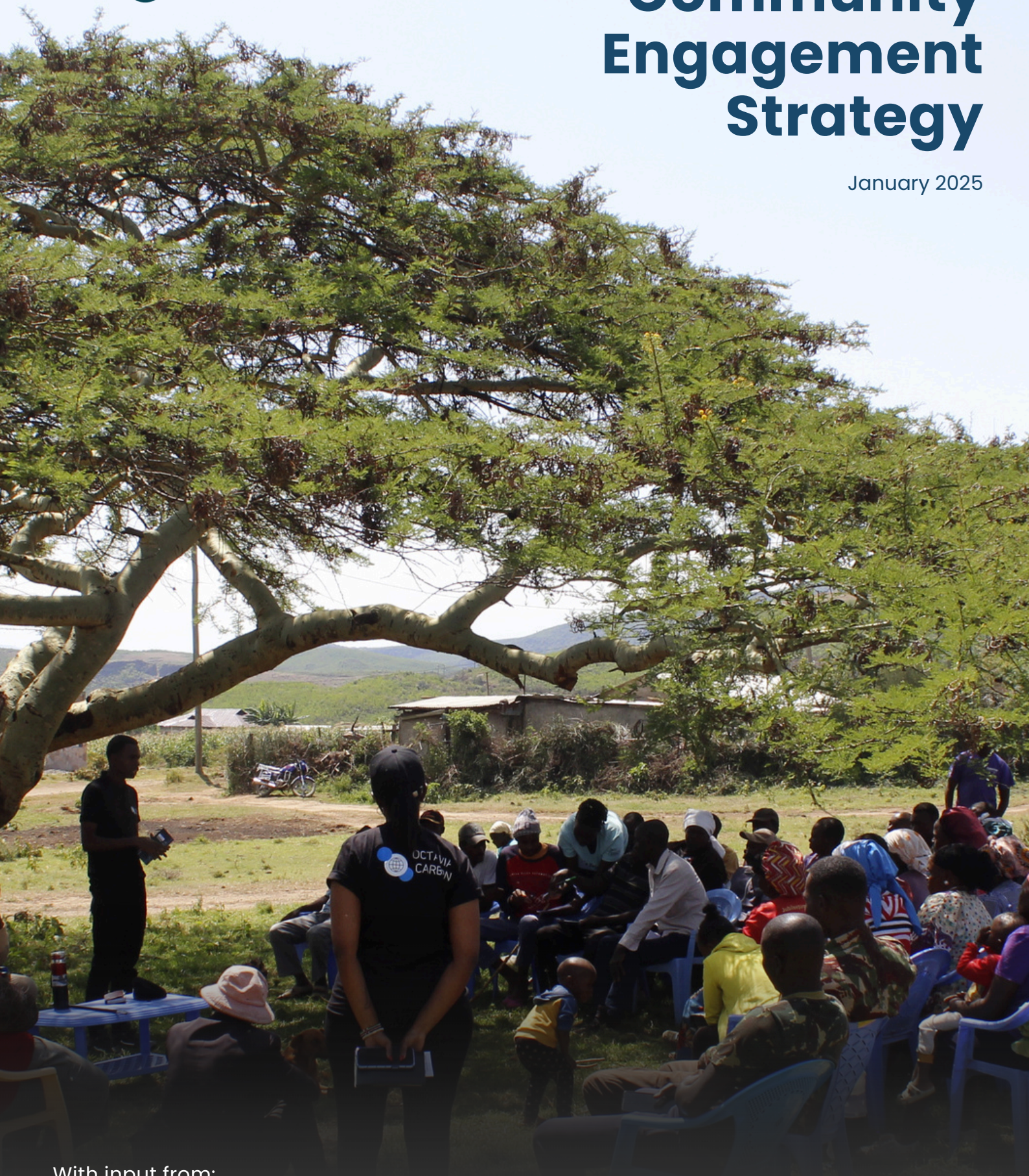
OCTAVIA CARBON

Octavia Carbon's Community Engagement Strategy

January 2025



With input from:

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Executive Summary

As the Global South's first Direct Air Capture (DAC) company, we are committed to setting the highest standard for responsible community engagement. We are publishing this community engagement strategy to share our approach and our conviction that responsible community engagement is crucial to DAC's success. Our commitment is to remove CO2 from the atmosphere and leave an enduring, positive impact by fostering trust, building relationships, and creating opportunities that resonate deeply within the communities we serve.

Kenya is the world's best place for DAC. With abundant renewable energy, geology ideal for CO2 storage, and a vibrant, skilled workforce, Kenya is the natural choice for scaling DAC technology. By harnessing the Rift Valley's basaltic rocks for permanent CO2 sequestration and geothermal energy for clean operations, we aim to redefine what responsible, low-cost scaling looks like.

Our community engagement is guided by five key principles.

1. Local Leadership: Our 98% Kenyan team reflects our belief in local talent. This approach ensures cultural alignment, seamless communication, and genuine trust-building within our communities.
2. Relationship Building: Engagement is a journey, not a transaction. We prioritize long-term interactions that foster respect and understanding, transcending formal meetings to create lasting connections.
3. Informed Consent: By opening our doors to communities, we demystify DAC technology through hands-on demonstrations, empowering stakeholders to understand, ask questions, and feel confident in our projects.
4. Local Value Creation: True impact lies in meaningful job creation, investing in local R&D, and ensuring the economic benefits of our Made in Kenya - DAC are shared equitably.
5. Zero Corruption: We uphold strict anti-corruption policies, ensuring every interaction is rooted in fairness and transparency.

Kenya's history teaches us that effective community engagement is the key to successful project development. Widespread disenfranchisement during Kenya's colonial and post-colonial eras, often in the name of 'development', left a deep distrust of project developers among local communities, which continues until today. Projects like Lake Turkana Wind Power demonstrate that ambitious project development is possible

nonetheless, even in challenging contexts, if communities share in a project's design and its benefits. This lesson has not always been heeded, incl. in Kenya's geothermal sector and in recent voluntary carbon market projects, highlighting severe risks to projects' costs & odds of success where community engagement is rushed or done half-heartedly.

We focus on informing, engaging, and empowering communities. Through collaboration with local leaders and grassroots networks like Nyumba Kumi, we craft tailored programs that reflect local priorities. In Jaica Village, for instance, our town hall sessions have enabled open, two-way conversations where community insights actively shape our projects. This participatory model ensures our initiatives resonate with real, on-the-ground needs.

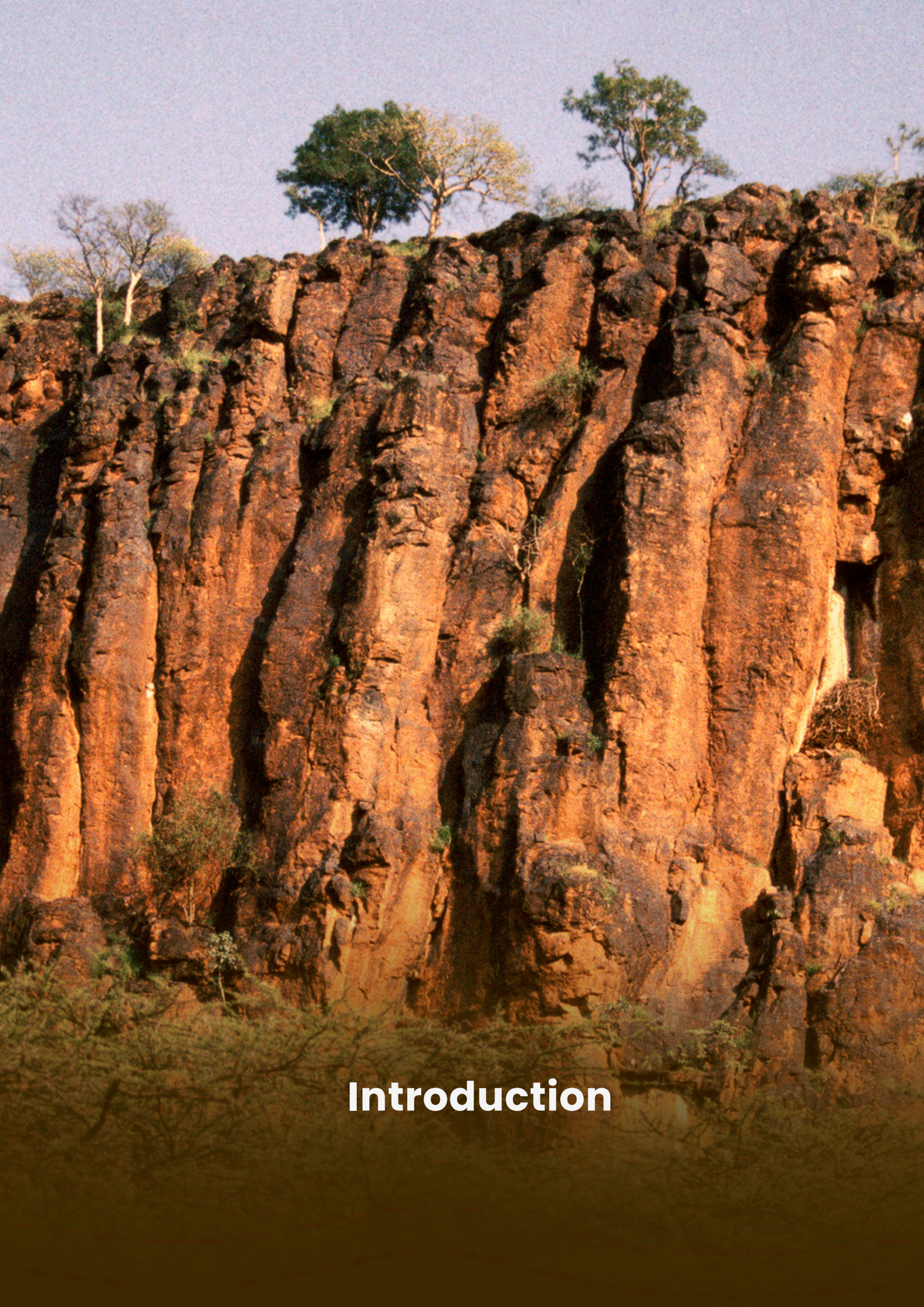
We tackle real challenges with practical solutions that make a difference. From water scarcity to period poverty, our initiatives drive measurable impact:

