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AFRICA'S GROWTH: OPTIMIZING GREEN FINANCING FOR CLIMATE CHANGE-CENTERED INNOVATIONS THAT CREATE VALUE AND SUSTAINABILITY.

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Introduction

Many experts agree that climate change is one of the most pressing threats to humanity, and a focus on environmental survival is of the utmost importance (Debay, 2010). Climate change is one of the existential perils for planet earth, particularly for Africa. The impact of it currently costs the continent an annual loss of 5–15% of gross domestic products, thus, slowing down the economic growth of the continent (Kevin, 2022). As the continent doesn't use much modern energy, it will need an integrated energy system that is technologically viable, appropriate, and cost-effective, allowing its economy to grow.

There is now a general scientific and political consensus that climate change is a threat to many of Africa's species and ecosystems. The outcomes of scientific inquiry are now irrefutable and manifest everywhere. Without action from the continent, there would undoubtedly be disastrous consequences, including higher sea levels, droughts, starvation, and the extinction of as much as a third of the world's plant and animal species.
Reports and public statements have also often said that climate change could be a threat to the national security of African countries.

The adverse effects of climate change have increased disease transmission and mortality in some regions of the continent, increasing anxiety levels and having other psychological repercussions on a large number of people, and this is particularly the case for vulnerable groups and fragile states. In addition to the increased occurrence of climate-related food-borne and water-borne diseases, climate change effect puts pressure on agriculture, energy, the supply and demand of usable water, political stability, and others. Therefore, having a significant effect on the continent's development policies and its ability to reach the Millennium Development Goals (MDGs). A strategy by the financial industry to mitigate these outcomes appears to be green finance.

Green finance has no globally accepted definition, but it's has gained popularity throughout time as it appears to be a workable response to the harm that climate change is causing to the continental environment. The term refers to a wide range of funding for technologies, projects, industries, or businesses that are good for the environment, some of which include, new financial products, such as carbon market instruments and green bonds, which have been formed by new financial institutions to meet the urgent requirement for solutions. Green finance appears to be the initiative by the financial industry to encourage more people on the continent to purchase eco-friendly goods and services.

The Effects of Climate Change on Vulnerable Groups and Fragile States

A fragile region or state lacks the institutional capacity to deliver essential public services and promote symbiotic connections with its populace. Stronger states may be less vulnerable to internal and external shocks like economic crises or natural disasters, but weaker governments may be much more vulnerable. Stronger states have demonstrated their ability to rule their inhabitants and lands efficiently and legally. They can deal with and adapt to shifting societal needs and agreements made by elites and other political actors; in reality, the lines between fragility and resilience and institutional complexity are ever-changing (Jones, 2013).

A fragile state is characterized by scarcity of resources and reliance on aid from elsewhere. In general, unstable and violent administrations have had weaker economic growth than other low-income countries. Extreme poverty hasn't been significantly reduced, and inequality is still a major issue. In some areas, the prevalence of unofficial enterprises and jobs is rising. As can be shown, economic growth alone does not guarantee that the underprivileged and excluded individuals will participate in and profit from affluence in unstable regimes. If growth is not inclusive and earnings are not equally distributed, social and political stability as well as the sustainability of the economic process may be threatened. A critical enabler for long-term poverty reduction and equitable development is high-quality infrastructure. According to Jones (2013), the weak nations of Africa have major infrastructure shortages, particularly in rural areas, as a result of years of devastation of physical assets and infrastructure.

Residents of rural areas could be regarded as principal members of a "fragile or vulnerable population." It was said in the United Nations Permanent Forum on Indigenous Issues (2007) that Native American cultures are frequently the first to experience the effects of climate change because of their innate dependence on a close knowledge of the natural world.
Indigenous communities already experience political and economic marginalization, resource loss, violations of their human rights, discrimination, and unemployment. Climate change exacerbates each of these issues. As a result of their close ties to their ecosystems, many indigenous peoples and other marginalized groups are especially sensitive to the consequences of climate change and the development of biofuels, which are marketed as a "solution" to the problem of global warming.

