jotoafrika

Adapting to climate change in Africa

September Issue 25, 2023

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ABOUT JOTO AFRIKA

Joto Afrika is a series of printed briefings and online resources about adapting to climate change in sub-Saharan Africa. The series will help people understand the issues, constraints, and opportunities that poor people face in adapting to climate change and escaping poverty. Joto Afrika is Swahili; it can be loosely translated to mean 'Africa is feeling the heat'. Future issues will focus on climate change and pastoralism and climate change and energy. Please tell us what you think about this 25th issue of Joto Afrika and what you would like to read in future issues.

Carbon Markets for Effective Climate Solutions

EDITORIAL

Welcome to the Joto Afrika magazine Issue 25!

In this series, we deep dive into one of the options for addressing climate change through the buying and selling of carbon! Yes, Carbon Markets!

The Intergovernmental Panel for Climate Change (IPCC) won the 2007 Nobel Peace Prize sharing it with former USA Vice President Albert Arnold (Al) Gore Jr. for *"their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change."* [1]

The IPCC proved unequivocally that our carbon-intensive development pathways have significantly altered the greenhouse gas (GHG) composition in the atmosphere leading to global warming in turn causing catastrophic sector-wide impacts, increasing vulnerability, affecting food production, threatening species richness (biodiversity) and jeopardizing sustainable development. The 6th IPCC Report bears it all. Developed Countries listed in the first Annex (Annex I) of the United Nations Framework Convention on Climate Change (UNFCCC) were the main contributors to the increase in GHGs in the atmosphere. Therefore, through the Kyoto Protocol, these countries were given quantified emissions limitations and reductions to avoid dangerous interference with the climate system. They could achieve this through domestic actions, jointly with other developed countries, or by buying carbon credits from "clean" project activities in developing countries. This was the birth of carbon markets around the globe. The markets have since evolved both in the regulated and voluntary space and the Paris Agreement has created more opportunities for further growth as one of the baskets of climate solutions.

Carbon markets involve the sale and purchase of "offsets." An offset is a verifiable claim that one entity has removed or avoided greenhouse gas emissions. The buyer entity (country or company) can use this purchased marker of success so that they can emit more without penalty[2] . The carbon credits can be traded in various carbon markets. The choice of market depends on various factors, such as the intended use of the carbon credit and the eligibility criteria. Critical in this market however is to ensure environmental integrity to guarantee actual emission reduction to avoid the sale of "hot air". Carbon markets therefore present opportunities to fund and implement green best available technologies that are needed for countries such as African Nations to raise their ambitions to mitigate GHG emissions, generate adaptation and sustainable development co-benefits, and cooperate to implement their Nationally Determined Contributions (NDCs) under the Paris Agreement. Markets thus provide an additional source of finance by providing a price on carbon. Expressed in monetary terms, a carbon credit is defined as a tonne of carbon dioxide equivalent (tCO2e).

This 25th issue of Joto Afrika therefore brings you a sample of carbon initiatives from different African countries such as Ethiopia, the Democratic Republic of Congo, Ghana, and Kenya. The articles cut across various sectors including forestry through efforts to reduce deforestation, forest degradation, conservation and enhancement of carbon stocks (REDD+), climate-smart agriculture to enhance soil carbon and increase of crop yields, sustainable energy use, and alternative livelihood support systems, among others. We also have opinion pieces covering the just concluded Africa Climate Summit and innovative climate financing through green bonds. We have also tried to demystify some key carbon market terms. Read along!

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[1] https://www.un.org/en/about-us/nobel-peace-prize/ipcc-al-gore-2007
[2] https://blogs.lse.ac.uk

Carbon Market Overview

Explainer

What is the Carbon Market?

The carbon market is a diverse set of systems that are regulated in different jurisdictions for trading greenhouse gas (GHG) pollution rights. These rights – called allowances or permits — are the commodity that is globally traded and give the bearer the right to emit an equivalent amount of CO2 emissions. Carbon credits are like permits but are fundamentally different in that they are generated over time, (i.e., once a project gets implemented and the reductions are audited). In many markets, these carbon credits can be used in lieu of allowances for compliance with targets that have been placed on industrial facilities or sovereign countries.

Four main market segments:

1. **The Clean Development Mechanism (CDM),** is a project-based, offset system that came into effect under the Kyoto Protocol. It has the objective of reducing the global cost of GHG mitigation by opening the market for those countries with legally binding emission reduction and or limitation targets to gain from trade with countries that do not have legally binding targets, while simultaneously rewarding new voluntary actions in those developing countries that reduce emissions. Thus, carbon credits can be purchased from projects developed in non-industrialized nations by industrialized countries. Importantly, carbon credits cannot be generated for emission reduction activities as a result of laws or legislation, nor can they typically be generated from the result of designing and implementing new domestic policy measures.
2. **Joint Implementation (JI)**, which permits the same activity as the CDM, but occurs only between Annex 1 countries. Both mechanisms allow industrialized countries to achieve their targets by purchasing carbon credits outside of their country's borders. However, only CDM allows them to purchase credits from developing countries.
3. **Emissions Trading Scheme (ETS) concerns the trading of allowance rights to emit GHGs,** which can only happen between industrialized country governments, as they buy and sell the rights to pollute up to their own limits or assigned amounts. The ETS is a cap-and-trade system.
4. **The Voluntary carbon market,** which follows a similar project cycle to the JI and CDM. The main difference is that the credits are not uniformly issued or regulated by the United Nations Framework Convention on Climate Change (UNFCCC) and are typically sold in volumes that appeal to retail clients seeking a smaller number of reductions to offset their carbon footprints.

Carbon Unit Types

The units traded on the carbon market all equate to 1 ton of carbon dioxide equivalent emissions (tCO2e). This unit is identified according to the eligibility of the unit for use under various compliance regimes:

- An Allocated Allowance Unit (AAU) is the unit required by Annex One governments to comply with their Kyoto targets
- An Emissions Reduction Unit (ERU) is the credit generated under a JI (Joint Implementation) project, located in an Annex One country
- A Certified Emission Reduction (CER) is the credit generated under a CDM project, located in a non-Annex 1 country
- A Verified Emissions Reduction (VER) is a project credit not certified for Kyoto Protocol compliance but verified according to the sales contract, that is created by emission reduction activities carried out on a "voluntary" basis, to meet corporate or individual greening goals independent of Kyoto.
- In addition, there are units specific to national or regional schemes such as the European Union Allowance (EUA) which is traded under the EU Emissions Trading Scheme.

What is the Gold Standard?

An assessment system called the "Gold Standard" has been introduced to evaluate the sustainability credentials of CDM and JI projects. It is a voluntary methodology and quality label for both Kyoto and voluntary markets. In theory, projects meeting the standard can command a higher price for credits.

Requirements for CDM Approval

Host country: meets EIA or other local permit requirements, demonstrates positive sustainable development benefits, as defined by the host country on the UNFCCC side, participation by the project proponent in CDM is voluntary (i.e., no legal mandate) and proven GHG emissions reduced from baseline following carbon auditing processes using the approved UNFCCC CDM approved methodologies Auditor: Validates the project as "additional" i.e. that the project activity is not common practice and investment or technological barriers can be overcome through additional carbon revenue.

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Read More https://rb.gy/goftp

Monetizing Agricultural Carbon Sequestration Initiatives for Climate Change Mitigation in Kenya

Research Summary

African countries are particularly exposed to the physical risks arising from the global rise in atmospheric temperatures. They also face the question of how to manage and finance the economic transformation that will be required to curb greenhouse gas emissions and halt the destruction of nature. Carbon sequestration is a crucial component of efforts aimed at mitigating the effects of climate change.

Vi Agroforestry (ViA), an NGO in Kenya, implemented the Kenya Agriculture Carbon Project (KACP) in Western Kenya (Bungoma, Kisumu, Siaya, and Lake Basin). KACP generates carbon credit from Tree Biomass and Soil Organic Carbon (SOC) to offset greenhouse gas (GHG) emissions through sequestration. Other initiatives have also come up as the voluntary carbon offset space expands, piloted by Climate Change, Agriculture and Food Security (CCAFS), Food and Agriculture Organization (FAO), World Agroforestry Centre (ICRAF), Kenya Agricultural Research and Livestock Organisation (KARLO), and CARE Kenya. There is a growing demand for carbon offsets as businesses endeavor to attain net-zero emissions.