- Apprenticeship Program: Providing local youth with technical training in DAC technology, creating pathways to stable, high-quality jobs.
- Partnerships with Technical Vocational Education and Training (TVET) Institutions: Equipping the next generation of local youth with the skills needed to lead in DAC and renewable technologies
- Zero-Interest Loans: Supporting climate-smart ventures like drought-resilient agriculture to empower local entrepreneurs.
- Breaking Barriers Program: Addressing period poverty with reusable sanitary kits and education, fostering gender equity in our communities.

We see DAC as more than high-quality CDR—it's a catalyst for Kenya's future. As the global carbon dioxide removal market surges toward a projected $1 trillion in size by 2050, Kenya is poised to lead. By investing in the whole value chain locally, we ensure that the benefits of this growing industry uplift Kenyan communities and fuel sustainable development.

In just 2.5 years, we've set the stage for transformative change. We've created over 60 jobs in Kenya, enabled 100+ temporary job opportunities in our local community, and have attracted $5 million in foreign direct investment. By leveraging Kenya's natural endowments and highly skilled talent and prioritizing community partnerships, we are building a model for inclusive, impactful climate action.

Our journey is just beginning, and we're learning every step of the way. We appreciate that true success lies in building Octavia alongside our communities. By actively listening, adapting to their needs, and sharing the benefits of our work, we can transform our collective challenges into opportunities for growth and progress.



Introduction

Introduction

Why are we publishing our community engagement strategy?

We are Kenya's and the Global South's first Direct Air Capture (DAC) company, and so we have a strong responsibility to set a high bar on community engagement. DAC leverages engineering to remove CO2 from the atmosphere using renewable energy. Kenya is arguably the world's best place to build DAC, having a unique mix of abundant renewable energy, suitable geology for CO2 storage, and a well-educated & cost-effective talent pool to manufacture DAC at scale. That said, deploying DAC in the Global South has unique challenges. Weaker institutions, unfamiliarity with the technology, and a relative lack of relevant operational experience complicate getting free, prior, and informed consent from local communities. While Kenya could become a major global hub for DAC, there is a risk that rushed DAC deployments may not account fully for communities' wishes at the project design stage. A resulting community backlash could reinforce concerns about Global South country risk and further entrench what is already a very Global North-focused DAC industry.

Getting informed consent for DAC can be difficult, given its novelty and technological complexity. Today's wide range of early-stage DAC technologies is inherently challenging for non-experts to understand. Few DAC projects of any kind exist in the world, making it more difficult to point towards a successful track record over decades. What is more, DAC machines are often hard-to-open pressure vessels, which makes them 'black boxes' by design. Most DAC technologies are also highly proprietary, which limits information-sharing about the exact mechanisms and chemistries used. These technological complexities make it difficult to get truly informed consent for DAC. While DAC is well-positioned to create job and economic growth opportunities for communities around the world, DAC developers cannot rely on the promise of future benefits to get community buy-in. Our approach is to engage with local communities throughout the tech lifecycle – from Research &Development to manufacturing, to project development, to long-term operations – to get their informed consent.

DAC has few inherent co-benefits as compared with other carbon removal approaches, requiring developers to be thoughtful about community benefits plans. DAC can create jobs and stimulate local innovation ecosystems, but its deployment does not create immediate benefits to local communities. This compares with agricultural carbon removal interventions like biochar or enhanced rock weathering, which can improve crop yields and enhance climate resilience. While that makes DAC inherently more additional, and while DAC has unique advantages in measurability & replicability, DAC developers may need to be more thoughtful about getting community buy-in. This requires a full understanding of local communities, informing comprehensive and tailored community benefits plans.

Introduction

Kenya is an emerging DAC hub but has a mixed history in community engagement. At the time of writing, seven DAC companies, incl. the market leader Climeworks, have announced projects in Kenya. While the excitement about Kenya as a DAC hub is warranted and welcome, a 'gold rush' mentality could overlook Kenya's complex history of communities being involved in or excluded from economic development. Historically, this has included the disenfranchisement of local communities in the name of 'development', which has sowed a lasting scepticism among communities about novel infrastructure like DAC. More recently, Kenya's mixed record on community engagement in carbon projects creates additional complexity in creating enthusiastic community buy-in, with communities often taking a highly transactional approach to carbon projects.

Having gained some relevant experience, we wanted to share what we learned. To date, we have held dozens of community engagement sessions and know our local community's leaders well. At the time of writing, roughly 10% of our team was recruited from our deployment area, and about 20 Octavians (employees) have called our deployment area home for much of the past 4 months. While we try to absorb best practices from Carbon Dioxide Removal (CDR) thought leaders such as XPRIZE, Carbon Direct, Carbon 180, and Breakthrough Energy, we are not claiming to be experts in anything but our immediate context. As such, we try to approach community engagement with humility and a learning mindset as we try our best to be good neighbours and contributors to the community. We hope that this report will be useful to our stakeholders and peers in DAC and/or Kenya and beyond as we work together to grow durable carbon removal to a climate-relevant scale.

In the next section we try to state 5 principles that reflect our current conviction of how to do community engagement well in Kenyan DAC. Following that, Part I of this document will focus on providing more context about Kenya as an emerging DAC hub. Part II will go into more depth about our community engagement and impact to date. Finally, Part III will share some prominent CDR buyers' perspectives on the topic.

Octavia's 5 Principles of Effective Community Engagement

Octavia's 5 principles of effective Community Engagement

Having grown Kenya's DAC sector from virtually nothing in 2022, these are the principles we arrived at to effectively gain trust and recognition from our local stakeholders. While these reflect Octavia's unique context and approach, we believe they are essential in getting enthusiastic buy-in from local communities in Kenya.

1. Nothing builds trust like local leadership & team

While our CEO and Co-Founder Martin Freimüller has lived in Kenya for 3.5 years, his co-founder and our CPO Duncan Kariuki and the entire rest of our 60-person team are Kenyan, with ~10% of our team recruited from our deployment area. This impacts our relationship with communities in a number of ways: 1) We are native Swahili speakers, meaning there is no language barrier with local communities, which is crucial when explaining our technology, 2) We have some shared understanding of our local communities' contexts, priorities, and cultures; and 3) We share a sense of pride with our local communities that we are developing and building our globally competitive DAC technology in Kenya. The fact that our team is 98% Kenyan is no coincidence – we believe that Kenya's strong talent pool has what it takes to continue innovating at pace, developing DAC technology, and reducing its costs. This conviction builds trust among our local stakeholders.

2. Community engagement means relationship-building, not *events-planning*

While formal community engagement sessions (locally known as 'barazas') have an important role in structured information sharing, we believe that community engagement is ultimately not about planning formal events but about relationship-building. That includes relationships with local officials such as the Deputy County Commissioner, the chief and sub-chief, the director of the local technical college, and others. Moreover, over the past four months, we have rented six apartments in our deployment area and had an average of ~20 team members staying in the local community from Mondays to Fridays. We sponsor and attend local football tournaments and show up for Independence ('Jamhuri') Day celebrations. Ultimately, we believe that the end state of any successful community engagement is mutual trust, which is hard to gain fully from formal community engagement sessions alone.

Octavia's 5 principles of effective Community Engagement

3. Informed consent means 'looking inside the box' where possible

As discussed previously, DAC technology is complex, and DAC machines are pretty much the definition of a 'black box' that is hard to look inside of. That said, ultimately, DAC machines are also just the product of steel, chemicals, wires, and fans, and seeing how they're made can demystify the technology a lot. In that, our Kenya-based R&D and manufacturing are a key opportunity in getting informed consent. We build DAC machines in-house from sheets of steel and off-the-shelf pre-cursor chemicals and design each of our final machines with >3,000 components ourselves, making it easy for our local stakeholders to 'look inside the box' to understand how our machines work. At our R&D and manufacturing site in Nairobi, we have now hosted both our local Deputy County Commissioner and his team, as well as a group of local youth leaders, and each time, we have found our stakeholders very curious and engaged, leaving as key advocates for our technology. While this might not be feasible for entire local communities, having such advocates in our local communities goes a long way towards building trust and, crucially, getting free, prior, and *informed* consent to our project activities.

4. Local value creation must be genuine

The #1 request we get during our community engagement is for job opportunities. That is no surprise, seeing as our deployment area, like the rest of Kenya, has a young population entering an extremely tight job market. Job creation is also not straightforward in DAC technology, as DAC machines are highly automated 'air-moving machines' modelled on HVAC, which require minimal labour input once installed. What is labour-intensive is the manufacturing of our machines, and to enormous local support, we have already set up an apprenticeship program, training our first local youth to be a qualified machine operator.