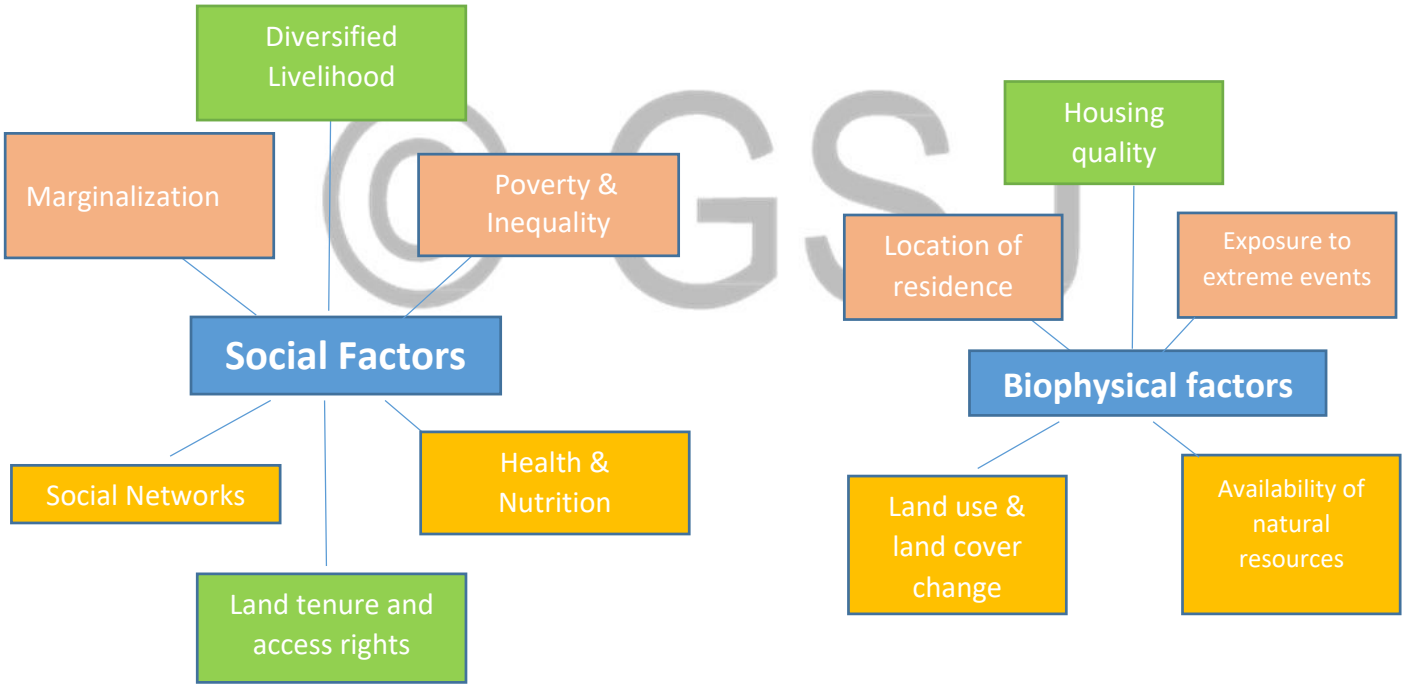
Indigenous groups frequently reside in more rural areas where they may cultivate or produce a major percentage of the food and other commodities, they consume rather than settling in urban areas. The remainder is either imported or comes from marginalized groups. Because of this, they have an exceptional understanding of the climate and wildlife of the area. The generations-old knowledge of where to get food, how to sow crops, and when to do so is becoming more and more out of date as a result of climate change. Due to climate change and the rapid spread of biofuel crop plantations, certain cultural communities face extinction (Baird, 2008).

It is essential to stress that the dangers posed by climate change to indigenous peoples are distinct from those posed to other social groups, such as the impoverished lifestyle in their entirety. Particularly, when matters such as farming (the source of their food), housing (concerning the floods and erosion that heavy rains bring about), and power generation are discussed. This is because indigenous people all exhibit some features that are unique when taken together. They are therefore more vulnerable to the direct effects of climate change, the consequences of environmental destruction that contribute to climate change, and mitigation and adaptation measures. They include:

- Indigenous peoples are among the poorest of the poor, making them the group most vulnerable to climate change since those who are not vulnerable either have the resources to improve their lives or benefit from residing in a city, and of which the consequence of economic growth will continue to decline.

- They live in regions and ecosystems that are most vulnerable to the effects of climate change and have a complex cultural connection to those habitats.
- Due to their high sensitivity to and susceptibility to climate change, native Africans are frequently forced to relocate, however, this is frequently not a solution and may instead cause more issues.
- Growing social and financial deficits. For example, indigenous people who migrate to nearby countries on foot or by boat may require alms for some reasons, such as a lack of skills, a language barrier, and a lack of experience. And there's no doubt that this will raise both the unemployment rate and the level of poverty.
- Gender inequality, which is one of the key reasons why indigenous women experience problems, is made worse by climate change.
- Finally, because they frequently lack institutional support and recognition, many indigenous people continue to be excluded from decision-making processes. This limits their access to remedies, increases their vulnerability to climate change, undermines their ability to prevent and adapt to it, and puts the gains made in protecting their rights in danger (International Labour Office [ILO], 2017).

The following examples show the sensitivity elements that are believed to have a direct impact on how susceptible the social and biophysical systems of traditional and indigenous communities are to climate change:



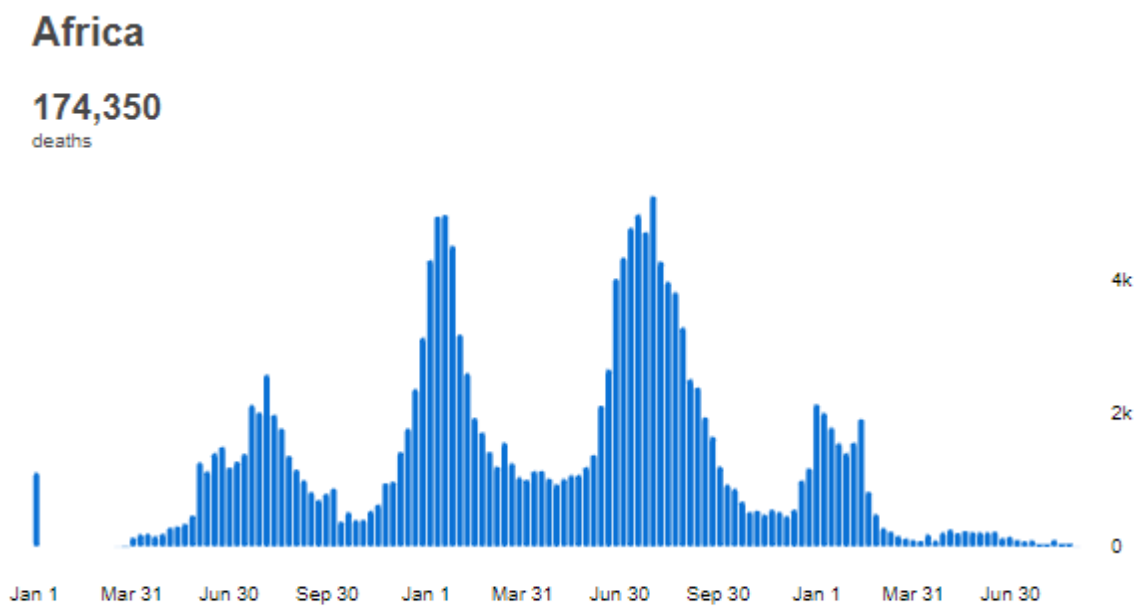
Source: The vulnerability factors of traditional and indigenous communities to global climate change (Macchi, 2008)

Africa is the continent most susceptible to the effects of climate change in all climatic scenarios over 1.5 degrees Celsius. Despite having contributed the least to global warming and having the lowest emissions, Africa faces exponential collateral damage, posing systemic risks to its economies, infrastructure investments, water and food systems, public health, agriculture, and livelihoods, and threatening to reverse its modest development gains and increase its extreme poverty levels. Africa's susceptibility is influenced by the following factors:

- Sub-Saharan Africa is home to 95% of the world's rain-fed agriculture.