KACP, which is set to run for 20 years from 2009, addresses the problem of high GHG emissions in Kenya's agricultural sector, with the carbon credit component added in 2010. Proponents showcase KACP as a "triple-win" solution for food security, adaptation, and mitigation.

Project goals, objectives, and outcomes

The goal of KACP is to increase farm productivity, food security, and farmer incomes, and strengthen farmer resilience while reducing GHG emissions. The overall objective is the adoption of sustainable agricultural land management (SALM) practices to sequester carbon. Expected outcomes include access to carbon markets. KACP therefore aims to test the role of carbon finance in persuading small-scale farmers to adopt SALM practices.

Methodology

Accounting for carbon from KACP activities is guided by the Voluntary Carbon Standard methodology "VM0017 Sustainable Agricultural Land Management (SALM)". The methodology combines the Roth-C model with Activity Baseline Monitoring to guide the accounting and monitor other practices. Roth-C is a model for the turnover of organic carbon in topsoil that allows for the effects of soil type, temperature, soil moisture and plant cover. The project uses The Verified Carbon Standard (VCS, a GHG crediting program, which is tracked, inventoried, and credited by the Verra Carbon Registry. The approach follows the overall 'Good Practice Guidance' of the Intergovernmental Panel on Climate Change (IPCC).

Project activities

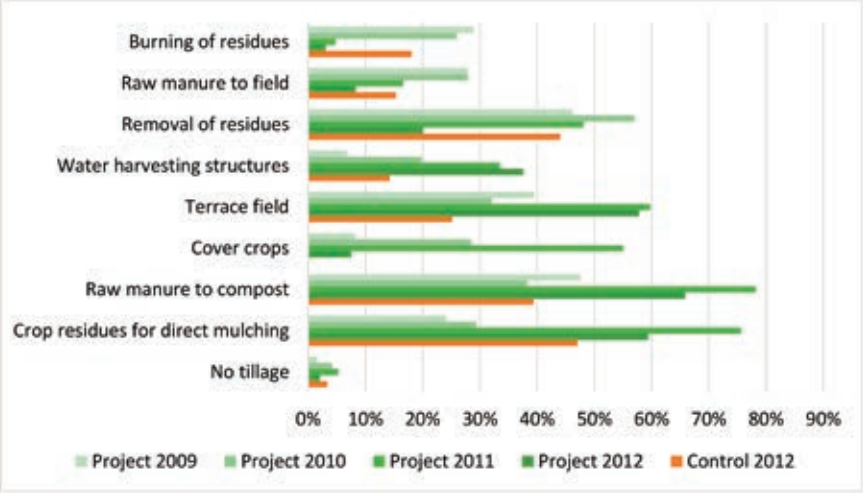
KACP was launched in 2009 with support from the World Bank BioCarbon Fund but is currently funded by carbon buyers. The project targets 60,000 smallholder farm families on 45,000 hectares, with an average farm size <1 ha and a guaranteed price of $4 USD/tCO2e over the 20-year period.

Project results

The uptake of SALM practices is presented in the figure below. Yield results show that SALM has increased farmer yields by up to 15-90 % while also sequestering more carbon. The increase in maize yield between 2009 and 2012 was 1,257.6 kg/ha (Nyberg et al., 2020). In 2016, 184,447 tCO2e were sequestered and verified for the years 2010-2015, of which 24,788 tCO2e were sold to the BioCarbon Fund (ViA, 2016). The credits represented a reduction of 24,788 MT of CO2e/year, equivalent to annual emissions from 5,164 vehicles.

Benefits of carbon tracking/accounting

- KACP focuses more on improving agricultural productivity/yield and strengthening resilience. Carbon payment only comes in as a 'co-benefit', a 'bonus' or 'token'.
- The main benefit of carbon tracking/accounting is training and participation.
- Co-benefits exceed the direct benefits of carbon revenues. According to a recent World Bank study, yield increases alone are worth US$ 200-400/ha/year (Siani, 2013).



Challenges and Limitations

- Activity-based information used for the calculations is "self-reported" by the farmer because no external tracker can be present in all the target farms at the time of all activities. Self-assessment may therefore distort outcomes.
- Due to the high level of uncertainty associated with the method and the impermanence of GHG reductions, the project discounts the carbon claimed to be sequestered.
- Most of the monetary benefits from the credits are absorbed by project developers as "transaction costs."

Lessons

KACP has proved that carbon finance can leverage triple-win agricultural investments to increase productivity/incomes, strengthen adaptation/resilience, and reduce/remove GHG emissions. The key message to beneficiaries (61% of whom are women) is that the carbon finance benefit is just a bonus. The model has been found to be cheaper than soil sampling approaches. Proponents hope that farmers will maintain restored agricultural landscapes into functioning ecosystems.

Implications for policy reforms

Many barriers still exist, including:

- The high cost of nature-based solutions
- Methods to measure and monitor capture and storage
- Ensuring a long-term and stable supply of offsets
- The lack of a carbon credit reference price to base transactions on. Need to allow a global market price for carbon to emerge, to create incentives to reduce emissions

Box 1: Sustainable Agricultural Land Management
The project promotes SALM practices related to:
1. Nutrient management such as mulching and composting.
2. Soil and water conservation such as retention ditches
3. Agronomic practices such as crop rotation and intercropping
4. Agroforestry - growing trees alongside crops and livestock
5. Tillage and residue management such as zero-tillage
6. Land restoration and rehabilitation such as natural regneration
7. Integrated Livestock Management with improved feeding, breeding and waste management
8. Integrated Pest Management such as biological pest control
9. Sustainable energy such as biogas and efficient stoves

Read More

https://www.seforall.org/system/files/2022-11/acmi_roadmap_report_2022.pdf

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Carbon Trading: Kenya's Farmers Should Take Advantage of Carbon Trading to Lower Food Prices

Opinion

Global warming easily tops the list of defining issues of our age. Now, more than ever, the world is confronting the fact that climate change is possibly the greatest threat to human existence. As a result, organizations globally are now focused on the environmental, social, and governance aspects of business in addition to the traditional role of driving shareholder value.

One of the biggest contributors to global warming is the greenhouse gas (GHG) emissions from our day-to-day human activities. It is on that note that it is important to discuss carbon emissions trading. Carbon - trading refers to a cap-and-trade regulatory programme designed to limit carbon emissions resulting from industrial activities. The carbon markets are divided into compliance and voluntary markets. The compliance market is regulated by national and international authorities who determine a cap on the amount certain sectors can release into the environment to achieve their Quantified Emission Limitations or Reductions under the Kyoto Protocol and their Nationally Determined Contributions (NDC) under Article 4 of the Paris Climate Agreement. The authorities track the carbon footprints of entities and determine if their emissions go beyond the allowable limit. Entities that go beyond the prescribed amount of carbon emissions have no option but to buy or use saved credits to stay below the emissions limit. For proper context, a carbon credit is a tradable instrument that represents one ton of carbon dioxide removed from the environment.

In the voluntary market, carbon credits trade is on a voluntary basis meaning that the participants operate outside the compliance markets. This provides a flexible trading scheme for players (individuals, businesses, governments, and NGOs) to voluntarily offset their emissions by purchasing carbon credits. The major difference between the voluntary carbon market (VCM) and compliance markets is the ability to participate in VCM regardless of the participant's geographical location or business factor. There is a yin for every yan. The flexibility of the voluntary carbon markets is not without its fair share of challenges. Unlike the carbon permits at the compliance markets which are regulated by national and international authorities, the voluntary carbon market is highly unregulated.

Developing countries stand to benefit greatly from the voluntary carbon trading market that was estimated at $1 Billion in 2021 by S&P Global Platts. Developing countries can take advantage of this great opportunity. Kenya Forest Service (KFS) is already set to benefit from carbon trading in its recent deal with BDO. Smallholder farmers can also earn from the voluntary markets by selling the carbon credits generated from various farming activities.

Recommendations

There are organisations that can create a link between the farmers and buyers. However, developing countries should come up with regulatory frameworks regarding carbon trading more specifically by regulating the market value for carbon credits and protecting smallholder farmers from exploitation. In Kenya, The Rural Electrification and Renewable Energy Corporation (REREC) established under Section 43 of the Energy Act (2019), is tasked with harnessing opportunities offered under clean development mechanisms and other mechanisms including carbon credit trading. Section 75 of the Act further authorizes the Cabinet Secretary to collaborate with the necessary stakeholders in harnessing carbon trading opportunities.

