Great Carbon Valley

Direct air capture potential in East Africa

August 6, 2024: Plenary panel session on International Carbon Management Progress

Capturing CO_2 from the air and permanently storing it is a key climate technology for achieving global decarbonization goals

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Current # of DAC plants operating worldwide capturing CO_2 directly from the air

x100,000

Growth in scale of DAC removal capacity by 2050 needed to meet global net zero goals

What is Direct Air Capture (DAC)?

- DAC plants use chemical processes to capture and filter CO_2 directly from the air which is then directly pipelined to on-site storage facilities
- CO_2 is injected into underground geological formations, where it undergoes mineralization & slowly transforms into stable carbonates that are permanently trapped

Why DAC and in Kenya?

- DAC technologies play a critical role in net zero pathways as counterbalance to hard to abate sectors
- Kenya offers geological conditions to site DAC projects
- World's largest DAC and storage firms i.e., Climeworks, Octavia, Sirona, Greenlyte, Carbfix, Cella and others have announced projects in Kenya

Kenya harbors significant potential as a major carbon removal hub for DAC and many other durable CDR projects

First-mover advantage

Kenya is a frontrunner in Africa’s carbon markets, boasting a significant share of voluntary carbon credits issued to date across the continent

Abundant renewable energy

Kenya's growing renewable energy sector (geothermal, solar, wind) provides a solid foundation for durable CDR projects i.e., DAC requiring significant clean energy

Policy landscape & push

Kenyan government prioritizes carbon markets policy and recently amended the Climate Change Act (2023) to better regulate carbon projects and finance

Note: CDR denotes carbon dioxide removal

GCV Overview

Kenya has the perfect endowments to situate DAC projects in the region

Our comparative advantage is built on rare combination of:

- Abundant geothermal, solar & wind energy
- Suitable geology for carbon mineralization
- Emerging ecosystem of green industries
- Climate-friendly gov't & policy landscape

GCV is catalyzing and developing new DAC and green industry projects in Kenya

We offer unique blend of:

- Turnkey siting solutions
- Low-cost, 100% renewable energy
- African carbon markets expertise
- Ability to mobilize key partners to make projects possible

Who We Are

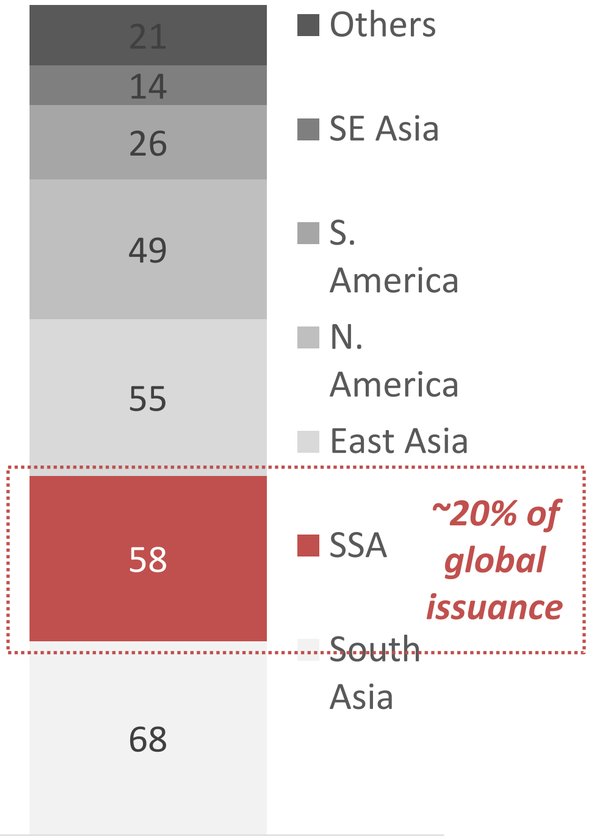
We are a new climate venture that is harnessing Kenya's resource potential to power a green industrial future

TRACTION TO DATE

- **Secured agreements with leading global DAC players i.e.**, Climeworks to develop large-scale DAC plants in Kenya
- **Have access to 2 Special Economic Zone sites** to develop DAC/green industry hubs
- **Engaged leading global mineralization firms** to prove viability of CO_2 storage in Kenya to unlock DAC
- **Demonstrated interest from dozens of firms** to develop project sites in Kenya

OUR OPERATING MODEL:

Kenya is at the forefront of carbon markets in Africa



VCM credits issued, MtCO2e (2022)

Sub-Saharan Africa produces ~20% of global VCM credits with strong diversity

Kenya is 2nd largest participant in VCM market in the region

- Most credits produced by REDD+ and cookstove credits
- DAC & durable removals market is nascent but growing rapidly with new entrants and projects