- A large percentage of agriculture in GDP and employment increases susceptibility, as do other weather-sensitive industries, such as herding and fishing, which result in revenue losses and heightened food insecurity.
- A few of the ten most susceptible nations to climate change are located in Africa. Four African nations: Mozambique (1st), Malawi (3rd), Burundi, and Madagascar, were rated among the top 10 most impacted nations in 2015, and as of 2020, Burundi (1st), Somalia (2nd), and Central African Republic (3rd) are the most susceptible nations.

COVID-19 dealt a deadly blow to the entire world. Approximately 6,515,172 people have died and 591,622,561 have been recovered, making the total number of cases 613,284,782 (as of the time this essay was being written, on September 5, 2022). However, as of November 2021, 174,350 people had died in Africa alone. With 89,584 fatalities or around 40.3% of the total, South Africa saw the highest number of casualties. The virus killed 25,347 people in Tunisia, making it the second most severely impacted country on the continent and it accounts for 11.4% of all fatalities in Africa. Egypt made up around 9% of the continent's casualties with a total of 19,991 people.



Source: World Health Organization

Because of COVID-19's terrible effects, there was a worldwide lockdown, which had a significant negative impact on Africa's progress. Due to the consequences, the continent's unemployment rate increased, its debt rate increased, its rate of production decreased, and death rate also increased.

Before COVID-19, the national debt of a few African countries was quite low. Except for four nations—Sudan, Eritrea, Cabo Verde, and Mozambique—all of the African nations have debt-to-GDP ratios that are greater than 60%. (IMF, 2020). They face the worst environmental issues in Africa and have the highest levels of debt. Most of these vulnerable groups are dealing with issues that are more complex than they can manage, which makes it difficult for them to go forward.

Climate-Smart Development

To lessen the destructive consequences of climate change on the continent's poverty and economic growth, measures must be made right away. The continent must exercise courage as it faces the challenge of developing fresh strategies to counter the existential threat posed by climate change.

To achieve this, the continent will promote low-carbon economic development to aid nations in moving away from fossil fuels, encourage private financing for climate finance, increasing support for critical services and systems required for sustainable growth and lowering poverty, and do all of the aforementioned.

Investments in critical areas across the continent, such as energy, water, transportation, and agriculture are needed to combat climate change, promote low-carbon economic growth, and aid all African countries in their move away from fossil fuels. Bringing the advantages of the city, including modern infrastructures like schools, hospitals, universities, supermarkets, banks, homes, and science labs, to the suburbs and the rural. They will generate new jobs and have a significant impact on the continent's economy once they are widely used. Life, nations, the continent, and the entire planet will alter as a result. Africa must be strategically positioned to encourage long-term economic growth and development that is climate responsible.

Green Financing, Value Creation, and Sustainability.

There is no agreed-upon definition for the phrase "green finance." The phrase refers to a wide range of financial resources set aside for businesses, ventures, and activities that value the environment. Green banking services and goods, such as "green" mortgages, "green" banking, "green" credit cards, and "green" insurance, is referred to as "green finance" in a broader sense. Pricewaterhouse Coopers Consultants (PWC) (2013) states that "for the banking sector, green finance is defined as financial products and services, under the consideration of environmental factors throughout the lending decision-making, ex-post monitoring, and risk management processes, provided to promote environmentally responsible investments and stimulate low-carbon technologies, projects, industries, and businesses.

New financial institutions and products, such as green bonds and carbon market instruments, as well as green banks and green funds, are being developed to meet the growing demand. The term "green finance" describes a group of initiatives and businesses that support environmental sustainability. In its most basic form, green finance is the use of traditional capital markets to create and distribute a range of financial goods and services that have favourable financial and environmental outcomes for investors.

Internalizing environmental externalities and altering risk perceptions are required to promote environmentally friendly investments and decrease ecologically harmful ones. It is crucial to promote green financing widely enough to enable enterprises to do so. Intending to enhance human prosperity and advance social justice, green investment is a financial strategy that places a high priority on environmental sustainability by reducing exposure to environmental risks and enhancing ecological integrity.
Green finance also goes by the names of environmentally conscious investing and investments related to climate change. With the help of "green finance," more public monies are directed toward projects that protect the environment.

Green financing offers the opportunity to show a commitment to social purpose while facilitating a shift toward a future with lower carbon emissions. To support socially conscious business practices, investments, trade, and policies, green finance largely promotes the use of financial instruments. (Lindenberg, 2021; Nobanee, 2021). According to the President of the African Development Bank states that Africa's financial actors must collaborate creatively to

mobilize international financial resources to promote climate-resilient and low-carbon development on the continent. Africa must not be shortchanged by climate finance, as it has been in the past **Akinwumi Adesina.**

Clean Energy Funding Mechanism

Green finance relies mostly on debt and equity financing. Among the many distinguishing features of financial instruments are their seniority (junior equity vs. preferred stock), the channel through which the flow of financing is structured, the intermediate players (investor types and investment vehicles), the terms of the agreement, and the source of the funds. This article primarily focuses on risk management tools and debt and equity-related products.