We are open about our (and our policymakers') concern that a 'gold rush' to deploy DAC in Kenya could ultimately lead to minimal local value creation in both our local communities and in Kenya at large. Worst-case, this could mean that Global North-based DAC companies drawing on generous government subsidies and plentiful early-stage technology funding could undercut DAC companies with Kenya-based R&D and manufacturing, which are creating value locally. If that means that jobs, revenues, technological learnings, and profits from Kenyan DAC ultimately accrue to the Global North, there are just concerns locally that DAC in Kenya risks falling into a paradigm of 'green extractivism' (see below).

Octavia's 5 principles of effective Community Engagement

5. Zero corruption, always

Corruption is the ultimate breach of trust in local communities. No matter what we say to our communities, if we exploit Kenya's relatively weak institutions and bribe officials to remove hurdles to fast deployment, it sends a clear signal that our local stakeholders don't matter. While an outsider might think of corruption as simply 'the way things are done' in Kenya, the more nuanced truth is that Kenya's well-educated young professional class – which comprises Octavia's leadership & team – is deeply resentful of corruption and its negative effects on Kenya. This attitude is personified in Octavia's co-founder and CPO Duncan Kariuki, who, in all his life growing up in Kenya, has never paid a bribe, incl. at great personal sacrifice. This informs Octavia's zero-tolerance approach towards corruption and our decision to use some of our sparse venture financings to help finance the fight against corruption in Kenya via the local branch of Transparency International. We strongly believe that taking a strong stance on corruption is the only way to run a sustainable business in the Kenya we want to build.

What this means for foreign DAC companies deploying in Kenya

While we at Octavia want to set a very high bar on community engagement, we are aware that most of the above principles are impractical for outside companies to implement in the short term. Large DAC companies may have the means to implement similar principles when they enter the Kenyan market, much as Climeworks has done for their market entry into the US. That said, non-Kenyan DAC startups who share our conviction that Kenya is the world's best place for DAC should consider creating a credible plan for localising their team and technology development in the medium term. In the near term, they can already help build a pipeline of Kenyan DAC talent by supporting DAC-relevant R&D and education in partnership with local universities and technical colleges. For local community benefits programmes, a focus on education & mentoring will both align with our experience of community priorities and can help to build an earlier-stage talent pipeline of confident Kenyan DAC innovators. Ultimately, getting community engagement and impact right will be a question of 'putting in the work' over dozens of community interactions, as our learnings about our local communities may not be representative of those of other companies and communities.

What is Green Extractivism?

Green extractivism refers to an economic paradigm where Global South resources are extracted with limited local development benefits to ultimately support job, value, and profit creation in the Global North. Popularised by Uruguayan social ecologist Eduardo Gudynas, the concept points out that the urgency of the climate transition creates a risk of reinforcing harmful extractivist structures, such as critical minerals mining or clean energy development. Of course, in many ways, these extractivist structures, dating to colonialism, hinder the Global South's sustainable economic growth and, thus, ultimately, buttress the region's climate vulnerability.

DAC in Kenya is closely tied to Kenya's unique geology and its renewable energy wealth, especially in geothermal energy, so there is a risk of a green extractivism paradigm taking hold in the Kenyan DAC sector. Fortunately, stakeholders to Kenyan DAC projects can ask a very simple question to assess green extractivism risk: *"Where are the jobs, revenues, technological learnings, and profits from this project ultimately going?"* While it may not be feasible to localise all value creation in the short term, project stakeholders would be right in demanding credible medium- and long-term plans to increase the share of local vs. foreign value creation.

Part 1: Local Context

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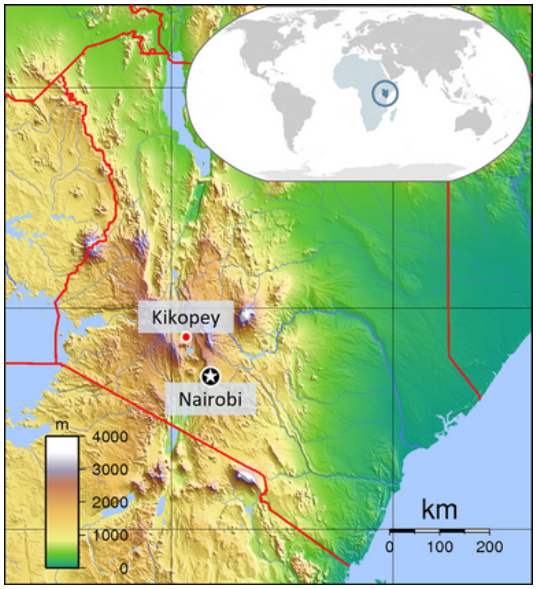
Why DAC, Why Kenya



Kenya is pursuing ambitious climate action despite making minor contributions to global greenhouse gas emissions and acute vulnerability to climate change. Kenya's heavy reliance on climate-sensitive industries such as agriculture, energy, and tourism has exposed its economy and social well-being to far-reaching consequences. Nevertheless, the country has emerged as a strong champion for climate action in the Global South, committing to 100% renewable energy and planting 15 billion trees, both by 2030. This positions Kenya as a global leader in the fight against climate change.

All pathways to address the global climate crisis require the large-scale deployment of carbon removal technologies like Direct Air Capture (DAC). Both Kenya and the international community recognise the pressing need for carbon dioxide removal (CDR) to combat climate change by removing excess carbon dioxide (CO_2) in the atmosphere. Alongside natural carbon sinks such as forests, oceans and soils, large-scale carbon removal solutions must be supported by technologies such as Direct Air Capture (DAC). This technology has emerged as a promising solution due to its capacity to remove billions of tons of CO_2 from the atmosphere while simultaneously spurring sustainable economic growth.

Why DAC, Why Kenya

Kenya is uniquely positioned as the world's best place for DAC. This technology, which filters CO2 directly from ambient air for sequestration in geological reservoirs, faces significant constraints such as high-energy demands, limited availability of geological CO2 storage capacity, and high capital requirements. However, Kenya's natural and human capital provide solutions to these challenges:

- Abundant Renewable Energy: Kenya is a global leader in renewable energy, with over 90% of its grid stack coming from renewables such as geothermal, which alone contributes to more than 43% of the energy supply. With a meagre tenth of its geothermal potential installed, the country's energy surplus ensures a 24/7 clean power source, making it ideal for energy-intensive industries like DAC.
- Geological Reservoirs: Vast volcanic rock deposits along the Great Rift Valley are particularly well-suited for carbon mineralisation, providing a safe and permanent storage solution for captured CO2.
- Skilled Workforce and Low-Cost Manufacturing: Kenya's highly skilled talent pool and competitive manufacturing base enhance its capacity to drive down the cost of DAC and become a global DAC Hub.

Kenya's strong political will and enabling regulatory environment boost these unique attributes and position Kenya as the world's best place for scalable, cost-effective DAC solutions. However, this opportunity comes with the responsibility to engage communities thoughtfully. Without a deep appreciation of local contexts and a commitment to genuine partnerships, there is a real risk of repeating past mistakes—falling into 'green extractivism' patterns, where tokenistic community engagement serves as a veneer for resource exploitation with minimal benefits trickling down to communities.

A brief history of Community Engagement in Kenya

The history of economic development projects in Kenya offers vital lessons for deep climate tech like DAC. Throughout history, the term 'development' has often been co-opted by local elites or external actors to extract resources at the expense of local communities. Understanding this history is essential to recognise how narratives around 'progress' can perpetuate exploitation and ensure that DAC initiatives genuinely prioritise local benefits. By learning from the past, we can better navigate the complex dynamics of community engagement, avoiding pitfalls that undermine trust and inclusivity.

a. Pre-independence

Kenya's history of community engagement is deeply rooted in traditional governance systems that emphasise communal participation. The country's ethnic communities operated within well-defined social frameworks, with leadership drawn from clan affiliations and age sets. This fostered collective decision-making on matters of communal importance, emphasising communal land ownership. This established a strong connection to the land and shared resources, ensuring the collective well-being of the community.

Colonialism inflicted profound dispossession and marginalisation on local communities in the name of 'development.' The colonial era saw administrative boundaries imposed on communities without regard for established decision-making processes. This disconnection from familiar ways of governance created a profound sense of alienation within communities.[1] Local populations were systematically excluded from decisions affecting their own resources, livelihoods, and future. These actions dismantled longstanding land usage and ownership customs, stripping communities of their economic agency and undermining social cohesion.

Projects like the Kenya-Uganda Railway, while advancing economic development, highlighted the detrimental impact of neglecting community engagement. The construction of the Kenya-Uganda Railway in the late 19th and early 20th centuries undoubtedly spurred significant development, enhancing regional trade and connectivity.[2] However, this progress came at a steep price, marked by widespread displacement and dispossession of local communities.[3]

[1] Kenya Land Alliance (2004), THE NATIONAL LAND POLICY IN KENYA Addressing Historical Injustices, Retrieved from "https://kenyalandalliance.or.ke/login/publications/images/kla_issues_paper_2_historical_injustices.pdf"historical injustices issues paper-PAGEMAKER.pmd

[2] Enzi, (2011), Construction of the Kenya-Uganda Railway, Retrieved from Construction of the Kenya-Uganda Railway | Enzi

[3] DeSanto, D., (2017), The Kenya-Uganda Railway, Retrieved from The Kenya-Uganda Railway – Macleki

A brief history of Community Engagement in Kenya

The imposition of forced labour marred the project, as developers coerced communities into contributing to the railway's construction without adequate compensation or support. Moreover, the lack of meaningful consultation with affected communities was a stark neglect of their rights and voices, setting a troubling precedent for 'development' projects for decades to come.

