal capacity worldwide to become on of the top seven geothermal powerhouses

- The East Africa rift system has geothermal potential 15,000 MW – of which has Kenya boast an estimated 10,000 MW of that.

- By 2004 Kenya had an Installed energy capacity of 1,239 MW – of which 55% composed of domestic hydropower, 10% of geothermal, 33% of Oil-fired thermal and 2% of of imported hydropower (ESI, 2012).

- Fast forward to 2018
- Geothermal Power has overtaken hydropower as the lead power source contributing more than 46%, reducing hydropower to 27% which has made Kenya's energy Climate resilient, while Oil – fired thermal has been reduced to 24%
- Other fuels including solar, wind and imports account for 3% of Kenya's energy source.
- As of 2020, geothermal actually represents more than 50% of the electricity generated in Kenya.
- It is estimated that geothermal has lowered cost of power by 22% and 35 % for domestic and Industrial consumer respectively.

- Under a green economy scenario, with an investment of two percent of GDP, national GDP would exceed a business-as-usual scenario by about 12 per cent by 2030. Per capita national income would nearly double from (USD 498.70) to (USD 871.30).
- From 2015 to 2019, Kenya's economy achieved broad-based growth averaging 4.7% per year, significantly reducing poverty (which fell to an estimated 34.4% at the $1.9/day line in 2019) (Government of Kenya and the UN Environment Programme).

- Kenya has achieved adequate and diversified generation capacity with close to 90% of energy generated from clean sources (geothermal, hydro, solar and wind).
- The country is ranked 8th globally on geothermal capacity development (World Bank, 2015).
- Kenya has emerged a leader in Sub-Saharan Africa in electrification having increased electricity access from just 25% in 2010 to 70% in 2019 (from both grid and off-grid options).

Challenges of Green Growth in Africa

- Economic growth is essential in Africa to alleviate poverty, build livelihoods and improve quality of life. In recent years, the continent has experienced improving macro-economic trends and increasing foreign direct investment.
- Recent economic growth has not uniformly benefitted African livelihoods, nor is economic growth alone able to alleviate poverty.
- Growth is confined to specific sectors, particularly extractive industries and some agricultural commodities, and its benefits to those in or near poverty are often limited (AfDB 2012).

- Infrastructural investment - Infrastructure, such as roads, airports, housing and power stations, in many African countries is not adequate for the population, while many have limited access to electricity and clean water.
- A positive aspect is that there is little environmentally-damaging infrastructure to be replaced, offering a blank canvas for green development.
- New funding, both from public and private sources, is needed.
- Institution: most progress in pushing green growth in Africa has come from strong political will and leadership.

- Incentives - many countries have plans, but few have been translated into policies with clear incentives and penalties.
- There is lack of ownership of green policies by African governments.
- Innovation - limited funding, infrastructure and human/technical capacity is currently hindering innovation
- Increased green innovation research capacity at universities and research institutions is needed.
- Most funding currently comes from Europe, which means research agendas may not be focused on African concerns.

- Widening gap between the rich and poor in Africa, but green growth emphasises equity and social inclusion.
- Environmental initiatives are often at odds with social ones, and corruption in government and private sectors is an issue.
- Seek out inclusive returns by considering local investments that create jobs with low energy, resource and financial costs, as complements to capital-intensive, nationally driven investments
- Market-based instruments such as cash transfers may provide safeguards, but effectiveness depends on institutional capacity.

- Recognize power imbalances and ensure that policies and services are designed with and for local communities.
- Support the decentralization of natural resource access, use and governance to the community level wherever possible
- Policies should be co-designed with and for the target communities, especially women and vulnerable and minority groups.
- Develop participatory methodologies and invest in capacity building and education about greening.
- Successful outcomes often are achieved at local-authority scale by harnessing the dynamics and reinforcing the benefits of local change. Policies must be adaptive and flexible to changing circumstances and project outcomes.

Conclusion

If African governments are to achieve structural transformation and sustainable development through green industrialization, the state needs to:

- play the leading role in setting out this agenda,
- provide leadership at the highest level
- offering a clear, credible and consistent policy framework.

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