This is a good starting point. Developing countries in Africa need to come up with a multifaceted approach with the aim of tapping into the continent's abundant resources to derive economic benefit from the carbon trading market with a long-term goal of eventually establishing a standard inter-governmental carbon compliance market similar to those in developed regions like Europe, America and China. If Kenyan farmers take full advantage of carbon trading, the expectation is that their costs of farming will come down and with this, there will be a trickle-down benefit to the rest of the Kenyans through reduced food prices.

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The views and opinions are those of the author and do not necessarily represent the views and opinions of KPMG.

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Kenya Should Stay on The Low Carbon Course for Green Economy Growth

Opinion

Innovative climate finance strategies that deliver locally-led and domestically financed climate and economic resilience, as well as the mobilization of green investment, can drive the country's green transformation agenda and position Kenya to benefit from sustainable economic growth.

It is an unjust but nonetheless indisputable fact that, though Kenya contributes less than one percent of global greenhouse gas (GHG) emissions, she remains highly exposed to the impacts of climate change. However, global efforts to reduce GHG emissions present accelerated productivity and inclusion opportunities if Kenya maintains a low-carbon climate-resilient development pathway. Indeed, the country's progress in meeting the Nationally Determined Contributions (NDC) commitments has the potential to accelerate sustainable economic growth.

The ongoing re-configuration of global supply chains as well as the continued expansion of green opportunities like carbon markets, have the potential to deliver unparalleled development impact.

Climate-positive investments and policies will contribute to the growth and catalyze green sectors – which in turn can reduce operating costs, increase private sector revenues, create green jobs, and generate social benefits. It's worth remembering that policy and legislative frameworks that enable access to these pool finances to support implementation already exist.
Crucial to consider also is the fact that, over the medium term, a low carbon climate-resilient economy would improve Kenya's trade balance and support foreign exchange stability measures, as well as lessen the country's destabilizing exposure to fuel price shocks and supply chain disruptions.

Additionally, the operationalization of policies and regulations that support positive and urgent climate action will help deliver the government's commitment to prioritize the lives and livelihoods of Kenyans.

Through the National Treasury, and supported by development partners, a raft of measures including the Green Fiscal Incentives Policy Framework which seeks to steer Kenya towards a low-carbon climate-resilient green economic development pathway through fiscal and economic mechanisms (incentives and disincentives), will enhance mobilization of climate finance from various sources to finance the NDC and National Climate Change Action Plans (NCCAPs).

Under the Framework, Carbon tax and correct carbon pricing have been considered as an incentive for private investors which will facilitate the switch to clean energy and enhance the implementation of the 'polluter pays' principle

These measures will support the country's environmental exposure, support national climate change goals, and promote clean energy investments, as well as catalyze development.

The Climate Policy Initiative estimates that it will cost Kenya Sh6.7 trillion (U$ 65 billion) between 2020-2030 to implement mitigation and adaptation actions and strategies.

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Low Carbon Energy: The Solar-Powered Transformation of the Olkiloriti Women Group in Kenya

Kajiado is a semi-arid land in Kenya that faces the uncertainty of weather patterns that expose livestock farmers to severe drought – leading to loss of livestock, depletion of vegetation, food insecurity, environmental degradation, and water scarcity. The harsh climate and unreliable rains make traditional farming nearly impossible. The availability of solar-powered water pumps has had a life-changing effect on the Olkiloriti women group, pumping water for irrigation while eliminating hardships experienced due to the harsh climatic conditions. The Kenyan government's commitment to invest in clean energy has been bolstered by private companies to bring about real change, especially for those who need it most.

Arid Lands Information Network (ALIN), in collaboration with GIZ through the International Climate Initiative (IKI) small grants program, introduced solar-powered drip irrigation technology to the Olkiloriti community in Kajiado County. They carefully installed solar panels, water pumps, and a drip system that was designed to efficiently deliver water to crops, allowing for year-round farming, even in the driest months. These pumps drew water from a nearby borehole. The women ventured into onion farming which improved income and improved their lives.

ALIN and The County Government of Kajiado jointly provided extension and advisory services to equip the women with the required knowledge and skills for farming since they were predominantly pastoralists. They learned the intricacies of onion farming – from planting to nurturing to pest control.

The transformational impact of irrigation is evident in the Olkiloriti Women Group Irrigation Scheme, where solar pumps were used for irrigation. Households can now feed themselves, earn income, and benefit their neighbors.

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Solar panels emit around 50g of CO_2 per kWh produced in its first few years of operation. By the third year of having solar panels, most solar panels become carbon neutral. This is still roughly 20 times less than the carbon output of coal-powered electricity sources.

Kenya's Carbon Market Portfolio – At a Glance

- Kenya has the largest Clean Development Mechanism (CDM) portfolio in Eastern Africa, with a total of 210 registered activities, including 20 Project Activities as well as 190 Component Project Activities (CPAs) within 29 Programmes of Activities (PoAs)
- The country also hosts a voluntary carbon standards portfolio totaling 72 activities with a large number of registered Gold Standard activities (51), Voluntary Carbon Standard (19) and (2) Plan Vivo projects
- Kenya has issued over 12.3 million Certified Emission Reductions (CERs), with the top three sub-sectors being grid-connected renewable power (geothermal and wind), improved cookstoves and water purification
- Kenya's power projects have been implemented by the national power producer Kenya Electricity Generating Company (KenGen) and 310 MW Turkana Wind Power Project generating over 6.2 million issued CERs
- As an early mover on the continent, 80% (16) Project Activities were registered before December 2012 with 4 project activities being registered post-2012 Though around half of the crediting periods that expired in 2022 are renewable (9 out of 20), there are open questions on whether all of them will be renewed and transitioned to the Article 6.4 mechanism. This was was established in the Paris Agreement as a mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development.
- Kenya has an untapped potential with over 111 million CERs available for sale by the year 2025
- Kenya has been engaged by the Japanese Government through the Joint Crediting Mechanism (JCM) since 2013. Kenya is also exploring carbon financing mechanisms within the context of Article 6 with the World Bank
- On the Aviation front, Kenya has actively been involved in the International Civil Aviation Organization (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) through the Kenya Civil Aviation Authority (KCAA) from voluntary phase 2021-2023 up to 2035. Currently, the national airline Kenya Airways has actively been involved in carbon offsetting programmes since 2011 and is participating in with Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) together with Astral Aviation
- On Article 6 Readiness, the Government of Kenya through the coordination by the Ministry of Environment, Climate Change and Forestry has amended the Climate Change Act 2016 to give provisions for carbon markets governance under the Paris Agreement dispensation. His Excellency the President of the Republic of Kenya Dr. William Samoei Ruto signed into law the Climate Change (Amendment) Act 2023 on 1st September 2023 and it came into effect on 15th September 2023. This amendment provides for the development of Carbon Markets regulations under this Act to operationalize article 6 carbon markets in Kenya as well as regulate the voluntary carbon market. National Environment Management Authority (NEMA Kenya) still serves as the Designated National Authority to the Clean Development Mechanism (DNA for CDM) during this transition period.
- The Ministry of Environment, Climate Change and Forestry is also finalising the development of the Climate Change (Carbon Markets) Regulations, 2023. The Regulations shall apply to principles governing trading carbon markets; participation in carbon; Environmental Impact Assessment; Social and Environmental Benefits; share of proceeds and cancellation rates; carbon registry and dispute resolution.
- Kenya is an active member of the Eastern African Alliance on Carbon Markets and Climate Finance (EAA) and has begun preparing for establishing its institutional framework and capacity for engaging in Article 6 carbon market instruments as well as engaging in the Article 6 negotiations under the United Nations Framework Convention on Climate Change (UNFCCC). NEMA Kenya serves as the Kenya Focal Point to the Alliance
- Participation in Carbon Markets in Kenya has not been without challenges. Key barriers to growth of the carbon markets in Kenya includes high investment/transaction costs to develop, register, implement and monitor a carbon project activity; limited skill-set/experts to develop carbon projects and ensure baselines are well set; paltry awareness of the citizens on carbon markets, how they operate and how they can gain from them and lack of financial support to project proponents to leverage the investment costs

Adopted from the Carbon Market Profile 2022
– Kenya by East Africa Alliance on Carbon Markets and Climate Finance

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Basic Carbon Trading Terms

1. **Carbon credits –** these are tradeable certificates that constitute an offset of 1 ton of CO2 or CO2 equivalent from the atmosphere