The mistrust seeded during this period continues to manifest in Kenya today. Communities remain cautious and sceptical toward new development initiatives, often perceiving them as vehicles for external exploitation rather than mutual benefit. This lingering suspicion has eroded trust in outsiders, whether governments, corporations, or international organisations, further complicating efforts to engage communities meaningfully[4]. Additionally, the displacement and marginalisation experienced in the past left behind inequities in resource distribution and governance, issues that persistently challenge attempts to establish equitable frameworks for new projects. The scars of colonialism are not merely historical; they are deeply woven into the socio-economic fabric, influencing how Kenyan communities view and respond to modern development proposals.

b. Post-independence

Post-independence, Kenya grappled with historical land injustices, creating a complex legacy of land tenure. While President Jomo Kenyatta initiated land restitution to Kenyan communities—challenges such as the retention of ethno-territorial divisions and conflicts between customary and statutory land tenure systems persisted. The emphasis on private land ownership undermined communal land rights[5]. Much of the former 'Crown Lands' was transferred into government ownership without properly consulting the customary landowners, exacerbating tensions between traditional practices and new governance structures[6].

Subsequent development projects during President Daniel Arap Moi's regime, such as the Nyayo Tea Zones and the Turkwel Hydroelectric Power Station, demonstrated contrasting outcomes of community engagement. The Nyayo Tea Zones[7] were conceived as buffer zones between forests and human settlements to promote both environmental conservation and economic benefits for local stakeholders. Community members involved in planting and maintaining the tea reaped employment benefits and shared revenue from tea harvests. Community leaders acted as the intermediaries; channelling grievances raised to the administrators. This wholesome involvement fostered a sense of ownership among local communities, and the project is still considered one of Moi's successful legacies. Such examples underscore the importance of locally led projects that embrace the local context. When development initiatives are grounded in the realities and

[4,5] Hussain, S., (2024), Land rights and indigenous peoples: Exploring the impact of historical injustices, Retrieved from Land Rights and Indigenous Peoples: Exploring the Impact of Historical Injustices

[6] Kenya Land Alliance (2004), THE NATIONAL LAND POLICY IN KENYA Addressing Historical Injustices, Retrieved from "https://kenyalandalliance.or.ke/login/publications/images/kla_issues_paper_2_historical_injustices.pdf"historical injustices issues paper-PAGEMAKER.pmd

A brief history of Community Engagement in Kenya

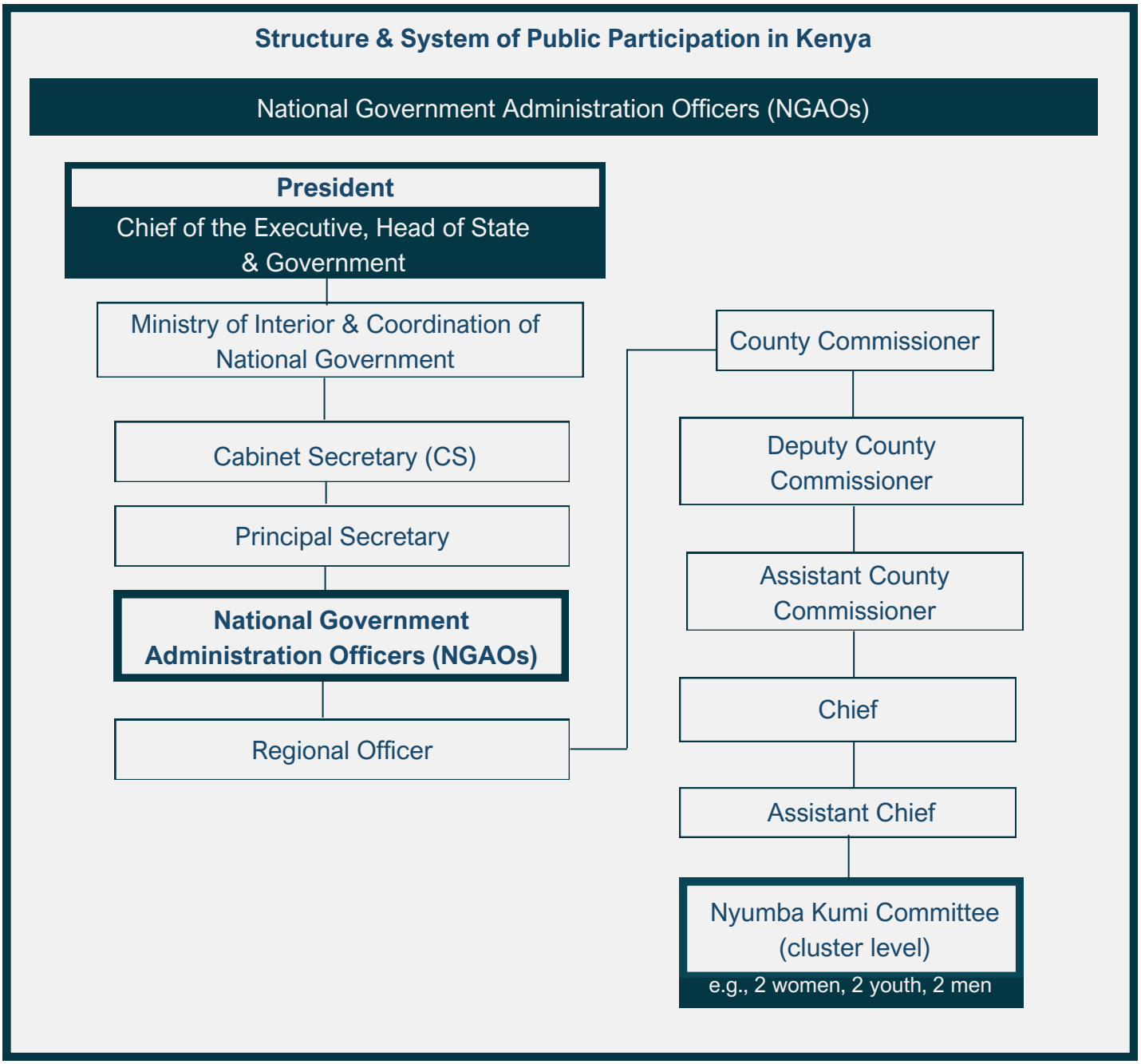
needs of the community, they can serve as highly successful drivers of economic development in the long run.

Conversely, the challenges faced by the Turkwel Hydroelectric Power Station project in the 1980s highlighted that merely trying to 'pay off locals' leads to adverse project outcomes.[8] Although the project aimed to generate renewable energy to enhance the electricity supply in Kenya and stimulate economic growth, the implementation led to widespread displacement and inadequate compensation for the local Emong and Lokochee communities. These communities, whose livelihoods depended on the river's ecosystem, experienced social unrest due to unmet expectations for reliable electricity and local employment.[9] This situation demonstrated that an approach focused solely on 'paying off' local communities was ineffective—not only for the intended development outcomes but also for the project's overarching aims and economic returns.

These historical dynamics still resonate today, as the legacy of land injustices and fragmented community engagement in development projects has sown deep mistrust among local populations.[10] Many communities now view development projects with suspicion, often associating them with corruption and unmet promises, particularly when past projects have led to displacement and inadequate compensation. This scepticism manifests in resistance to new initiatives, as local residents fear that their needs and rights will be overlooked once more. The ongoing challenges highlight the critical need for robust and transparent stakeholder engagement in future development efforts, ensuring that benefits are equitably distributed and that communities have a genuine voice in projects that affect their lives and livelihoods.

Regulatory Context

Kenya's governance structure enables community engagement through a decentralized framework from national to grassroots levels. At the apex of Kenya's government is the President, whose authority cascades through the Cabinet Secretary for Interior to County Commissioners and (meritocratically selected) 'Chiefs', representing national interests at local levels, down to the grass-roots level. Central to grassroots governance is the Nyumba Kumi (Swahili: 'Ten Houses') Initiative, a community-based policing program designed to foster local cohesion, address security concerns, and resolve community issues. This initiative emphasises the importance of grassroots participation in governance and security. Through the Nyumba Kumi framework, leaders are selected from groups of ten households, creating strong connections within neighbourhoods.



[7] African Development Fund, (2002), Nyayo Tea Zones improvement and forest conservation project, Retrieved from Kenya - Nyayo Tea Zones Improvement and Forest Conservation Project - Completion Report

[8,9] Nandelenga, A. (2019). Water Resource Conflict in Kenya (Doctoral dissertation, University of Nairobi).

[10] Hussain, S., (2024), Land rights and indigenous peoples: Exploring the impact of historical injustices, Retrieved from Land Rights and Indigenous Peoples: Exploring the Impact of Historical Injustices

Regulatory Context

The Nyumba Kumi Initiative is critical for promoting community buy-in by actively engaging residents in discussions about their needs and concerns. It serves as a platform for information sharing, allowing community members to voice their issues, participate in decision-making processes, and collaboratively address local security challenges. While its core mandate focuses on security, this setup can also function as trust committees or points of contact in our grievance mechanisms, fostering deeper community connections and ensuring that concerns are addressed effectively.