The term "**equity financing**" refers to the practice of putting money into a firm in return for a share of ownership. This kind of funding is typical in the early stages of a venture or firm.
Preferred stock and ordinary stock are two types of equity that may be further split. It's helpful to think of the many kinds of stock as having two main kinds of variance. Preferred shareholders receive payment before the company's obligations and bonds in the event of bankruptcy. Any money that is left over will be given to regular investors. Another is that preferred stock distributions differ from and frequently exceed those of common stock.

Investment vehicles known as "junior equity," which often relate to common shares in a company, are widely used in the green finance industry. In the event of a business failure, preferred investors would be compensated in full before other equity holders. Dividends are paid out to bondholders before they are to preferred investors. Junior equity investors assume a portion of the risk that bigger private equity investment groups would otherwise be responsible for. The existence of junior equity interests is often the impetus for the purchase of preferred shares. They will have less to lose and will be prioritized for the distribution of any gains.

Typically utilized in combination with equity funding, debt financing is utilized later in a company's life cycle. To elaborate, when investors lend money to borrowers via debt financing, the borrowers are obligated to pay back the principal plus interest. In the case of a company's collapse, debt is paid off before equity investors get anything. To repeat, a company must first repay its debt lenders (holders) before it can return any funds to its equity owners (who also took out loans). Because of this increased safety, senior debt has a lower interest rate than junior debt (also known as subordinated debt).

Debt financing includes options like bank loans and bond sales to the public. Bond money is provided to the entity issuing the bond directly by the public or market, as opposed to being lent to a company or individual by a bank.
Bonds traded on public debt markets, in contrast to loans provided through bank debt, are accessible to public investment and frequently entail bigger sums of money. Green bonds are debt instruments used to finance projects that deliver environmental benefits. The green bond market can offer several benefits, both for green projects and investors, including providing an additional source of green financing to bank lending and equity financing (and also a source of funding for bank lending) and providing a new class of green assets for investors. Notes, such as promissory or structured notes, also make it simpler for private investors to enter the market.

There is no one-size-fits-all solution to the question of how much debt and how much equity a corporation or project should have.
Software and biotech businesses, for example, are very attractive to investors because of their quick growth and high returns. Companies in this industry frequently have erratic cash flow and intangible assets. This makes it more challenging to predict when and how much debt will

be repaid. As a result, people commonly struggle to get loans with reasonable interest rates. Debt investments usually give more security than those equities. As a result, these initiatives usually have lower ROIs.

Debt and equity funding are often used in environmental finance.
Why? for the simple reason that they streamline the investing process by combining several projects and cash flows into one. Possible applications of this vehicle include land management, forestry, energy, health, and agriculture. They've all reached the same level of maturity while studying very different subjects (either early-stage development, proven concepts, or mature). They both scale and protect themselves in distinct ways. Finally, investors may reduce their overall risk by putting their money into a variety of different funds. Since its structure is more conventional, most investors feel more at ease with it.

Advice on Investing In The Private Sector

The development of new markets for green finance is encouraging for both private investors and those looking to launch new green projects.
To close this financial gap and save the most vital ecosystems on the planet, hundreds of billions of dollars are needed. Private investment capital may be the main source of these funds. This emphasizes the value of smart development financing, which goes beyond simply bridging budget shortages to effectively leverage private resources. The private sector is a source of fresh investment opportunities that help both the environment and the bottom line. Pioneering investors have already created financial strategies that integrate the revenue streams from industries like sustainable agriculture, ecotourism, and sustainable forestry with actual assets like tropical forests. To close the current funding gaps, scarce public monies may play a critical role in encouraging private sector investment.

The high perceived risks and weak benefits make it hard to convince individuals to invest in conservation.
Credit upgrades (where a business strives to improve its debt or credit worthiness) may boost the flow of funds to feasible initiatives by lowering risk or boosting earnings. "Impact investors" employ a variety of strategies to raise creditworthiness, catalytic first-loss capital being only one of them. This tool helps to lessen risk in the same way that its name suggests (as in the case of junior equity or subordinated debt). If investors think there's a decreased chance of losing money, more funds might go into environmental protection. There's a possibility that thinking of "catalytic first-loss capital" makes you think of unselfish giving. Credit improvements like these would enable the attraction of far larger sums of money than would be possible with just traditional public or charitable backing. They prepared the ground for consistent capital inflows into emerging economies. Additionally, they aid in enhancing the terms of project developers' access to funding.

The project's risk/reward ratio and the creators' skill in creating a scalable and repeatable investment opportunity are two potential deterrents for private investors.
Due to the distinct nature of the market or opportunity, many potential investment targets lack industry knowledge or a track record of success. Inability to monitor environmental, social, and climate change impacts; high search expenses for qualified projects and developers with a track record of generating cash-flow-producing projects. The growth of the green finance industry depends heavily on elements like sustainability, replication, and scalability. Only a select few projects can currently rise to a budget of $5 million or more (which is an attractive feature for a mainstream investor). Only a few conservation initiatives are currently significant enough to have their own bundled financial offering.

Public and private investors may split the risk, boost potential returns, and decrease the impact of projects on climate change through the use of blended finance. To make up for the absence of resources in areas like capacity, monitoring, and assessment of findings, as well as strong design and reproducibility, they might each contribute their unique skills and knowledge to the table.

Effectiveness of Green Financial Strategies (How it Works)

The wide spectrum of green sectors and technologies must thus be supported by a diversified group of financial institutions. The domestic government, the international government, and the private sector are the three main financing sources. Only a tiny part of green investment may be financed by domestic public sector money and development aid. Since the state can only provide a small amount, the private sector must fill the funding gaps for green investments to reach a long-term goal. The private sector can be made up of both domestic and foreign funding sources. International public finance is the funding of green projects by international institutions and multilateral development banks like the World Bank, International Monetary Fund, Asia Development Bank, and others.