Gov't of Kenya has finalized a carbon credit trading and benefit sharing bill to regulate the market

Key highlights include:

- Establishment of carbon registry
- Requirement of carbon trading permits to regulate businesses
- Introduction of carbon project fees of up to US$4.20+/credit
- Social contributions of up to 40% of earnings to go to communities

Note: VCM denotes voluntary carbon markets; REDD+ denotes Reducing Emissions from Deforestation and forest Degradation; MtCO2e denotes million tons of carbon dioxide equivalent

Significant potential exists to catalyze and develop DAC industry in the region with investment co-benefits

DIRECT AIR CAPTURE

IEA, DAC tons removed per net zero emission scenario

120 GW new green power capacity required by 2030 to deliver DAC[1]

DAC companies prioritizing geographies with high RE resources + storage potential – IE East Africa

Kenya and East Africa can become a key DAC innovation hub given significant carbon removal potential with co-benefits i.e., *job creation and economic growth, tech. development & innovation*

Key investment opportunities include:

- Tech./R&D partnerships i.e., collaborate with DAC and storage tech providers to optimize solutions
- Infrastructure development i.e., invest in clean energy projects and key supporting infrastructure
- Carbon credit markets i.e., fund development of projects from feasibility to bankability

Sources: IEA, Electricity 2024; IEA, Direct Air Capture, 2022; [1] Assuming 2.5MWh per ton DAC, all energy use from power, 20% efficiencies

Kenya has significant but untapped renewable energy potential

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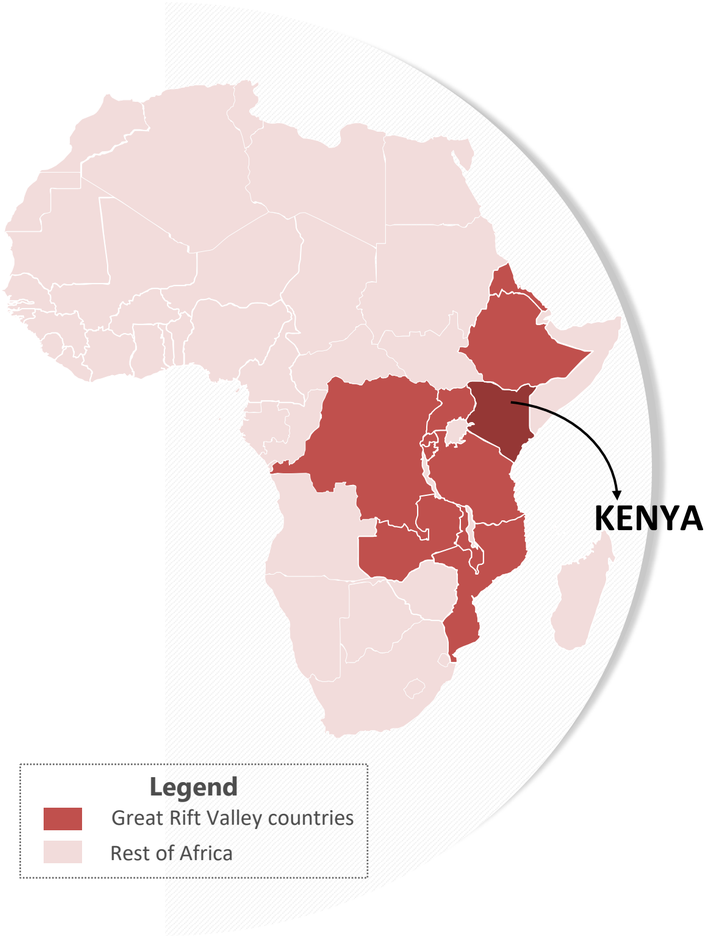
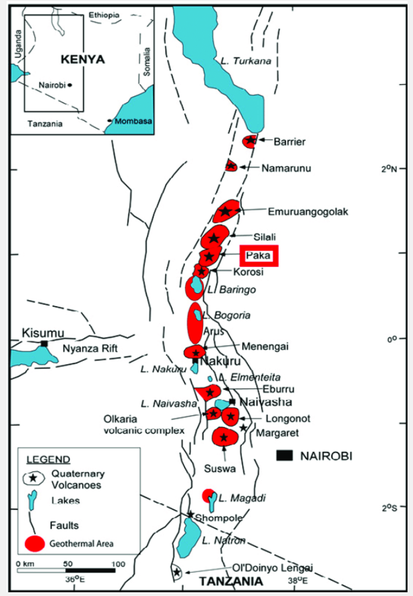
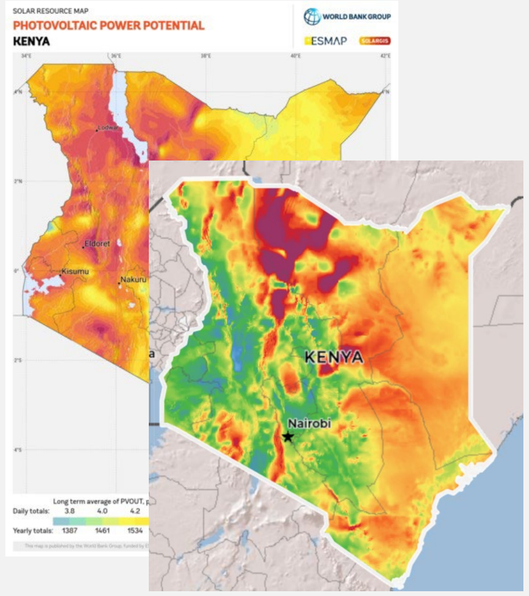