Community engagement in Kenya is shifting towards inclusive, bottom-up approaches led by Civil Society Organizations (CSOs) and devolved governance structures. CSOs play a crucial role in this change, advocating for community rights and empowering local populations to actively participate in decision-making during projects' life cycles, while devolution has enhanced local-level governance. Despite these advancements,

significant challenges such as cultural barriers, scepticism rooted in past experiences, bureaucratic inefficiencies and limited community capacity remain prevalent. Addressing these deep-seated issues means active listening and genuine dialogue with the affected communities to build trust. When communities feel valued and are allowed to participate actively, projects are more likely to be embraced, leading to sustainable development that genuinely reflects communities' needs and aspirations. In Kenya and beyond, prioritising community engagement is beneficial and imperative.

Regulatory Context

Kenya's legal framework establishes robust guidelines for community engagement, emphasising public participation and inclusive decision-making. As outlined in Article 10 and Article 174 of the Constitution of Kenya, 2010, public participation is a national value that promotes decentralised governance and ensures that proper mechanisms are in place to address community voices during policy formulation and project implementation. Bolstering this, the County Government Act (2012) mandates counties to create platforms for citizen involvement, such as town halls and community forums, which foster localised decision-making processes.

The Environmental Management and Coordination Act (EMCA, 1999) and Land Act (2012) further strengthen community participation by requiring comprehensive Environmental Impact and Social Assessments (ESIAs) and Free, Prior, and Informed Consent (FPICs). These mandates ensure comprehensive stakeholder consultations before project approvals, particularly for projects on communal land, ensuring communities are actively involved in decisions affecting their resources and livelihoods.

While these laws provide a solid foundation, challenges such as tokenistic participation, limited awareness of rights, and power imbalances persist. Addressing these issues requires simplifying legal guidelines for community understanding and emphasising that there are clear consequences for non-compliance with environmental and social safeguards. Stakeholders must conduct independent monitoring, ensuring the highest standards of accountability, which boosts meaningful engagement. This greatly enhances the impact of community engagement efforts and ensures that local communities can genuinely influence decisions that affect their lives.

Case Studies

Development projects like the Lake Turkana Wind Power, Northern Kenya Rangelands Carbon Project, and the Olkaria IV geothermal power station project highlights multi-faceted approaches to community engagement in the projects' implementation.

a. Lake Turkana Wind Power: Successful community engagement in action

The Lake Turkana Wind Power (LTWP) project in Kenya stands out as a benchmark for successful community engagement in developmental projects. Located in the fragile region of Marsabit, Northern Kenya, LTWP harnesses renewable wind energy, contributing 17% of the national grid's electricity supply through its array of 365 turbines, each with a capacity of 850 kW.[11] At the core of LTWP's success is its robust stakeholder engagement strategy, which integrates 31 community liaison officers and advisors dedicated to fostering relationships with local residents. This holistic engagement approach ensures that community members are active participants throughout the project lifecycle— from planning through implementation and maintenance. Daily interactions with the community cover vital topics such as transportation logistics, health and safety, and employment opportunities, which contributes to a sense of shared ownership and transparency.

The "Winds of Change" (WoC) program exemplifies LTWP's commitment to sustainable community development.[12] Through WoC, LTWP has implemented multiple impactful projects aimed at improving the quality of life for local residents. For example, it made significant strides in enhancing community welfare by constructing & supporting educational facilities, fostered peace initiatives, sporting tournaments, and access to clean water. Moreover, a well-structured grievance mechanism allows community members to voice concerns, where grievances are acknowledged within seven working days and resolved within 14 days, thus maintaining trust and open communication. Remarkably, despite being set in one of Kenya's poorest and most fragile regions, LTWP was embraced by communities and proved a resounding success, and is today the wind power plant with the world's 2nd-highest capacity factor.

[11] Lake Turkana Wind Power, Powering Kenya with Affordable and Clean Energy. Retrieved from Home - Lake Turkana Wind Power

[12] Lake Turkana's Winds of Change Program., (2024). Retrieved from Winds of Change - Lake Turkana Wind Power

The LTWP initiative serves as a model for other project developers, exemplifying how ambitious community benefits plans enhance project success. With its impactful programs and inclusive approach, LTWP highlights the importance of integrating community needs and perspectives, ultimately setting a standard for future developmental projects in Kenya and beyond.

b. Olkaria IV Geothermal Power Station: *Missed opportunities in Kenya's geothermal sector*

Much of Kenya's suitability for DAC stems from its well-established geothermal sector, where is important to acknowledge a mixed record on community engagement, e.g., in the Olkaria IV geothermal power station. Olkaria IV is one of four geothermal power stations commissioned by the state-owned Kenya Electricity Generating Company (KenGen).[13] With a capacity of 140 megawatts, it was launched in 2014 and is located in Nakuru, Kenya. This power station plays a significant role in meeting Kenya's energy demands sustainably by harnessing geothermal energy as a renewable resource. However, the project has faced criticism regarding its approach to community engagement, particularly concerning local indigenous communities such as the Maasai.

Reports indicate that the project developers, KenGen, failed to adequately consult the Maasai, resulting in significant cultural and social disruptions, including the relocation of communities. A notable example is the Resettlement Action Plan (RAP)[14], which involved moving four Maasai villages to an area known as Akiira One. The RAP did not consider the community's traditional living arrangements, leading to housing that was unsuitable for their extended families. The communities expressed concerns that the new area's design, with steep gullies, made it difficult for their cattle to graze, and they found the land to be less productive compared to their former lands. This situation further increased their vulnerability as communities that depend on pastoralism for their livelihood.

[13] KENGEN, Olkaria, Retrieved from KenGen

[14] Gai, A. B., Wahome, R. G., & Bett, R. C. (2022). Impact of resettlement on livestock production and performance among the Maasai pastoralists of RAPland village, Olkaria Kenya. Pastoralism, 12(1), 15.

The land provided under the RAP was different from what the project developers had initially promised, signifying a breach of rights. This violation of rights associated with the relocation fuelled distrust and resentment, culminating in protests and advocacy from the Maasai.[15] Through advocacy groups, they sought acknowledgement of their grievances from partner organisations like the World Bank. In response to the complaints, KenGen constructed new houses and provided facilities such as schools, bridges, water sources, and health dispensaries, which helped alleviate the vulnerabilities. This resolved grievances but came at a steep cost to Olkaria IV's project budget.

Olkaria IV's case highlights the importance of a relationship-building approach during the design & implementation of community benefit projects. Engaging with Indigenous communities early & working to gain a deep understanding of communities' needs goes a long way in achieving equitable project outcomes in geothermal-linked projects such as DAC. Similarly, meaningful engagement with communities is crucial for building trust and cooperation, ensuring that the needs and aspirations of local populations are integrated into project design. Proactive engagement can ultimately mitigate the escalation of conflict and create a sense of ownership within the communities, thereby enhancing the long-term success of projects.

c. The Northern Rangeland Trust: Broken trust in a prominent Kenyan carbon project

The Northern Rangelands Trust (NRT) dramatically highlights the risks to carbon projects from misconceived community engagement. NRT is a Kenyan project aiming at fostering community conservancies, improving livelihoods and preserving the environment. With ~45 conservancies covering around 6.37 million hectares, NRT has initiated programs that have had a tangible impact on the lives of many, via its Conservancy Livelihoods Fund. By all accounts the project was set up with good intentions, and since its inception in 2015, the Conservancy Livelihoods Fund has disbursed >$4.2 million to ~162 projects, directly benefiting ~75,000 people. Initiatives like Biashara Mashinani have empowered women and youth by promoting diversified income sources beyond traditional livestock keeping, and the establishment of the Northern Rangelands Savings and Credit Cooperative (NR SACCO) has enhanced financial inclusivity for these groups.

Despite its significant contributions, NRT faces significant criticisms regarding its Northern Kenya Rangelands Carbon Project (NKRCP).[16] Initiated in 2009 and aiming to sequester ~50 million tons of CO2 over 30 years[17] while enhancing the resilience of community conservancies, the project has stirred unease, particularly among indigenous pastoralists. Having initially won awards and the backing of prominent carbon credit buyers such as Meta and Netflix, the project's credits were later suspended by Verra amidst a major public scandal in 2023.

[15] Koissaba, B., (2023), Kenya- Maasai Protest Against New Land Concessions for Geothermal Extraction in Kenya

[16] Counsell, S., (2023), Blood Carbon: how a carbon offset scheme makes millions from Indigenous land in Northern Kenya. Retrieved from Blood Carbon: how a carbon offset scheme makes millions from Indigenous land in Northern Kenya - Survival International

[17] Northern Rangeland Trust, The Carbon Project, Retrieved from Northern Kenya Rangelands Carbon Project

Case Studies

A key concern is the project's impact on traditional grazing practices.[18] The NKRCP has imposed a centralised approach that resembles commercial ranching, disrupting long-standing practices of pastoralists such as the Samburu and Borana communities. This shift threatens the cultural identities of these groups by undermining their norms related to land use, and their long-standing traditional governance frameworks. The restrictions placed on livestock movement within the project area are viewed as culturally destructive. They jeopardise food security and livelihoods, especially during seasonal droughts when migration is essential for survival, thus heightening the communities' vulnerabilities.