2. **Carbon emissions –** the release of carbon dioxide into the atmosphere. It can also be a catch-all term related to other greenhouse gas emissions when quantified and converted to CO2 equivalent

3. **Carbon offset –** a project activity that reduces or removes carbon emissions from the atmosphere to compensate unavoidable emissions produced by others

4. **Carbon tax –** An environmental tax or penalty regulated by governments that organizations have to pay for their excessive production of carbon dioxide and other GHGs

5. **Carbon sink –** a natural or engineered resource that has the ability to store or remove carbon dioxide from the atmosphere. Examples include the forests, ocean, etc

6. **Carbon Neutral –** anthropogenic carbon dioxide emissions and other GHGs emitted into the atmosphere is balanced with carbon dioxide offsets from reduction and removal projects

7. **Carbon dioxide equivalent (CO2e) –** a metric used to calculate all GHG emissions. It combines all GHGs such as methane, nitrous oxide, Hydroflorocarbons (HFCs), Perflourocarbons (PFCs) Sulfur Hexaflouride (SF6) and Nitrogen Triflouride (NF3), in one by comparing the global warming potential of each gas against CO2

8. **Carbon market –** there are two types of markets. The compliance market and the voluntary market. Both of these markets conduct the trade of carbon credits

9. **Carbon registry –** an organization that verifies and validates the reduction/protection/removal of carbon emissions and issues carbon credit certificates based on its developed methodologies

10. **Carbon accounting –** the quantification of carbon emissions and reductions. It complements GHG accounting

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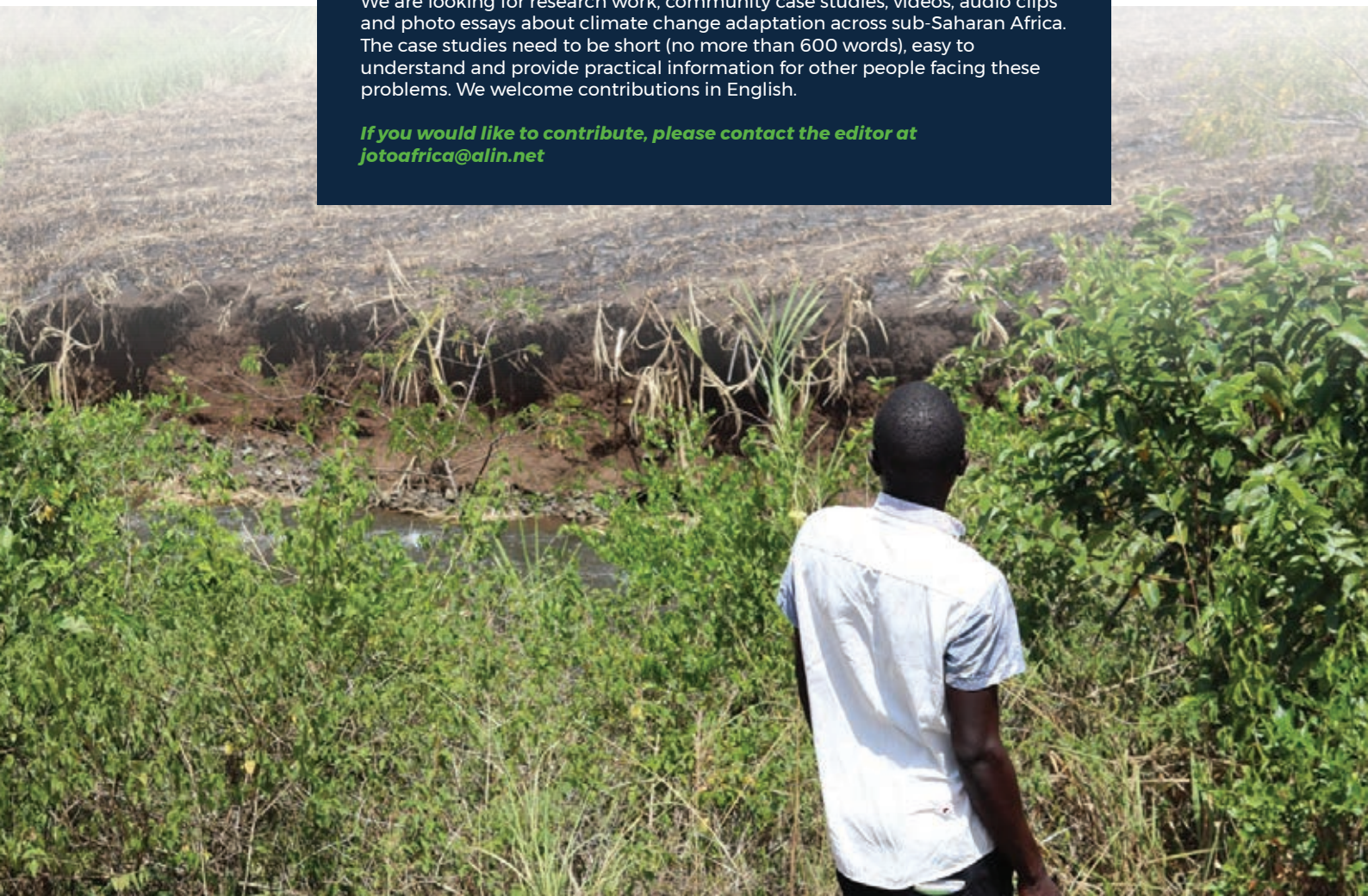
2. www.karbonhero.com

Contribute to Joto Afrika

Do you want to tell people how your community is adapting to climate change? Are you involved in a programme, project or research that is helping people to find practical solutions to cope with the effects of climate change? We want your contributions for Joto Afrika!

We are looking for research work, community case studies, videos, audio clips and photo essays about climate change adaptation across sub-Saharan Africa. The case studies need to be short (no more than 600 words), easy to understand and provide practical information for other people facing these problems. We welcome contributions in English.

If you would like to contribute, please contact the editor at jotoafrica@alin.net



Making Forests Sustainable: Lessons from The Bale Eco-Region REDD+ Project, Ethiopia

Research Summary

Ethiopia's Bale Eco-region has experienced serious levels of deforestation with large swathes of forest territories being axed for firewood or converted into agricultural land with devastating consequences. devastating. Between 2000 and 2011 alone, the Eco-region experienced an average annual deforestation rate of 2.6% and lost 178,000 hectares (ha) of high forest contributing 70 million metric tonnes of CO2e greenhouse gas emissions and having a significant detrimental impact on biodiversity and livelihood opportunities for rural populations.

What is REDD+? REDD stands for "reducing emissions from deforestation and forest degradation". The plus sign refers to the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. The REDD+ framework was developed by the United Nations Framework Convention on Climate Change (UNFCCC) in 2013.

Farm Africa and SOS Sahel Ethiopia's Bale Mountains Eco-region REDD+ project developed an integrated Participatory Forest Management-(PFM) REDD model, which has supported long-term incentives for community-based and participatory forest management and biodiversity conservation, and significantly reduced deforestation rates in the Eco-region. The model has been instrumental in the establishment of REDD+ mechanisms in Ethiopia and has been adopted by the Government of Ethiopia's national REDD+ Programmes.

Under Phase I of the project implemented from 2012 to 2015, Farm Africa supported the establishment of REDD+ mechanisms through PFM community-based organizations (CBOs). The Bale Mountains REDD+ phase II project, financed by the Royal Norwegian Embassy (RNE) in Addis Ababa was implemented in the Bale Eco-region in south-eastern Ethiopia, Oromia Regional National State between 2016 and 2021. The goal of the project was to contribute to Ethiopia's sustainable and green growth initiatives to reduce poverty.

Project Results 2012-2021 (both phases)

Reduced deforestation: the project contributed to the reduction of deforestation from a predicted 43,136 hectares (ha) to 18,003 ha actual deforestation, or an avoided 25,133 ha of deforestation. This represents a reduction of 58.3%

Avoided carbon emissions: the reduced deforestation and conservation actions of the project generated a cumulative carbon emission reduction of 10,464,345 tCO2e.[1]

Increased average household incomes from various forest-friendly businesses, such as beekeeping and wild coffee harvesting enterprises and revenues generated from the sale of forest carbon emission credits.

The success of this project has supported the government to take up REDD+ initiatives through variations of PFM or similar models in four regions, a total of 95% of the country's forest resources.