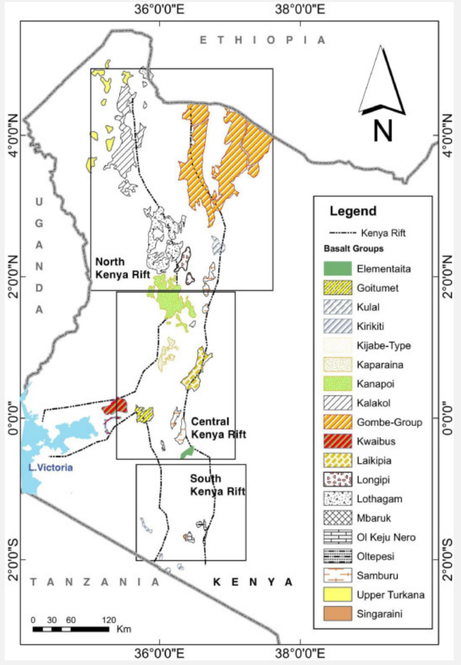
10 GW of untapped geothermal potential



World-class wind and solar power resources



Rare geology fit for carbon storage



Multiple entrants and local businesses with tech innovations bring new potential to Kenyan DAC ecosystem

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Not Exhaustive

	OCTAVIA CARBON	cella	Great Carbon Valley
Innovation	**Direct air capture technology**	**Carbon mineralization**	**Project developer and systems integrator**
Description	• Builds machines that filter CO_2 from the air and pump it deep underground for longer storage	• Provides durable storage services to DAC companies by injecting CO_2 into volcanic rock	• Catalyzes and develops new energy-intensive green industry projects including DAC
Kenya Market opportunity	• Offers access to geothermal power and suitable geology for storage	• Offers access to basalt reserves for storage and geothermal energy for capture	• Offers abundant geothermal energy, suitable sites for DAC, climate-friendly policy landscape and large talent pool

Great Carbon Valley, 2024

We have an array of strong partners in the pipeline in our quest to develop DAC hubs across Kenya

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climeworks

OCTAVIA CARBON

Carbfix

Yama

SeaO2

Paebbl™

Airhive

Sustæra

AspiraDAC

44.01

GCT

MISSION ZERO TECHNOLOGIES

AIRMYNE

SIRONA TECHNOLOGIES

cella

Equatic

aircela

ReCarbn

Several key takeaways on the status and outlook of DAC in Kenya and the region

Current Status: Nascent but Promising

Potential

DAC industry in the region is in its infancy, with no large-scale commercial projects currently operational

Policy environment is still rapidly evolving with demonstrated interest by gov't in climate-positive policy landscape

Challenges

Region faces significant infrastructure gaps in terms of energy supply, transport & logistics, connectivity

Despite growing interest, there is limited awareness of DAC technology and potential benefits among key stakeholder groups i.e., policy makers

Sector Outlook: High Potential Opportunity

- **Untapped potential:** East Africa offers vast untapped renewable energy potential suitable for DAC deployment
- **Growing global interest:** Increasing focus on carbon removal and climate change mitigation presents opportunities to position region as leader in DAC
- **Technological advancements**: Announced pilot projects can boost R&D efforts and accelerate DAC project dev't
- **Investment attraction:** With the right policy framework and infrastructure development, Kenya and the region can attract significant FDI in DAC project deployments
- **Scaling challenges:** Scaling up DAC projects in region will require overcoming hurdles i.e., securing project funding, upskilling workforce and tackling key infrastructure gaps

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Thank You!

Contact Us:

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