The NKRCP's project proponents likely overpromised on the feasibility of novel scientific & technological approaches, further undermining community trust. Local communities expressed scepticism about whether the NKRCP's proposed rotational grazing methods would enhance soil carbon accumulation more effectively than their traditional practices.[19] This doubt about the project's alleged carbon additionality raises concerns about the scientific basis for the initiative and its alignment with the cultural and environmental practices of the communities it aims to serve. Additionally, project proponents likely over-promised on their technological approach, with promises about the reliability of NKRCP's remote sensing approach being seemingly inaccurate.

The NKRCP further fuelled Kenyan communities' suspicions regarding the equitable distribution of carbon revenue. Community members grapple with the implications of losing control over their land and resources in pursuit of carbon credits that may not benefit them equitably. The project's execution has raised significant concerns regarding its cultural and economic impact on indigenous pastoralists. This situation complicates trust between local communities and carbon market initiatives, leading to fears of exploitation by project developers involved in similar carbon removal initiatives

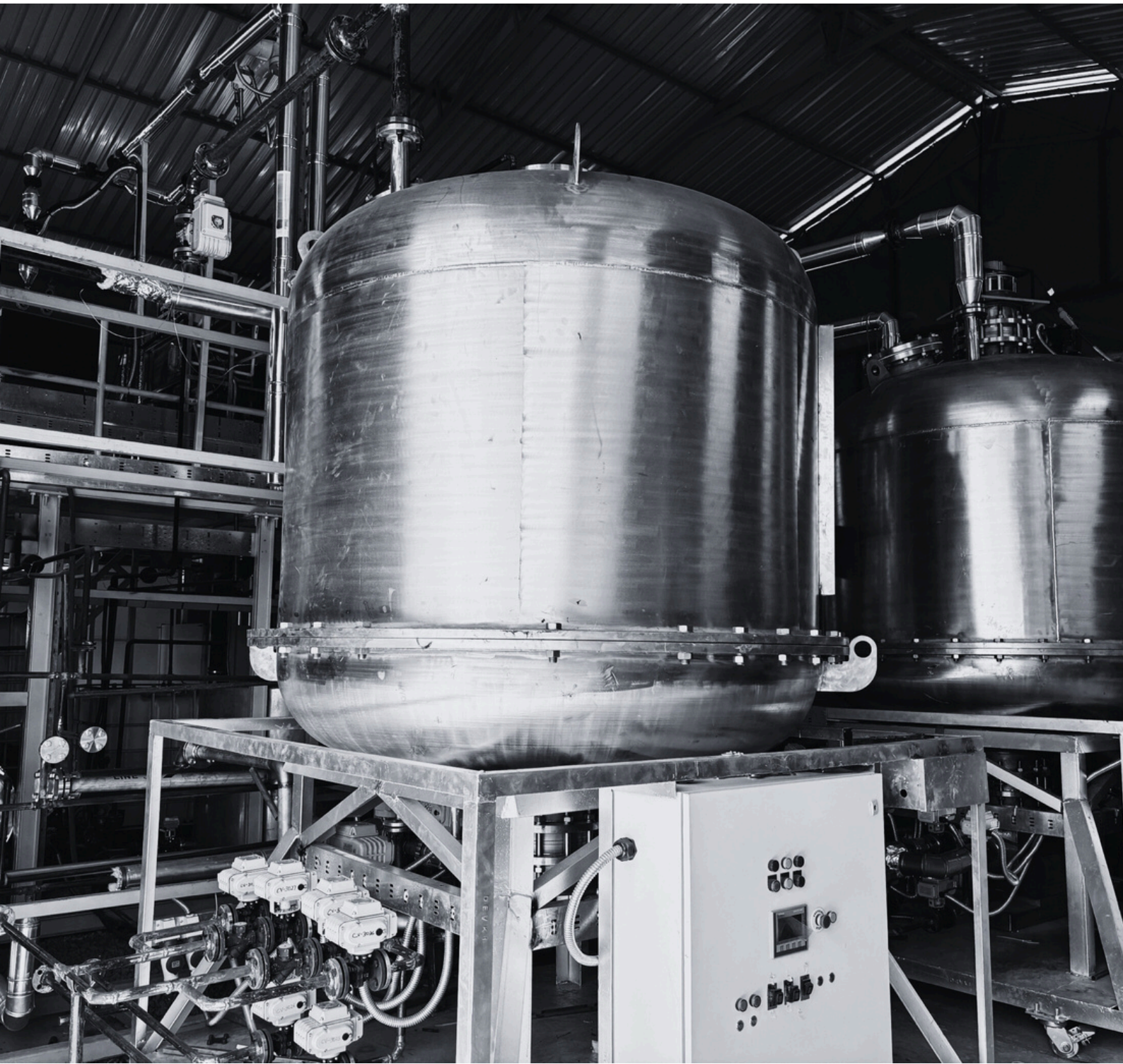
[18, 19] Counsell, S., (2023), Blood Carbon: how a carbon offset scheme makes millions from Indigenous land in Northern Kenya. Retrieved from Blood Carbon: how a carbon offset scheme makes millions from Indigenous land in Northern Kenya - Survival International

Part 2: Octavia's Community Engagement

Part 2: Octavia's Community Engagement

Overview of Project Hummingbird

Project Hummingbird - Octavia's pilot commercial Direct Air Capture project is designed to remove 1,000 tons of CO2 annually (1,000 tCO2/yr). Situated in the Rift Valley's Nakuru County, Gilgil Ward, it marks the first project of its kind in the Global South. Leveraging the region's abundant geothermal energy and geology, this project aims to address the climate crisis and deliver meaningful local impact. Project Hummingbird, guided by a rigorous Environmental and Social Impact Assessment, aims to be an emblem of innovation and inclusivity.



Part 2: Octavia's Community Engagement

Understanding The Gilgil Community

Gilgil is a vibrant community with a youthful population, predominantly composed of the Maasai and Kikuyu peoples. These groups, known for their rich cultural heritage and entrepreneurial spirit, contribute significantly to the region's social and economic fabric. While the Maasai traditionally maintain a strong connection to their pastoralist lifestyle, many are increasingly engaging in agriculture and trade, contributing to local markets and economic growth. The Kikuyu, renowned for their agricultural expertise, play a vital role in the region's agricultural output, forming cooperatives and utilising innovative farming techniques to enhance productivity.

The local administration, led by the appointed chief, plays a crucial role in addressing community needs and connecting residents with government services. The chief, in collaboration with community elders and leaders from both the Maasai and Kikuyu communities, facilitates dialogue and conflict resolution, ensuring that diverse voices are heard and considered in local decision-making processes. This collaborative governance approach fosters a sense of unity and shared responsibility in addressing the challenges and pursuing the opportunities that lie ahead for Gilgil.

Economic activities in the sub-county are diverse, ranging from agriculture and masonry to informal trades like artisanal metalworking, motorcycle transport, and beekeeping. While these entrepreneurial activities are a testament to the community's resilience, the limited opportunities for a growing population underscore the pressing need for reliable sources of income. Water scarcity in the area remains a significant obstacle. The alkaline Lake Elementaita is quite unsuitable for domestic use, leaving residents reliant on rainfall and alternative solutions such as roof catchment systems and steam collection modules, which condense geothermal steam into usable water.

Local communities face substantial barriers to accessing quality education. While Nakuru County achieves a 70% transition rate from primary to secondary school, tertiary enrolment and completion rates remain low due to financial constraints and socio-economic barriers, including period poverty, which severely affects girls' educational outcomes.

Our local community is active & vocal in overcoming its numerous challenges. The people of Gilgil demonstrate resilience and resourcefulness, actively seeking opportunities to improve their well-being. Youth engagement is particularly high, with many young people actively participating in community initiatives. An example is 'Gema Umoja Development' which promotes sustainable agriculture through workshops and training sessions on water conservation and organic farming methods. Women are also key drivers of community development, with active groups like Gema Upendo Women's Group, Blessed Upper Hill, Rumwe Women Group, and Cliff Ladies, each with over 20 members, working together on various initiatives ranging from microfinance and skills training to supporting local businesses and advocating for women's rights. These initiatives provide a solid foundation for us to make contributions via Project Hummingbird.

Addressing Local Challenges

Through our active engagement with our local communities, we identified the following key challenges as focus areas for our pilot project's community benefits plan:

- Youth Unemployment: Limited training and job opportunities hinder economic growth.
- Education Barriers: Financial constraints limit enrolment and completion rates.
- Period Poverty: Limited access to menstrual hygiene products affects girls' education.
- Water Scarcity: Reliance on rainfall disrupts agriculture and domestic life.

Building Trust: Octavia's Community Engagement Strategy

Our community engagement strategy prioritises responsible and transparent deployment of our technology that cultivates trust and builds lasting relationships. We aim to:

- Inform: Clearly communicate to the community and relevant stakeholders the benefits of our technology for addressing climate change.
- Engage: Actively listen to community concerns and challenges related to our DAC technology.
- Empower: Develop and implement community benefit programs tailored to the community's specific needs.

To establish a solid foundation, we continuously maintain relationships with local administration and community elders, the Wa-Nyumba Kumi, representing ten households. Our active engagement with chiefs and sub-chiefs in Suswa and Gilgil ensures familiarity with our operations and serves as grievance articulation & resolution channels. These partnerships facilitate smooth community engagement implementation. Through barazas, we encourage open dialogue, address concerns, and gather valuable feedback. These efforts strengthen community buy-in for our pilot project.