Key lessons

Building capacity of community-based organisations (CBOs): The project used a traditional organisational capacity assessment tool and developed a new tool to monitor the development of the CBOs and strengthen their performance and sustainability.

Building capacity of government: The project supported the government in developing knowledge of how to implement a REDD+ programme, including forest resources monitoring, support to forest management CBOs, deforestation modeling, carbon emission calculation capacity, verification and sale of carbon credits, and re-distribution of revenue to government and communities.

Incentives for sustainable forest management: Diverse sources of income, including the sale of forest products such as specialty coffee and revenue from carbon credits, which were split between the government and the community, acted as economic incentives to conserve the forest.

Community participation, especially women's participation: The project strengthened gender equality by requiring that one of the two leadership positions in each CBO should be filled by a woman. This further fostered a better recognition of women's role in forest conservation and in decision-making processes.,

Community-based forest monitoring mechanism: Communities in the project areas viewed themselves as guardians of forest resources supporting sustainable forest conservation activities

A fair benefit-sharing mechanism: Partners worked with stakeholders to pioneer a fair and transparent benefit-sharing mechanism guiding the distribution of carbon credit revenues

Conclusion

The project laid a solid methodological foundation for the design and implementation of REDD+ through the development of a comprehensive programme design document (PDD) using the combined Verified Carbon Standard (VCS) and the Climate, Community, and Biodiversity Alliance (CCBA) standards in preparation for carbon credit payments. The knowledge and skills gained have been transferred from international experts to government staff and the project team. These include forest carbon stock assessment, deforestation modeling, deforestation monitoring, and quantifying forest carbon emissions. The tools and techniques developed and the processes followed in the Bale REDD+ project have paved the way for subsequent REDD+ initiatives in Ethiopia, including for the jurisdictional Oromia Forested Land Programme (OFLP) REDD+, which is receiving funds from BioCarbon Fund, the Forest Carbon Partnership Fund (FCPF), and for the REDD+ project currently being implemented by the World Bank in the Southern Nations and Nationality Peoples' Region (SNNPR).

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See Also
https://www.farmafrica.org/downloads/2022/making-forests-sustainable.pdf

Implementing REDD+: Lessons from Kasigau Corridor project in Kenya

Research Summary

Carbon sampling team from Wildlife Work. recording the details of the tree population, which is then analysed to generate carbon emissions reductions

The private-sector-driven Kasigau Corridor (KC) REDD+ project was the world's first registered REDD+ project issued with Verified Carbon Units (VCU) under the Verified Carbon Standard (VCS). It is one of the few REDD+ projects currently selling REDD+ carbon credits on the voluntary market.

The Kasigau Corridor (KC) REDD+ project is based in Taita Taveta County, in southeastern Kenya, and is located between Tsavo East and Tsavo West National Parks. The landscape was threatened by subsistence and commercial poaching, encroachment for human settlement, slash-and-burn agriculture expansion, deforestation for charcoal and fuelwood, and overgrazing. Without the KC REDD+ project, deforestation would roughly be at 7000 ha per annum. The KC REDD+ project encompasses an area of 200,000 ha where the project land is privately owned by 14 directed agricultural companies (DACs). The project's carbon accounting area itself is uninhabited but Taita and Duruma communities live around the periphery in six locations. The primary goal of the project is to use the REDD+ finance generated by sales of emissions reductions to continue to create jobs in the local communities, thus taking the pressure off biodiversity and the habitat by creating alternative livelihoods. The project was initiated and implemented by Wildlife Works Carbon (WWC), a for-profit company, based in Kenya and the USA. The KC REDD+ project is projected to avoid emissions of over 1.2 million tons of CO2e per year until 2041. Issuance of Verified Carbon Units (VCUs) is ensured through the Verified Carbon Standard (VCS) and Climate, Community, and Biodiversity (CCB) standards. The project was awarded gold-level status by CCB standards for exceptional biodiversity and climate benefits.

Key strengths for operationalizing REDD+ at Kasigau Corridor project level

- Investing in job creation for addressing deforestation and forest degradation which were occurring due to a lack of alternative livelihood options. Additional community benefits were derived indirectly through access to improved services like water and infrastructure.
- Development of a groundbreaking methodology for Monitoring, Reporting and Verification and establishment of Reference Emission Levels. This methodology has also successfully been used by private companies such as South Pole Carbon in Zimbabwe and is being used by BioCarbon Partners in Zambia in Miombo forest ecosystems.
- Making the project 'self-sustaining'. The ability to secure external private-sector investment at the beginning of the project was critical. The WWC has further catalyzed the market for REDD+ by connecting institutional champions with project activities through a platform called Code REDD (www.coderedd.com), which enables credit buyers from private institutions and companies to link directly with REDD+ projects that create exceptional benefits for climate, community and biodiversity.
- Legislative instruments such as conservation easements can be used in the context of REDD+ to implement long-term protection of forest assets in private lands. The KC project area is comprised of several privately owned land units and governed by leaseholds between the Government of Kenya and Directed Agricultural Companies (DACs). WWC used such agreements as contracts to manage the land for REDD+ purposes and in return the DACs receive one-third of the carbon revenue from future sales in return for granting the conservation easement.
- Developed a template for benefit sharing mechanisms often present a challenge to REDD+ project development. After the landowner payments and project operational costs are covered, additional revenue that is generated by the emissions reductions (aka "carbon credit") sales is held in a trust, on behalf of the general community. Revenue disbursed by the trust is designed to support environmental and community "common good" projects as opposed to direct individual cash transfers.

Lessons for REDD+ Readiness

- REDD+ can successfully be implemented in dryland forests which hold not only significant carbon reservoirs in Africa's landscape but on whose resources millions of rural Africans depend
- Private-sector involvement is absolutely critical to scaling up investment and implementation in REDD+
- REDD+ experience of sub-national actors is of critical importance in developing a national REDD+ mechanism.

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Read More

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Elephants Were a Problem for this Kenyan Community—and REDD+ Was the Solution

Case Study

Due to climate change and increased human population, the demand for space continued to grow in the Kasigau Corridor between Tsavo East and West in Kenya resulting in human-wildlife conflict. Elephants moving between the parks intruded more frequently on community farms and destroyed everything.

The elephant-human conflicts increased over time and the communities reached out to Wildlife Works, a conservation company that had been working in the area since the 1990s to create a safe corridor of protected land for animals between the two parks. The dry-land forest of the Kasigau Corridor had become degraded by a combination of factors including livestock overgrazing and clear-cutting of trees for charcoal among others. During the meetings, representatives from Wildlife Works invited the communities to participate in the expansion of their project called the Kasigau REDD+ Project. Communities could generate carbon credits by protecting forests and selling to companies seeking to counterbalance their annual unabated greenhouse gas emissions(GHGs).

The Kasigau Corridor REDD+ Project has sold more than 18 million carbon credits and prevented the deforestation of more than 200,000 hectares of land since 2011. A third of the revenue from each credit sold goes to local ranchers who own land in the project area. The ranchers have used the revenue to build roads and invest in higher-quality livestock management practices like holistic grazing, and have also begun to explore tourism opportunities. "One of the great things about REDD+ is that it's compatible with so many other industries. The remaining two-thirds of the revenue from each credit is used to protect forests and invest in the communities' forest economies,"says Jamie Hendriksen Regional Director of Operation in Africa Wildlife Works.

> 'Growing numbers of elephants, lions, wild dogs, cheetahs and zebras use the Kasigau corridor to move between the national parks. Rangers work with villagers to protect their farms from elephants with spotlights and noise-making devices. We don't find it as big a problem these days
>
> ***Community Representative Wildlife Works***

Within each of Kasigau's six communities, representing 116,000 people a Locational Carbon Committee is established to decide democratically how to spend its share of the carbon revenue. Each committee has between 7 to 11 members representing the different villages in the community to prioritize the projects identified during public participation.
Across the six communities, carbon revenue has funded 54 water projects and increased water access to more than 50,000 people. Communities have also built or renovated 120 classrooms and distributed more than 25,000 student bursaries. Woodlots have also been established in the villages where residents can harvest wood for charcoal and timber production thereby avoiding deforestation.

Wildlife Works has used some of the carbon revenue to expand its own business, creating more than 300 jobs for artisans, greenhouse farmers, builders, and shopkeepers. In addition, the company has also taken the lead in protecting forests, using REDD+ revenue to pay the salaries of 120 forest rangers from local communities and equip them with eight vehicles and two light aircraft. The Company has also financed the construction of ranger camps throughout the project area.