The IMF is offering support by working with the Network of Central Banks and Supervisors for Greening the Financial System and other standard-setting bodies to promote green finance more broadly and develop climate-related stress tests. (According to the International Monetary Fund). Domestic public finance refers to money from the federal government, a state or local government agency, or a private foundation; foreign public finance refers to support from nongovernmental organizations or multilateral development banks. Because there are so many investment possibilities available, green finance packages can be customized to meet individual needs. The realm of green finance is rather broad. There are three basic categories for environmentally responsible finance (Green Finance), and they are as follows: Expenditure of capital on essential infrastructure, business funding and the financial markets.

Both the mitigation and response to climate change require green financing. However, many private investors do not think the potential rewards of eco-friendly initiatives outweigh the dangers. Alternatives to public finance, including lenient lending requirements or loan guarantees from commercial banks, may tip the scales in favour of the impression of profitability. The private sector may be encouraged to invest with the help of public funds. The United Nations Environment Programme estimates that investing just $10 billion in public climate change adaptation may spur private investments of an additional $50 to $150 billion. Governments typically contribute money to environmental programs to achieve the following goals:

- Make a plan for establishing steady funding for environmentally conscious firms and growing economies.
- Develop innovative monetary answers to promote low-carbon, environmentally-friendly expansion.
- Create a financial incentive for businesses to invest in green infrastructure and maintain it up to date.
- The corporate community needs more information and tools to become more ecologically responsible.

Funding for Brand-New Facilities. (Infrastructure finance)

The government is investing heavily in green growth, with much of the money going toward infrastructure development. Governments in emerging and poor nations may now be able to assist private companies in making long-term investments in infrastructure that will improve resource management. Infrastructure projects including renewable energy and energy efficiency receive the most funding.

Obtaining Financing for Businesses (Financial assistance for firms)
Certain "green" businesses need government financing to flourish and compete with more conventional "brown" ones. Offering government funds to businesses to stimulate investment in sustainable areas is one possibility. They may also design regulatory frameworks that pave the way for investment from private investors or the financial markets.

The Support of Economic Markets (Promoting financial markets)
For publicly traded companies, green financing primarily originates from the financial markets. An increasing number of institutional investors have chosen responsible investment due to worries over climate change and other environmental issues.

Strengths of Green Finance/Eco-friendly finance have several pluses
- A low-carbon green development may be compelled to alter from its current voluntary nature toward an obligatory strategy in light of rising climate change and other environmental and economic issues. The continent will have an advantage over rivals if green finance is established before tighter environmental limits are implemented, establishing a competitive advantage.

- By increasing their participation in green finance and making it more widely known, companies, organizations, and corporations may increase the value of their portfolio. They will have an advantage over the competition and win over customers and investors who care about the environment, therefore, increasing value.

- By establishing and bolstering local markets for sustainable alternatives, which in turn boosts the possibility for economic growth, governments that support green financing are better positioned to assist their populations in preparing for a period when natural resources are scarce. As a result, their economic outlook has improved as they delve into previously unexplored areas with great potential for the creation of new jobs and experiencing a standard of life. Governments place a high priority on the welfare of their citizens in the future, therefore green financing strategies are attractive since they support initiatives and improvements that will be beneficial in the long run.

Limited resources for ecologically friendly projects (Challenges to Green Financing)
- Lack of coordination between the financial and environmental objectives.
- A short-time horizon for investors doesn’t match with long-term green investment.
- The attractiveness of private investment in green development in developing countries is negatively impacted by market competition both now and in the future, both in terms of investment returns and risk management. The rate at which private capital enters this industry will depend on how appealing green growth investments become in comparison to other options, both locally and worldwide. Governments may need to put in place a package of governmental initiatives to make green investment more alluring to draw in foreign investors who may search outside of national borders for opportunities.

- When risks are either underpriced or not priced at all, a government's ability to draw in private investors is impeded. Financial markets in certain nations overvalue the risks associated with green development. The market's inability or unwillingness to correctly evaluate such risks is a significant obstacle. These risks are frequently caused by issues with domestic government program continuity, transparency, and design. As a result, there are no pricing risk concerns and mispricing.

- Investment in green energy will find it difficult to provide investors with satisfactory returns as long as environmental externalities and fossil fuel subsidies continue to skew the market price of energy. The lack of sufficient green financial products or exchanges makes it more

challenging. While private investors want the highest possible risk-adjusted returns, host nation governments are interested in the economy's maximal economic potential. As a result, it becomes market flaws and distortions.

- The inability of small and medium-sized businesses to participate in the green financing market is due to the regular management or access issues they confront. The fact that conventional company planning neglects to account for the long-term advantages of green sectors is another important obstacle to private investment. Also in short supply are professionals who understand the complex interactions between market forces and environmental protection. As a result, awareness and capital are limited.

- The lack of suitable legislative and technical infrastructure to examine, appraise, and analyze green business strategies and financing is a significant impediment to the expansion of green finance. Thus, it becomes a matter of regulations and policy.

Promotion/Strategies to Implement in Green Finance

Several interventions and policies may work for typical constraints and levels of development, but there is no one best choice for the wide variety of situations and projects that need green finance. Businesses typically assess a region's suitability for trade and investment based on some factors, such as macroeconomic stability, war risk, and the level of governance. To encourage private investment, public interventions must address these issues and be carried out in a transparent, enduring, and consistent manner.

Here are some examples of proposed regulatory improvements that could ease investor friction and enhance the regulatory environment:

- A public initiative to inform the populace about the economic and environmental benefits of low-carbon green development.

This technique, far from being a burden, is an opportunity, and it will ultimately become vital, therefore they must see the difference. Only expanded initiatives in the direction of corporate social responsibility, such as the Carbon Disclosure Project or the UN Principles for Responsible Investment, may bring about transparency in the green finance industry.
To ensure that only legitimate participants in the green industry's image gain its benefits and to give investors the knowledge they need to make educated financial decisions, it is essential to develop strict verification techniques for green technology and green firms.