Community Engagement Day at Jaica Village

A community engagement day (one of many) at Jaica Village, a key engagement site in Eburu, Gilgil Sub-County, serves as an illustration of our community engagement approach. We collaborate with local chiefs and Wa-Nyumba Kumi to invite community members to town hall sessions, ensuring we reach the appropriate target audience with equal representation of men, women, youth, and children. These sessions include presentations by our company representatives, question-and-answer periods on DAC technology, and break-out group discussions to gather personalised insights from the locals.

The FAQ table below highlights common questions and short summaries of our typical responses. Please note that in an actual baraza, we would give a more detailed and culturally sensitive answer in Swahili.

Question	Short summary of a typical response
What is CO2?	• Carbon dioxide (CO2) is a natural gas essential for plant life, but elevated levels due to human activities such as industrialisation contribute to climate change.

Building Trust: Octavia's Community Engagement Strategy

Question	Short summary of a typical response
What effect will removing CO2 have on our health?	• We understand that you may have questions about the potential health effects of DAC deployment. We want to assure you that we are committed to protecting the health and well-being of our employees and the surrounding community. Our DAC technology is designed to minimize emissions and resource use. DAC technology is well-known and has been used for years. It works effectively to remove CO2 from the atmosphere and is safe. • Even so, to protect our plant operators we have established strict safety protocols and provide Personal Protective Equipment (PPE) in compliance with the Directorate of Occupational Safety & Health, DOSH in Kenya. We also conduct regular health and safety training to ensure our employees are well-informed and protected.
Will removing CO2 harm our soil and crops?	• Removing CO2 from the atmosphere will not negatively impact soil and crops. To prevent any environmental harm, we are implementing an Environmental and Social Management Plan that details erosion control and rehabilitation of disturbed areas during construction as well as conducting environmental audits by an independent licensed expert from the National Environmental Management Authority (NEMA).
Does DAC replace trees?	• DAC is a proven technology that complements tree planting and other carbon removal technologies.

Building Trust: Octavia's Community Engagement Strategy

Question	Short summary of a typical response
What are the effects of CO2 sequestration?	• CO2 stored underground is permanently removed from the atmosphere. The technology is safe, has been demonstrated in a similar long-term project in Iceland, and there are no negative effects from this process.
How do you ensure CO2 does not leak?	• Partnering with Cella Mineral Storage, we inject CO2 into basaltic rock formations, where it mineralises into solid carbonates, ensuring CO2 has been permanently removed from the atmosphere and locked away securely.
Why was Gilgil chosen for operations?	• The co-location of geothermal energy, a CO2 storage site, and a Special Economic Zone (SEZ) license make Gilgil ideal for DAC deployment.
How much CO2 does the pilot plant capture?	• Project Hummingbird captures 1,000 tCO2/yr which is roughly equivalent to the annual emissions of 200 cars.
How will the community benefit?	• Our community programs will focus on education, economic development, and workforce training.
Will there be employment opportunities?	• Yes, we offer opportunities to train and employ local skilled labour. Additionally, we have partnered with local TVETs to bridge any skills gap between the community and Octavia.

Building Trust: Octavia's Community Engagement Strategy

Empowering the Community: Octavia's Impact Initiatives

a. Apprenticeship Program

Our apprenticeship program equips community members with valuable technical skills. Launched in July 2024, our six-month apprenticeship program provides technical training on DAC technology, emphasizing operational health, safety, and environmental stewardship. Success stories like Faith Njeri, who transitioned from informal work to becoming a maintenance technician, highlight the program's immediate impact. In the short term, we aim to strengthen partnerships with local TVETs and Community-Based Organizations to expand participation and enhance our programme's quality. In the long-term, we aim to create a community-driven talent hub in Gilgil, focused on in-demand climate-related workstreams like renewable energy maintenance & water resource management.

b. TVET Partnerships

We are bridging the skills gap and empowering Gilgil's workforce. Our partnerships with local Technical and Vocational Education and Training (TVET) institutions aim to enhance community workforce readiness. In 2024, we have already provided needs-based tuition fee assistance to 11 high-achieving students around our deployment area. By sponsoring tuition fees and recruiting graduates for our pilot plant's operations, we address the community skills gap and create employment opportunities. Today,

we have signed MoUs with the Gilgil Technical and Vocational College and Kikopey Polytechnic, as we aim to position Gilgil as a regional leader in green skills vocational training. This aligns with the Kenyan government's Vision 2030, which emphasizes the importance of technical and vocational training in driving climate-positive economic growth.

c. Breaking Barriers Program

Our 'Breaking Barriers' programme helps address period poverty by increasing access to menstrual health products in our local community. In collaboration with the non-profit partners Huruma Kikopey Community Based Organization (CBO) and Gema Upendo Women's Group, we are supporting reusable sanitary kits and menstrual health workshops. By providing access to sanitary products and education, we aim to empower girls to pursue education uninterrupted and dismantle the stigma surrounding menstruation. In the longer-term, we hope to expand this to programmes that address issues like gender-based violence and economic empowerment programs.

d. Zero-Interest Community Loans

We are promoting entrepreneurship and climate-smart agriculture with zero-interest loans. Starting Q1 2025, we will roll out zero-interest loans to community groups, focusing on climate-smart agriculture practices like raising drought-tolerant goat breeds. These initiatives aim to address food security and economic empowerment in arid conditions. Capacity-building workshops will accompany the loans to ensure participants can maximize their benefits. Longer-term, we aspire to build a thriving entrepreneurial ecosystem in Gilgil. We aim to grow this initiative into a sustainable microfinance program that provides accessible credit and financial literacy training to individuals and small businesses. To that end, we will explore partnerships with local Savings and Credit Co-operative Organizations (SACCOs) to leverage their expertise in microfinance and expand the reach of our program.

e. Empowering Communities through Sports

We support our local youth's aspirations by sponsoring a local football team. The local Jaica community's football field is a hub for the community, with large crowds gathering each afternoon to watch football games, relax and meet other community members. In response to frequent requests by youth leaders, we started sponsoring the Jaica Talanta Football Club in November 2024, providing them with essential kits like football shoes & participation fees play in the local football league. This created a tangible symbol of our commitment to supporting local aspirations. In future, we aim to expand this initiative and to further local gender equity by also supporting the establishment of a women's football team in the local Jaica community.

f. Water Scarcity

In the long-term, we aim to contribute towards addressing water scarcity. Notably, our project's geothermal partner Mumbi Ltd already created meaningful good will in the local community by leveraging a partnership with the Japanese aid agency JICA to build a geothermal water condensation well in the local community now named Jica. Longer-term, we will work in public-private partnerships with our government stakeholders to further address water scarcity, potentially linked to providing boreholes, rainwater harvesting infrastructure and water-efficient irrigation techniques. We will also support community-led initiatives that promote water conservation and responsible water use.

Results and Reflections

Our initiatives have struck a chord with the community by tackling critical environmental and socio-economic issues. The positive feedback has been heartening, with residents consistently expressing a desire for additional education sponsorships for their children, expanded job opportunities, and greater avenues for active participation. Our goal is to keep refining our training model further with the support of our partner TVET institutions to ensure the continued development of our community members.

Our goal is to invest in the community's future, and we have started impacting local lives positively. By funding tuition fees for students and partnering with TVET institutions, these initiatives empower young people with education and skills, opening doors to better opportunities. Our support for football tournaments has created positive recreational outlets for our youth while increasing a sense of community and pride. We are under no illusion that our interventions so far have solved all our local communities' issues, but we are proud to have touched dozens of lives in the community and hope to have been good neighbours so far.

Contributing Toward's Kenya's National Development

The resources that make Kenya the world's best place for Direct Air Capture (DAC) are the shared heritage of all Kenyans, and our impact shouldn't stop at the local communities. Article 69 of Kenya's 2010 Constitution encapsulates this ethos, mandating the State to ensure "sustainable exploitation, utilisation, management and conservation of the environment and natural resources" and to "ensure the equitable sharing of the accruing benefits.[20]" This principle underscores the collective responsibility to harness Kenya's natural resources for the benefit of all citizens. Unlike traditional carbon initiatives that primarily focus on land ecosystems stewarded by local communities, DAC relies on the abundant geothermal energy and geological formations beneath the earth's surface. While our project operates on private land, the resources themselves remain a shared heritage belonging to all Kenyans as a whole. This critical distinction requires us to adopt a broader perspective, ensuring that the vast potential of Kenya's subterranean resources benefits the entire nation.

DAC can be a unique contributor towards Kenya's sustainable industrialisation, if value is captured locally. The global carbon dioxide removal (CDR) market is projected to exceed $1 trillion by 2050,[21] positioning DAC as a cornerstone of sustainable industrialisation. Kenya's potential to lead in this industry lies in ensuring that the value generated by DAC is captured locally. DAC hardware is largely automated, and the deployment of machines alone does not significantly enhance the economy. The true value lies in research, development, efforts and positioning Kenya as a hub for innovation. As Kenya emerges as a leader in green industrialisation, the large-scale development of direct air capture (DAC) technology can catalyse this transition. For example, by integrating DAC-sourced CO2 as an anchor

Contributing Toward's Kenya's National Development

technology to green industrialisation, electro-Sustainable Aviation Fuels (eSAFs) are a key industry set to emerge in Kenya. This shift toward green production in hard-to-abate industries such as aviation benefits the environment and fosters economic growth by creating high-skilled jobs in engineering, manufacturing, and plant maintenance related to DAC and the new green industries it will enable.