The carbon market brought the prospect of an alternative revenue stream for conservation reducing the human-wildlife conflict.

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See also
NSCA (2022) NCS Lighthouse Programme - Kasigau Corridor REDD+.Natural Climate Solutions Alliance.Copyright: © WBCSD, November 2022.
The Kasigau Corridor REDD Project Phase I – Rukinga Sanctuary https://verra.org/programs/c-cbs/kasigau-corridor-redd-project-phase-1-rukinga-sanctuary/

The original article was authored by Ben Crair, NCS Alliance

Forest Reserve near the Village of Masako, Kisangani, Democratic Republic of Congo. © CIFOR/Ollivier Girard

REDD+ and the 2030 Sustainable Development Goals: Linkages and Lessons Learnt in the Democratic Republic of Congo

Research Summary

Democratic Republic of Congo (DRC) has been engaged in Reducing Emissions from Deforestation and forest Degradation (REDD+) since 2009 with major advancements in its readiness phase. In parallel, in November 2016, DRC was one of the eight pilot countries selected for mainstreaming of the 2030 Sustainable Development Goals (SDGs). This brief identifies potential linkages between REDD+ and SDGs in DRC to gain a better understanding of how implementation strategies could be aligned.

REDD+ and SDG Processes: Where Does DRC Stand?

The Democratic Republic of Congo (DRC) has the world's second-largest tropical rainforest. The country has experienced a sharp increase in deforestation in recent years, with almost 1 million hectares lost every year during the period 2010-2014 which is an increase of almost 11% to the rate of deforestation during the period 2000-2010 (DRC Forest Reference Emission Level). The main direct causes are slash-and-burn agriculture, artisanal logging, fuelwood, mining, and bushfires; and the main underlying causes are population growth, institutional aspects, economic aspects (economic crisis, unemployment, poverty), infrastructure growth, and urbanization.

National commitment towards sustainable management of forest and natural resources is reflected by the major REDD+ readiness advancements and implementation of REDD+ in DRC. The country has adopted the National REDD+ Framework Strategy (2012), created the National REDD+ Fund (FONAREDD, 2012) and validated the REDD+ Investment Plan (2013). So far, the REDD+ investment plan is partially capitalized by the Central African Forest Initiative (CAFI). The government of DRC and CAFI signed a Letter of Intent in April 2016 to establish a partnership aimed at addressing direct and indirect drivers of forest loss across different sectors. DRC has also been one of the eight pilot countries under a United Nations Development Programme initiative to mainstream the Sustainable Development Goals (SDGs). The 17 SDGs (which include 169 specific SDG targets and linked indicators) cumulatively aim to end poverty, protect the planet, and ensure prosperity for all (UN, 2015).

REDD+ and SDG Linkages: Barriers on the Ground

1. **Limited involvement of REDD+ stakeholders in the national prioritization and process exercise of SDGs in DRC and weakness of coordination.** There is a lack of inclusive dialogue and clear ironing of roles and responsibilities about coordination between REDD+ and SDGs.

2. **Weakness of information-sharing on monitoring of progress and results.** There is poor information-sharing on monitoring results and progress for linking REDD+ with SDGs (most specifically with forest and land-related SDGs).

3. **Use of top-down approaches across governance levels.** Currently, the default pattern is top-down decision-making and the use of national venues for government meetings and stakeholder representation, leaving the role of sub-national level actors. If local governments have not been involved in both REDD+ and SDGs processes in an inclusive manner yet, operational linkages between those two processes may be counterproductive.

4. **Political instability:** The unstable political context as well as insecurity in some areas of the country remain a hindrance to the implementation of REDD+ and SDGs.

Key Policy Recommendations

- Initiate Cross-Sectoral Coordination Between REDD+ and SDGs at the Highest Level of Political Leadership
- Develop the DRC Sustainable Development Strategy and Set up a sustainable development commission Financial and technical resources should be mobilized and directed to the development of a sustainable development strategy to offer the country a clear and common vision.
- Explore where REDD+ national forest monitoring system and SDGs monitoring of results and progress can complement each other.
- Promote Effective Decentralization of REDD+ and SDG Implementation at the Provincial Level.

See also

REDD+ and the 2030 Sustainable Development Goals: Linkages and Lessons Learnt in the Democratic Republic of Congo https://rb.gy/4vy9i
The context of REDD+ in the Democratic Republic of Congo Drivers, agents and institutions 2nd edition https://www.cifor.org/publications/pdf_files/OccPapers/OP-207.pdf

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How Green Bonds Can Fund Development?

Opinion

The green, Social, and Sustainable (GSS) bonds market is a new frontier that can help Africa build deeper, resilient, and sustainable financing.

In 2015, the world coalesced behind the Paris Agreement on climate change to transition to a low-carbon climate-resilient future. Following the African Union's lead, countries like Ghana, Ethiopia, and Kenya, among others, have all factored climate change into their national development plans. Cyclone Idai, for example, left incalculable destruction across some parts of Mozambique, Zimbabwe, and Malawi, an unfortunate reminder of the devastation climate change could have on the continent. Although the Paris Agreement does have funding mechanisms to support developing countries, these funds can only go so far.

Moreover, unlike the world's leading greenhouse gas (GHG) emitters, developing countries in sub-Saharan Africa need to encourage growth without fueling emissions. Sustainable Development Goal 7 states that everyone should have access to affordable and reliable electricity by 2030. Yet, in a region where more than half the population still does not have access. Governments need to improve access and reliability without turning to intensive fossil fuel power sources such as coal.

The role of green bonds

A solution to the crisis may lie in green bonds, which allow issuers to raise money specifically for environmentally friendly projects, such as renewable energy or clean transport. This year (2023), analysts predict the green bonds market will grow to $200 billion, a 20% increase from last year and a significant jump from 2016, which saw $87 billion raised. But while the global market continues to grow, there are fewer bonds available across Africa. Most of Africa's green bonds have been issued by the African Development Bank, which has raised over $1.5 billion since 2013. While Nigeria issued a $29.7 million bond to fund solar energy and forestry projects in December 2017, no other country has followed suit.

African governments have historically relied on development finance institutions to fund green projects such as irrigation initiatives and solar energy. However, this is unsustainable and ignores potential capital that could be raised from pension funds, the diaspora, and the middle class. For example, Kenya's pension sector is valued at about 1.2 trillion Kenyan shillings, or $11.9 billion.

If national governments want to unlock more capital, structures are needed to give investors the confidence to invest.

Kenya, Nigeria, and South Africa are leading the change in sub-Saharan Africa. Since 2017, these countries have been working with a range of partners, including FSD Africa, to develop a robust framework for the issuance and listing of green bonds. Hitherto Nigeria and Kenya have joined India, China, and Indonesia in turning their frameworks into official guidelines and the market is responding positively.

Recently, the Nigerian-based Access Bank issued Africa's first certified corporate green bond, unlocking $41 million to protect Eko Atlantic City, near Lagos, whose overall objective is to address the impact of rising sea levels on Lagos City. This bond will also support a solar energy project. Notably, the bond was fully subscribed, highlighting the fact that if the frameworks are built, investors will come.

While development finance will always play a critical role in supporting socio-economic growth on the continent, countries are recognizing they need to unlock funding from other areas.

Given the nascent nature of capital markets in Africa, we have the unique opportunity to build them from the ground up and respond to pressing priorities including climate finance. This is particularly critical as governments start to pursue infrastructure development at a larger scale.

Green bonds may still be a small piece of the global bond market, but they are showing real potential for helping developing countries move to greener, more equal economies.

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Opinion article originally published on Devex.

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https://rb.gy/x9sqz\\

A Look at Green Bonds

Explainer

What are Green Bonds?

Green Bonds are fixed-income instruments whose proceeds are earmarked exclusively for projects with environmental benefits, mostly related to climate change mitigation or adaptation but also to avoidance of natural resource depletion, loss of biodiversity, and air, water, or soil pollution. 'Green' can include renewable energy, sustainable resource use, conservation, clean transportation, and adaptation to climate change.

These bonds can help fund renewable energy (such as wind, solar, and hydro), sustainable waste management efforts, clean transportation, and sustainable forestry.

Differences between a Corporate Bond and a Green Bond

The key difference between a green bond and a corporate bond is that a green bond is specifically issued to fund environmentally sustainable projects, while a corporate bond can be issued for any purpose, including funding environmentally sustainable projects.

Why invest in Green Bonds?