In other words, it involves modifying a country's regulatory system to accommodate green funding.

- Environmental regulations cover a wide range of issues, some of which include pollution standards and controls, information disclosure on environmental impacts, and the abolition of implicit subsidies for environmentally harmful or unsustainable growth (via measures like land use controls, building standards, land use planning, protection of natural buffer zones, water management and pricing, and improved sector governance and monitoring). increasing financial support for eco-friendly and clean technology.
- Governments can sponsor green investment initiatives like renewable energy facilities to help mitigate the higher cost. Public funding choices include grants, loans, loans from the government, grants, auctions, and procurement. Venture capital firms are an example of a private investment vehicle. In addition to expanding the usage of green bonds.
- Government assistance is only accessible in the early stages of development: To compete with established brown technologies that externalize environmental costs and benefit from a suitable infrastructure system and well-developed supply chains, green businesses, especially in their formative stages, require government support due to the

risks associated with using new technologies. However, once green businesses have reached a particular degree of maturity, governments should aim to attract and allow other financial institutions to take up their role as active facilitators.

Ecological friendly policy measure that could be used.

Policy measure	Description
Environment requirements reflected in statuses for investment, lending, credit rating accounting, etc.	• Require financial institutions to address environmental concerns: fiduciary and lender's liability on the environment • Reflect on environmental factors in credit rating and accounting procedures
Corporate disclosure of environmental information	• Put environmental information as a requirement for listing and disclosure • Shift from voluntary to mandatory disclosure Gradually • Finance institutions in industrialized countries already are required to disclose comprehensive environmental information under voluntary guidelines, such as the Global Reporting Initiative
Green technology, business, and industry certification can help with financing and investment	Introduce processes for green company certification that are particular to a certain sector, technology, business type, and size. Prominent financial organizations, like Goldman Sachs, score environmental performance by, for instance, classifying green and non-green enterprises.
Green indices	• Develop a green enterprise index to promote green investment • Develop a green (carbon) risk index to promote investment in green bonds • JPMorgan and Invest co-developed the JPMorgan Environmental Index-Carbon Beta (JENI-Carbon Beta Index), the world's first bond index that reflects the climate change risk of businesses
Green financial professionals	• Train professionals for research, review and investment to provide green financial services o Introduce professional training programmes and promote expertise
Green financial consumer education	Initiate public and consumer education to promote awareness of: • The need for green growth • Green bubbles, environmental risks and other issues
Conference on green finance In Africa	Organize an annual conference on green finance in Africa

Source: Jin Noh Hee, *Financial Strategy to Accelerate Innovation for Green Growth* (2010) Low Carbon Growth Roadmap for Asia and Pacific: Fact Sheet-Green finance 2021

Sustainable Value Creation

Although it produces only 3% of the world's emissions, Africa is disproportionately impacted by climate change. This perilous predicament is mostly a result of the continent's present modest rates of socioeconomic development. Even while the effects of climate change may be felt everywhere, the poor are more vulnerable. This is because they lack the funds to purchase the goods needed to defend themselves from and recover from the most severe effects of climate change. This is the reality in Africa. Consequently, the UNEP Africa office's work on climate change in the region is concentrated on helping nations create a framework for carrying out their commitments to take action on climate change, also known as Nationally Determined Contributions (NDCs), in a way that satisfies top socioeconomic priorities like food security, the creation of income-generating opportunities for youth, and economic growth.

Increased funding for women, girls, young entrepreneurs, and other vulnerable or disadvantaged populations via climate-smart and green technologies for African nations is needed to make the benefits of these investments more equitable.

a. Conduct a baseline study to evaluate the effectiveness of present efforts to promote women's, girls', young people's, and underserved populations' participation in Africa's growth activities and investments. By doing this, we could discover ways to close the gaps, going above and beyond what is currently being done in Africa's climate change and green growth initiatives to involve women, girls, youth, and other marginalized groups (such as training modules or workshops).

b. The African countries would be able to adopt and demonstrate a context-specific **'Leave No One Behind'** approach if they developed guidelines for portfolio, program, and project managers to identify on a case-by-case basis the vulnerable groups and marginalized populations relevant to each investment or activity.

c. We can better equip women, girls, young people, and other underrepresented groups through targeted investments in formal and informal education, such as incorporating environmental and climate change issues into school curricula, particularly in Science, Technology, Engineering, and Math (STEM) subjects; developing specialized degree programs and short courses in higher education institutions like short diploma and certificate programs and universities; and so on (including but not limited to engagement through social media platforms, drama, poetry, and the creative arts). This will bridge the knowledge gap between continents on climate change and sustainable development.

d. Support women, young people, and other underrepresented groups who are founding climate-responsive and green businesses by offering them services including company development, incubation, acceleration, promotion, and education programs that can help them scale.

e. African nations' NDCs, NAPs, and associated adaptation plans should support the creation of innovative, high-quality, gender-transformative bankable initiatives.

f. Help identify and fortify national institutions in need of climate monies like the Adaptation Fund, the Green Climate Fund, and the Global Environment Fund to implement transformational projects for women and girls affected by climate change.

g. Women, young people, and other underserved groups should be given first dibs on governmental and private sector project preparation funding and technical help for climate change and green development projects.

h. At the project and activity level, increase the percentage of women, girls, youth, and disadvantaged groups who are intended to benefit from investments. This may be done by tracking the results i.e. increasing affirmatively.

i. Create a forum where young Africans may discuss and act on climate change and green development. Periodic forums at the continental, national and regional levels are part of this strategy. Young people's discussions on climate change and green growth will be facilitated, and the resulting insights will be incorporated into national and regional plans for sustainable development.

Africa's employment market and climate change

How susceptible is the African labour market to climate change? Even though they may appear unrelated, climate change has the potential to affect the region's labour markets both directly (through incidents like floods, landslides, droughts, locust invasions, heat waves, and changes in precipitation patterns) and indirectly (through adjustments to laws and policies intended to combat climate change, like green taxes or emission reduction policies) (through changes in regulations and policies meant to fight climate change, such as green taxes or emission reduction policies).