Octavia Carbon has created 60 jobs and attracted over $5 million in foreign direct investment to Kenya, while leading the research and development of carbon dioxide removal technologies. In just two and a half years of operations, we have established 60 permanent jobs, incl. for ~40 engineers, and are focusing on nurturing talent directly from the university level. With the funding we have secured, we successfully piloted our plant, marking a significant milestone for our research and development efforts and positioning Kenya as a hub for innovation. As Kenya emerges as a leader in green industrialisation, the large-scale development of direct air capture (DAC) technology can catalyse this transition. For example, by integrating DAC-sourced CO2 as an anchor technology to green industrialisation, electro-Sustainable Aviation Fuels (eSAFs) are a key industry set to emerge in Kenya. This shift toward green production in hard-to-abate industries such as aviation benefits the environment and fosters economic growth by creating high-skilled jobs in engineering, manufacturing, and plant maintenance related to DAC and the new green industries it will enable.

Contributing Toward's Kenya's National Development

DAC can provide the blueprint for Kenya to turn its renewable energy abundance into prosperity for its people. Kenya possesses a rare abundance of clean and firm power, an asset that few places globally can match. By harnessing our extensive human and natural resources, we are exploring innovative pathways to export this energy wealth and promote sustainable development. Through the advancement of local research and manufacturing, we are not just building a future for Octavia; we are cultivating a generation of Kenyans who can proudly position themselves as experts in emerging technologies and champions in the global effort against climate change. Together, we can transform our nation into a beacon of climate innovation, turning our renewable energy abundance into a legacy of prosperity and innovation for future generations.

[20]Kenya Law Reform Commission, (2025), Constitution of Kenya: 69. Obligations in respect of the environment, Retrieved from 69. Obligations in respect of the environment - Kenya Law Reform Commission (KLRC)

[21]McKinsey & Company, (2023), Carbon removals: How to scale a new gigaton industry, Retrieved from Carbon removals: How to scale a new gigaton industry | McKinsey

Buyers' Perspective

Ultimately, without the CDR market's support, we cannot implement this strategy - highlighting the need for CDR to value community engagement. Throughout our journey building DAC in Kenya since 2022, we have been deeply humbled by how supportive buyers and brokers in the CDR market have been to our efforts to do community engagement well & to create local value. In the following section, we offered a select few CDR buyers, stakeholders of Octavia, & experts a chance to add their perspectives on this topic after reviewing a draft of this document. The following are their unedited words:

Please note: Not all the organisations listed here are active buyers from Project Hummingbird. Some are active buyers (e.g., Klimate.co), others are active project stakeholders (e.g., Carbonfuture, with whom we are co-developing a dMRV system for DAC).

CarbonFuture:

"True community engagement goes beyond collaboration - it means becoming part of the community and creating shared value. Octavia sets an inspiring example by advancing Direct Air Capture (DAC) with a community-centered approach, tackling real challenges through apprenticeships, education, and solutions for water scarcity and gender equity. At Carbonfuture, we are proud to support Octavia with our digital Monitoring, Reporting, and Verification (MRV) system and access to the carbon market. Together, we're demonstrating how climate innovation can uplift both people and the planet."

Klimate.co:

"As a partner of Project Hummingbird from its early stages, we have always been impressed with the attention to community engagement and stakeholder involvement. The prioritisation of local employment and local economies has been a key factor influencing Klimate's continued investment in the project, reinforced by our due diligence process and 2024 site visit. Providing the highest possible quality credits to our clients is paramount to our mission as we scale and develop essential, equitable climate solutions. We are excited to continue our long-term partnership and supporting Octavia's positive environmental and social impacts"

- Lauren Brown, Head of Carbon Removal.

Terraset:

"At Terraset, we see carbon removal not just as a critical need but also as a potential driver of economic and social progress. Octavia Carbon is setting a bold example of what responsible innovation can look like—building DAC technology in Kenya with local leadership, creating jobs, and prioritizing community engagement at every step. Their work reflects the values we believe in: tackling the climate crisis while uplifting the communities most impacted by it. Terraset is proud to support pioneers like Octavia, who are proving that carbon removal can be a global solution with deeply local roots"

- Adam Fraser, CEO, Terraset

Buyers' Perspective

Agendi:

"Agendi has partnered with Octavia since 2023, inspired by their Kenyan roots and commitment to driving community-centered change. Their focus on sharing economic benefits with local communities and tackling challenges like youth unemployment and education barriers reflects a deep dedication to creating lasting, positive impact. Octavia's work not only fosters local progress but also serves as a model for other companies aiming to develop meaningful DAC projects in Kenya. We're proud to collaborate with them in advancing community engagement and empowerment."

Tomorrow's Air:

"Community engagement, when it is healthy, can be the key to wild success. Coming from the tourism industry, we have seen this time and again with nature-based, active adventure tourism development projects. When local communities participate in the planning and shares in the success, the projects succeed and deliver benefits beyond expectations. The Octavia Carbon team's background in international development is obvious in this community engagement strategy. At Tomorrow's Air we view Octavia's thoughtful approach to community engagement as a value-add. It is also obviously a powerful form of risk mitigation in terms of the success of their carbon removal work. Tomorrow's Air buys carbon removal from Octavia Carbon on behalf of travel companies and travelers themselves. Perhaps more than other corporate buyers, the community of buyers we represent understand very well the perils of development in regions such as Kenya and also appreciate the existence of such engagement plans. We feel very proud to be associated with Octavia Carbon at this stage and eager to continue our work to help them succeed!"

Conclusion

In Octavia's view, the successful implementation of development projects, such as DAC technologies, hinges on a commitment to community engagement. When communities actively participate in the project's development process, they gain a sense of ownership that is crucial for the project's success and sustainability. This collaborative approach fosters trust and ensures that projects align with local needs and values, ultimately leading to more impactful and lasting outcomes. Our experiences with community engagement to date have taught us valuable lessons, and we recognise that there is still much more to learn. By treating our local communities as equal partners and building strong relationships within them, we aim for our experiences to serve as a model for sustainable, community-led development in Kenyan DAC and potentially beyond.

Disclaimer & Acknowledgement

Disclaimer:

This Community Engagement Strategy outlines Octavia Carbon's commitment to fostering open communication, transparency, and collaboration with local communities impacted by or involved in our operations. While every effort has been made to ensure that the information and intentions outlined in this document are accurate and reflective of our organisational values, the strategy is subject to updates and refinements as we continue to learn and grow through engagement.

This document does not constitute a legally binding agreement, nor does it override any existing legal or regulatory requirements. Instead, it serves as a guiding framework for our approach to community engagement, aligned with our commitment to operate responsibly and equitably. Stakeholders are encouraged to provide feedback, which will be considered in improving our strategy.

The images used on this Community Engagement Strategy include stock images sourced from Canva and Unsplash, as well as original photographs taken by Octavia Carbon. We acknowledge and respect the rights of these platforms and contributors. For any inquiries about specific images, please contact us.

Octavia Carbon disclaims any liability for actions taken based on interpretations or assumptions arising from this document. The strategy should be viewed as a living document responsive to the evolving needs and feedback of the communities we engage with.

Acknowledgement:

Octavia Carbon acknowledges the invaluable contributions of Carbonfuture, Klimate.co, Terraset, Agendi, Tomorrow's Air, communities, partners, and stakeholders who support and guide our work. We recognise that our projects operate on lands with historical, cultural, and environmental significance, and we affirm our commitment to respecting these contexts in every aspect of our operations.

We express our gratitude to the local communities and the National Government Administration Officers (NGAO) for their trust, input, and collaboration, which are essential to the success of our initiatives. Our progress in advancing Direct Air Capture (DAC) is a shared journey made possible by the expertise, resilience, and creativity of the people we engage with.

This strategy reflects our ongoing commitment to ensuring that the benefits of our work are shared equitably, fostering mutual growth, understanding, and prosperity. Our goal is to create a future that honours both the environment and the people who call it home.

Acronyms

CBO - Community-Based Organization.
CDR - Carbon Dioxide Removal.
CEO - Chief Executive Officer.
CO2- Carbon Dioxide.
CPO - Chief Product Officer.
CSOs - Civil Society Organizations.
DAC - Direct Air Capture.
DCC - Deputy County Commissioner.
DeKUT - Dedan Kimathi University of Technology.
DOSH - Directorate of Occupational Safety & Health.
EMCA - Environmental Management & Coordination Act.
ESIAs - Environmental & Social Impact Assessments.
e-SAFs - electro-Sustainable Aviation Fuels.
FPICs - Free, Prior, and Informed Consent.
HVAC - Heating, Ventilation and Air Conditioning.
KenGen - Kenya Electricity Generating Company.
LTWP - Lake Turkana Wind Power.
MRV - Monitoring Reporting and Verification.
NEMA - National Environmental Management Authority.
NGAOs - National Government Administration Officers.
NRT - Northern Rangelands Trust.
NR SACCO - Northern Rangelands Savings & Credit Cooperative.
NKRCP - Northern Kenya Rangelands Carbon Project.
SACCO - Savings and Credit Cooperative.
SEZ - Special Economic Zone.
TVET - Technical and Vocational Education and Training.
tCO2/yr - Tonnes of carbon dioxide per year.
R&D - Research & Development.
RAP - Resettlement Action Plan.
PPE - Personal Protective Equipment.
WoC - Winds of Change.