There has been an ever-increasing call from investors for greater transparency, disclosure, and standardization of Green Bonds, to ensure bond proceeds are correctly used and requirements of investors are met. But at the same time, there is a concern that too onerous a level of requirements will deter investors. A balanced approach is required.

The global Green Bonds market

Green bonds are regular bonds with one distinguishing feature: proceeds are earmarked exclusively for projects with environmental benefits, mostly related to climate change mitigation or adaptation but also to avoidance of natural resources depletion, loss of biodiversity, and air, water, or soil pollution. Green bonds are an important channel for low-carbon and climate-resilient investments to support the transition to a sustainable economy. The green label is a discovery mechanism for investors; it enables the identification of climate-aligned investments with limited due diligence from investors, which reduces market friction and facilitates growth in environmentally friendly investments.

Benefits for Investors	Benefits for Issuers
Enhanced risk management and improved long-term financial returns	Investor diversification across regions and types of Green Bonds enables issuers to raise capital from a broader base of investors.
Addressing climate risk: Green bonds help mitigate climate change-related risks in the portfolio due to changing policies such as carbon taxation which could lead to stranded assets	Lower Cost of Capital - Green Bonds enable issuers to raise large amounts on the capital markets at much lower costs than other instruments.
Green Bonds give investors a chance to direct capital to climate change solutions.	Stickier Pool of Investors – Green bond investors invest for the long term, which is a major benefit for infrastructure projects seeking longer-term investments.
Investments in green bonds match long-term liabilities and will also help build a sustainable society for pensioners to retire into.	Reputational Benefits – Green credentials enhance issuer's overall reputation and can be part of a wider sustainability strategy.
Asset allocation thresholds – Investments in green bonds have enabled institutional investors to exceed asset allocation thresholds especially when investing in Emerging markets.	Tighter Yields – given the demand for green bonds, there has been strong pricing achieved by recent green bond issuance.
Alignment with National Development Agenda, the Institutional Investor Stewardship Code as well as International recognition as an innovator in green finance.	

Green Bonds Issuance Steps

- Identify qualifying green projects and assets
- Develop the issuers Green Bonds Framework
- Arrange for independent verification
- Set up tracking and reporting
- Issue of green bond
- Monitor the use of proceeds and report annually

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Tel: +254 20 2831000/+254 (020) 222 4200
+254 0724 253 783 /+254 0733 222 007

See also
Nairobi Stock Exchange https://rb.gy/2v7kn
Kenya Green Bonds Guidelines
https://www.nse.co.ke/wp-content/uploads/gbpk-background-document-2.pdf

UNDP solar installation; © UNDP

Exploring the Potential of Green Bonds for SDGs Financing in Ghana

Opinion

With green bonds, Ghana can mobilize domestic and international resources for climate change adaptation and other environmentally friendly projects.

The deadline for the achievement of the Sustainable Development Goals (SDGs) is fast approaching, and 2020 commenced a decade of action to accelerate SDGs implementation. Financing the SDGs remains a major challenge for many countries especially those in the developing world. Exploring different innovative ways of SDGs financing within integrated national financing frameworks for which Ghana is a pioneer country, brings to the fore the option of green bonds.

Green bonds are debt securities issued by financial, non-financial, or public entities where the proceeds are used to finance 100% environmentally friendly projects. Generally, the overall bond market size of green bonds is estimated at $100 trillion, yet demand is being unmet, calling for more uptakes.

As a step towards the potential issuance of green bonds in Ghana, the Ministry of Finance initiated a process of tapping into green and SDG-related bonds. A partnership with the United Nations Development Programme (UNDP) and the Ministry of Finance was established. UNDP and the Ministry of Finance are training key national stakeholders to improve their knowledge of green and SDG-related bonds to facilitate Ghana's active participation in the green bond markets.

"The issuance of green bonds in Ghana will unlock the local capital market potential and allow Ghana to become the leader in sustainable growth in Africa", noted Matteo Bigoni, Head of Certification, Climate Bonds Initiative and a Facilitator at the Green Bonds Bootcamp.

Climate change is regarded as the greatest risk of our time, as it poses a severe threat to development especially to the poorest and most vulnerable. In line with the Paris Agreement, which sets out a global framework to combat climate change, Ghana has committed to ambitious targets to cut its carbon footprint in the country's Nationally Determined Contributions (NDCs) document for climate action. Ghana needs about USD 22.6 billion in investments from domestic and international public and private sources to finance its climate actions. It has therefore become very critical to mobilize more financial resources to support the country's sustainable development priorities.

"Aligning Government's financing priorities to the SDGs in line with the country's 2018-2021 medium-term development plan through innovative financing instruments such as SDG or green bonds is not only strategic but also timely in furtherance of the Ghana Beyond Aid Agenda", stated Aeneas Chuma, acting Resident Representative of UNDP Ghana

With green bonds, Ghana can mobilize resources from domestic and international capital markets for climate change adaptation, renewable energy, low-carbon transport, sustainable waste management, integrated water resource management, clean transportation, and other environmentally friendly projects.

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Green gas emission

What Qualifies as a Greenhouse Gas (GHG)

- **Carbon Dioxide (CO2):** Mostly from the combustion of fossil fuels (electricity generation, industry, transport), comprising 70% of the total greenhouse effect.
- **Methane (CH4):** Emitted during waste management and agriculture, comprising 20% of the total greenhouse effect. Methane has an impact on global warming 21 times that of CO2.
- **Nitrous Oxide (N2O):** From burning fossil fuels, industrial processes and fertiliser production in particular, comprising 6% of the total greenhouse effect. Nitrous oxide has an impact on global warming 311 times that of CO2.
- **Hydrofluorocarbons (HFCs):** A group of compounds containing carbon, fluorine and hydrogen (unlike hydrochlorofluorocarbons (HCFCs), which also contain chlorine). They are generally colourless and odourless gases at environmental temperatures and for the most part chemically unreactive.

  Perfluorocarbons (PFCs): are man-made compounds containing just fluorine and carbon. They are generally colourless, odourless non-flammable gases at environmental temperatures and for the most part chemically unreactive.
- **Sulphur hexafluoride (SF6):** is a synthetic fluorinated compound with an extremely stable molecular structure. Because of its unique dielectric properties, electric utilities rely heavily on SF6 in electric power systems for voltage electrical insulation, current interruption, and arc quenching in the transmission and distribution of electricity.

  Nitrogen triflouride (NF6: An inorganic, colorless, non-flammable, toxic gas with a slightly musty odor. It finds increasing use within the manufacturing of flat-panel displays, photovoltaics, LEDs and other microelectronics.[6] Nitrogen trifluoride is also an extremely strong and long-lived greenhouse gas.

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Driving Green Growth & Climate Finance Solutions for Africa and the World: Reflections on the Africa Climate Summit

Opinion

Climate change threatens human health and safety, food and water security, and socio-economic development in Africa. Coupled with massive untapped renewable energy potential, abundant natural resources, and an entrepreneurial spirit, the continent is ready to contribute to global decarbonization efforts. Africa has the fundamentals to spearhead a climate-compatible pathway as a thriving hub with a capacity to support other regions in achieving their net-zero ambitions.

The African Climate Summit 2023 (ACS23) held in Nairobi, Kenya from 4-6 September 2023 saw African leaders and actors demand urgent and concerted action from all nations to bend the emissions trajectory by reducing the concentration of greenhouse gases in the atmosphere. Africa is warming faster than the rest of the world and if unabated, climate change will continue to have adverse impacts on its/her economies and societies and hamper economic growth and wellbeing. The Heads of States and Government also noted that extreme weather events such as droughts and floods have exacerbated challenges to access safe drinking water, resulting in about 400 million people in Africa with no access to clean drinking water, 700 million without good sanitation, thus affecting health and well-being[3] . The leaders called for Africa's readiness to create an enabling environment, enact policies, and facilitate investments necessary to unlock resources to meet its own climate commitments and contribute meaningfully to global de-carbonization.