Floods affect millions of people every year in Nigeria, and rising temperatures in North Africa are causing drought, which is devastating for the region's indigenous farmers. The fact that only 4% of the world's greenhouse gas emissions originate in Africa while approximately 50% of carbon emissions are produced by the richest 10% of the world's population is perhaps the most unfair part of the issue. But according to the United Nations Environment Program, sub-Saharan Africa is the region of the world that will be most affected by global warming.

The world's wealthier nations, who are mostly responsible for climate change, need to help Africa's poorer ones prepare for the effects of climate change and adapt to them, as well as compensate for the losses they've already sustained. They're doing it, right? No, to put it briefly. For climate financing, the world's wealthiest nations have pledged $100 billion a year from 2020 to 2025, a commitment that was made over 12 years ago (money to help lower-income countries most affected by climate change adapt to its effects). However, they have fallen short of their promises, with some suggesting that the promised funds won't arrive until 2023.

Consider these disheartening data on how Africa is bearing the brunt of climate change's destructive effects.

1. By 2025, water scarcity will affect almost a quarter of a billion people in Africa. One-third of Africa's population faces water shortages, according to the World Health Organization. However, climate change may make the situation much more direful by 2025, with estimates suggesting that as many as 460 million people would be living in water-stressed areas and 230 million will be affected by water shortages.

2. In 2022, half a million people in southern Africa were displaced by tropical storms within only three months. Tropical cyclones, which are not to be confused with typhoons or hurricanes, are becoming more powerful as a result of the warming of ocean surfaces brought on by climate change. Flooding, landslides, property destruction, and even loss of life may all result from the high winds and heavy rains that accompany these storms.
Many cyclones have already made landfall in Africa this year, especially in the southern section of the continent. Tropical storm Ana wreaked havoc in Madagascar, Malawi, and Mozambique in January 2022. Tens of thousands of houses were reduced to rubble, and hundreds of thousands of people were forced to seek refuge elsewhere. A little over two weeks later, in

early February, cyclones Batsirai and Emnati struck Madagascar, causing more loss of life and property.
At least 112,000 people were forced to leave their homes as Batsirai ripped down power lines, uprooted trees, and damaged buildings. The terrifying news for the area was that this wouldn't be the last outbreak. Northern Mozambique and Malawi were hit hard by tropical cyclone Gombe in March when gusts of up to 120 mph swept across the region. Hundreds of people were killed and a national state of disaster was declared last week when disastrous floods hit the KwaZulu-Natal region of South Africa.

3. In the year 2020, hundreds of billions of locusts invaded east Africa. Its good knowledge that the Old Testament contains references to devastating locust plagues. This may seem like something out of the Bible, but it's a result of the changing environment in Kenya. Locusts often shun groups and fly alone to cool down. To form a swarm, they need the right conditions, namely, a mix of heavy rainfall and hot temperatures. However, when they do, the results may be catastrophic: a single swarm can cover up to 90 kilometres in a day, destroying enough food for 2,560 people for an entire year.
The latest breakouts in the east of Africa were the greatest infestation in a quarter of a century, but the climate crisis is generating exactly this scenario.

4. One-third of all fatalities attributed to extreme weather occurs in Africa. The World Meteorological Organization (WMO) estimates that during the previous 50 years, one-third of all human fatalities may be attributed to severe weather occurrences.
So, for instance, in Africa, flooding in Somalia in 2010 resulted in the biggest natural disaster death toll since the turn of the 21st century, with over 20,000 people losing their lives. These events illustrate how climate change may have far-reaching effects on a continent's economy, ruining crops and products, displacing farmers and other employees, and ultimately taking lives. When farmers can't provide enough raw materials, factory and business owners must resort to importing. This may likely put further pressure on an already frail organization or government to improve its adaptability by teaching its members new skills.

To mitigate the problem, the government should institute measures to reduce the emission of greenhouse gases in the impacted regions. The demand for items that are seen as harmful to the environment, either in their usage or manner of manufacture, may be reduced if more people were aware of the risks associated with climate change. Millions of people will be able to find gainful employment as a direct result of the transition to zero carbon, particularly in fields like green manufacturing, organic agriculture (encourage organic farm managers, organic handlers, and organizers), renewable energy, sustainable tourism, etc. The continent as a whole has to make investments in STEM education for all of its youth and apprenticeship programs in at-risk neighbourhoods, with jobs in emerging industries. The government of Africa may help weak states by introducing solar power and battery storage.

What can be done to make Africa's effect on climate change and green development exponentially greater?

1. Cooperation among African nations to expand and solidify a partnership with institutions that pool comparative advantages and complementary capacities—like the Africa Development Bank and the Global Compact's Africa Office—through the pursuit of substantive activities and the delivery of tangible results. (Synergy)
2. A uniform operation all over the continent by meeting the level of economic development, a high stand of education, access to credit and adaptation to technology in all African countries and with consistency to mitigate the impact of climate change
3. The multilateral development banks (including the World Bank, the African Development Bank, and the Asian Development Bank) should also contribute to the financing of long-term projects by issuing significantly more long-term debt on the

capital markets and lending the funds to government and public-private investment organizations.