Commitments

In recognition of the scale, urgency, and importance of these collective actions, actors committed to:

- Accelerate implementation of the African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032).
- Integrate climate, biodiversity, and ocean agenda into national development plans and processes to increase the resilience of local communities and national economies.
- Strengthen Early Warning Systems and Climate Information Services, as well as take early action to protect lives, livelihoods, and assets and inform long-term decision-making related to climate change risks.
- Further enhance inclusive approach including through engagement and coordination with communities in climate-vulnerable situations including the children, youth, women, persons living with disabilities, and indigenous people.
- Build effective partnerships between Africa and other regions, to meet the needs for financial, technical, and technological support, and knowledge sharing for climate action.
- Promote investments in urban infrastructure including through upgrading informal settlements and slum areas to build climate-resilient cities and urban centers.
- Identify, prioritize, and mainstream adaptation into development policy-making and planning, including in the context of Nationally Determined Contributions (NDCs).
- Provide all the necessary reforms and support required to raise the share of renewable energy financing to at least 20 percent by 2030. This includes, among others, promoting clean cooking technologies and initiatives as a just energy transition and gender equality for African rural women, youth, and children.

> ***Climate action is not a Global North or Global South issue. It is our collective challenge, and it affects all of us. We need to come together to find common, global solutions.***
>
> ***H.E. Dr. William Samoei Ruto, President of the Republic of Kenya.***

Recommendations

- There is a need for research, monitoring, and evaluation of climate action (mitigation and adaptation) indicators, development of global standards, metrics, and market mechanisms to accurately value and take action on the protection of nature, biodiversity, socio-economic co-benefits, and the provision of climate services.
- Fast track the operationalization of the Loss & Damage fund as agreed at COP 27 and resolve for a measurable Global Goal on Adaptation (GGA) with indicators and targets to enable assessment of progress against negative impacts of climate change; development and implementation of policies, regulations, and incentives aimed at attracting local, regional and global investment in green growth, inclusive of green and circular economies.

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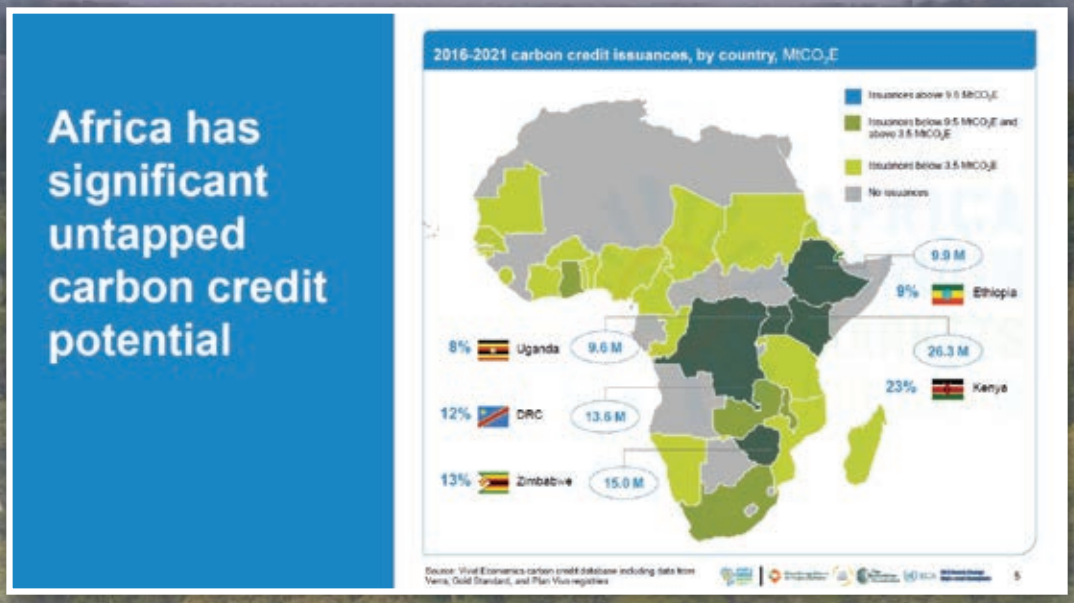
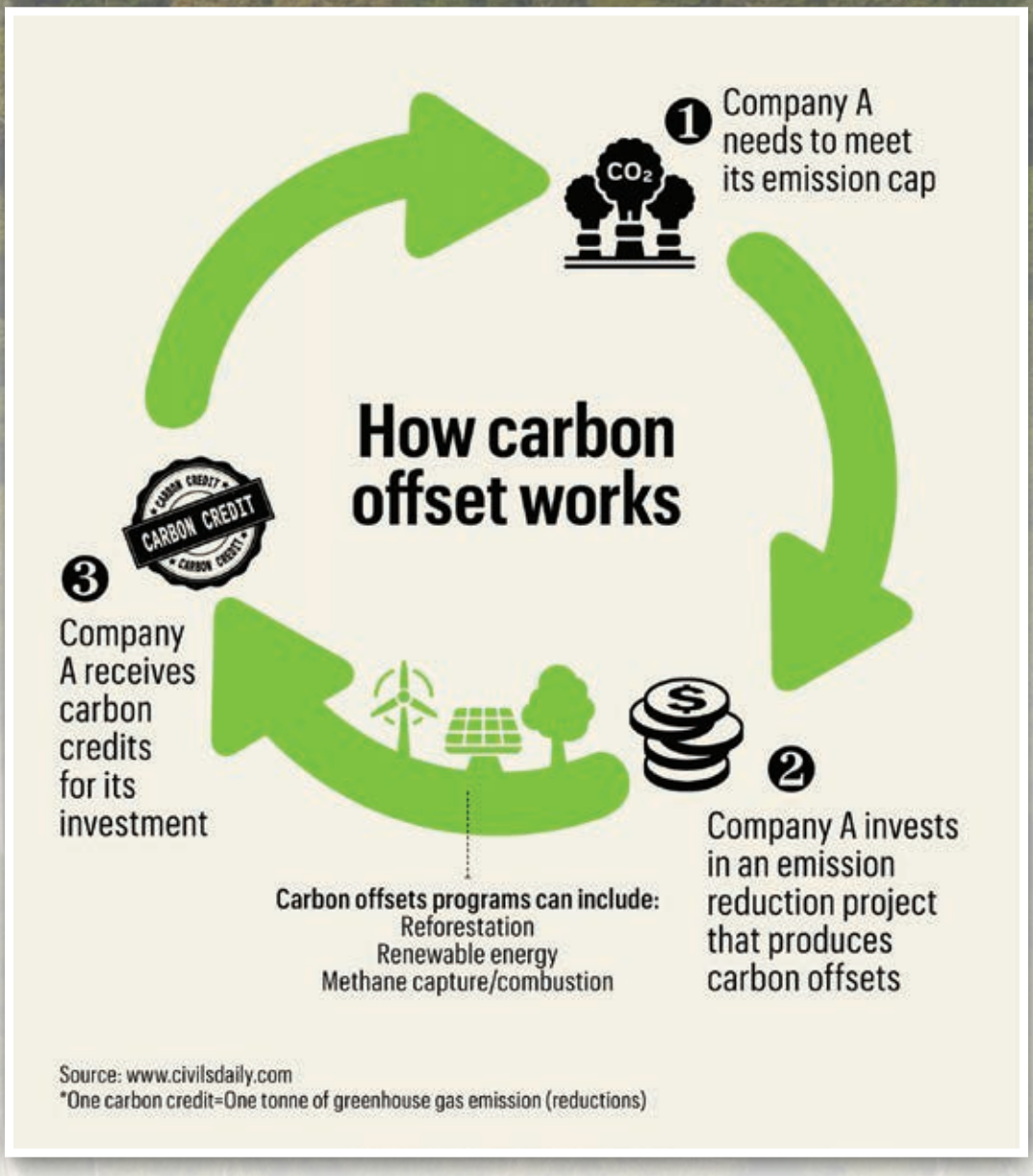
[3] World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), Progress on Household Drinking Water, Sanitation and Hygiene 2021.

Did you know?


Africa has significant untapped carbon credit potential
2016-2021 carbon credit issuances, by country, MtCO2E
9.9 M
9%
Ethiopia
8%
Uganda
9.6 M
26.3 M
23%
Kenya
12%
DRC
13.6 M
13%
Zimbabwe
15.0 M


How carbon offset works
1 Company A needs to meet its emission cap
2 Company A invests in an emission reduction project that produces carbon offsets
3 Company A receives carbon credits for its investment
CARBON CREDIT
Carbon offsets programs can include:
Reforestation
Renewable energy
Methane capture/combustion
Source: www.civilsdaily.com
*One carbon credit=One tonne of greenhouse gas emission (reductions)

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Please tell us what you think about this 25th issue of Joto Afrika and what you would like to read in future issues

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ISSN: 2075-5562

Layout and Design:
Click Image Press
Email: info@cip.co.ke