4. Small to medium-sized green initiatives may be financed effectively via community or village funds since green finance redirects more public funds toward environmentally responsible initiatives and productive use. The government should provide these indigenous people with adequate orientation and investment knowledge so that they can develop their community even without the government's full support. This would provide an additional respite for the national or federal government, allowing them to concentrate on other projects while transferring accountability to the community's leaders.
5. The utilization of solar and wind power (turbines) to generate electricity in rural regions should be strongly promoted, and only in extreme instances should fossil fuels be considered. All African nations should be strongly motivated and supportive of this since these regions have open fields and mountains where wind turbines may be installed to create renewable energy.
6. Climate Investment Funds (CIF) are at the forefront of climate action in poor nations. Continue to deepen collaborations with other MDBs and international financial organizations like the International Monetary Fund (IMF). The Climate Investment Fund (CIF) provides poor nations with a much-needed boost toward attaining low-carbon and climate-resilient development by providing $8.5 billion, making it one of the biggest fast-tracked climate finance mechanisms in the world.
7. The African Union, the African Ministerial Conference on the Environment, the New Partnership for Africa's Development (NEPAD)-African Union Development Agency (AUDA), the African Climate Policy Centre, the United Nations Economic and Social Commission for Africa, the World Meteorological Organization, other UN agencies, the Global Green Growth Institute, and the European Commission should all work together to improve the environment. The nations will expand upon and improve upon existing, successful partnerships such as the Africa Adaptation Initiative, ClimDev Africa, the Weather and Climate Information Services for Africa, and the Global Framework for Climate Services.
8. Look for opportunities to form new alliances with non-African governments and businesses, and African businesses, particularly African businesses operating in the diaspora, to facilitate the transfer of technology and provide advice on the most effective tools now at your disposal.
9. Investigate and forge new alliances with governments and businesses in Africa's more technologically advanced countries; doing so could serve as an anchor for green growth on a regional scale; creating low-carbon and green technologies ideally suited to the African context; and orienting towards technology transfer, guidance, and advice to other less economically developed African nations.
10. Discover and cultivate novel strategic and high-impact relationships with African nations' knowledge institutions, knowledge hubs, researchers, universities, academics, civil society groups, and third-sector establishments. This will help them do their part in promoting good governance and strong national policy, both of which are essential to the development of Africa and its ability to take action on climate change and green growth on the regional and continental levels.
11. Create a financial incentive for businesses to invest in green infrastructure and maintain it up to date.
12. Develop innovative monetary answers to promote low-carbon, environmentally-friendly expansion.

The corporate community needs more information and tools to become more ecologically responsible.

Sustainability

Sustainable development is the only realistic route to green global growth and high employment; thus, it cannot just be an idea or a catchphrase. It's time to give it the care and consideration it merits. The sustainability of the continent will be based on increasing human comfort, opportunity, and well-being while reducing adverse consequences on the continent. These would ensure that the next generation lives in comfort. It will guarantee that the following generation has a strong economy and access to enough resources.

Practices that may be continued indefinitely without losing quality are said to be sustainable. Nevertheless, there is no exact method for determining a project's long-term viability.

Suggestions and Recommendations

The continent must take action immediately, climate warming will exacerbate violence and natural disasters and obstruct African development. African nations are faced with not only establishing a global agreement to combat climate change but also with creating an enabling policy environment that supports green funding, management, planning, and service delivery initiatives for adaptation. Encouragement and promotion of green banking will entail working with banks to include environmental considerations in their lending portfolios as well as engaging traditional capital markets in developing and disseminating a variety of financial products and services that offer both investable returns and environmentally beneficial outcomes. Additionally, African countries ought to spend more money on supporting young people, women, and girls in all spheres, including welfare, education, and health. Furthermore, African governments ought to spend more money on supporting young people, women, and girls in all spheres, including welfare, education, and health.

Finally, African nations should reevaluate how much of their tax revenues they are allocating to support vulnerable populations and unstable governments, particularly in regions that produce significant revenue for the nation but experience hardship.

Examples are the oil-producing regions and the state where food is produced that is fighting a locust invasion.

Conclusion

By providing financial support, the continent would be able to inspire improvements that are good for the environment (Africa at large). Individuals and businesses in Africa would benefit greatly from the availability of tax credits if they would adopt more energy-efficient practices, green banking and bond. It is acceptable to state that the economy has made substantial progress toward promoting paradigm shifts toward the pursuit of sustainable practices and adapting to climate change. However, more work needs to be done across the continent to discover potential green initiatives and confirm their "Green" status. The government could pioneer the market through blended finance, which is the "deliberate use of public money to attract private capital towards initiatives delivering development effect in emerging and frontier markets," notwithstanding the high upfront costs of green financing solutions. using tools that are grant-based, risk-reducing, and concessional financing. Climate change does, however, offer opportunities for Africa to take advantage of its plentiful natural resources and advance the continent's advancement toward the Sustainable Development Goals.

Africa must grow economically and contribute to the development of the continent for it to become rich. To address climate change, the private sector and institutional investors will have access to a wide range of new market opportunities.

Green money may be made possible at the same time as the Paris Agreement and the SDGs thanks to new financial technologies (or "fintech") like blockchain, the Internet of Things (IoT), and big data. Nassiry (2018) lists three potential large-scale uses of fintech in the green finance sector, including the development of new financial instruments like green bonds, blockchain

applications for sustainable development, blockchain use cases for renewable energy, decentralized electricity markets, carbon credits, and climate finance.

Investments in debt and equity funds dedicated to environmental protection are common. This is because these options offer an immediate source of funding and enable all investments connected to a particular project to be combined into a single pot of money. However, green funding frequently amplifies its environmental protective impacts. Organizational plans for employing green money should be open, simple, observable, and quantifiable. The criteria for getting green money must be clearly defined, and the implementation must be frequently assessed, to prevent fraud and ensure that the stated goal of assisting in the greatness of Africa is realized.

Suggestion for additional studies

The devastation of infrastructure, agriculture, and everything else is inevitable due to climate change, but what about the mental health consequences? Because a starving man would do everything to ensure his survival, vulnerable people tend to entertain vile ideas. A primer on larceny, murder, and destruction. A weak community or government may resort to highway robbery if forced to do so by dire circumstances. Climate change's mental health consequences, especially for the most at-risk communities, are becoming direr. Its degree needs to be investigated.

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