Solidaridad + FAIRFOOD

Introduction

The **Climate Heroes** programme, implemented by Solidaridad, equips smallholder farmers in Uganda to combat climate challenges. Through climate smart agriculture, the programme enhances farmers' resilience while addressing global climate targets. By integrating carbon finance mechanisms, it fosters resilient farming communities that can thrive in the face of environmental challenges.

Fairfood contributes to this initiative by leveraging its innovative Trace tool, combining traceability technology and data transparency to substantiate sustainability claims — including claims regarding living income, deforestation and emission reduction. A pilot in the Greater Masaka region of Uganda, carried out in collaboration with Ndugu, aims to demonstrate the potential of Trace in achieving traceability and insetting goals. This case study highlights the progress and outcomes from the pilot and provides insights into scalability and the potential benefits for both farmers and companies.

Toolbox:

→ Fairfood's traceability platform Trace

→ Fairfood's due diligence platform Navigate

Using data and technology to drive scale and efficiency to support climate resilience

Project partners

funder of the programme:

NATIONALE POSTCODE LOTERIJ

programme lead:

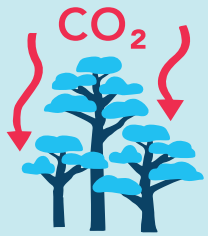
Solidaridad

tech supplier:

FAIRFOOD

farmer-led supply chain partner:

ndugu



Background: a quick introduction to inclusive carbon trade and carbon insetting

Empowering smallholder farmers through carbon markets

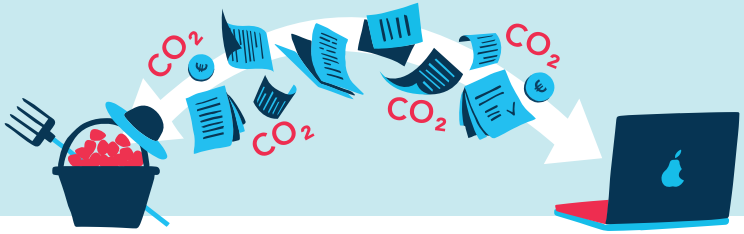
Carbon trade can offer smallholder farmers the opportunity to participate in global carbon markets through the creation of carbon removal units (CRUs) via regenerative practices such as agroforestry and sustainable land management. By linking these CRUs to practices that sequester carbon, farmers can generate valuable credits that can be sold or traded, helping mitigate climate change while generating additional income.

Fairfood supports this process by providing accessible digital tools that facilitate the tracking and verification of CRUs. Through an open-source, interoperable platform, Fairfood ensures that carbon credits are transparently linked to a farmer's carbon-reducing activities. This approach strengthens trust in the carbon market and guarantees that payments for carbon credits go directly to cooperatives, enabling them to manage and distribute funds fairly among their members. The integration of carbon credits also contributes to long-term financial stability, incentivizing sustainable practices and improving farmer resilience.

Carbon insetting: Transforming supply chains for sustainability

Carbon insetting differs from carbon offsetting by focusing on reducing or removing emissions within a company's own supply chain. For companies aiming to meet their Scope 3 emissions targets, insetting offers an innovative way to link carbon removal units directly to traceable products, ensuring that sustainability efforts are embedded within the supply chain.

Fairfood's traceability platform plays a central role in this transformation, providing a transparent framework that connects corporate buyers with the carbon credits generated by smallholder farmers. By integrating CRUs into supply chains, companies not only reduce their environmental impact but also contribute to fairer, more resilient agricultural systems. This approach strengthens accountability while ensuring that sustainability efforts translate into tangible benefits for both businesses and farming communities.



Fairfood's role empowering cooperatives for scalable and transparent carbon claims

The pilot in the Greater Masaka region of Uganda demonstrated how Fairfood's Trace platform facilitates the integration of smallholder farmers into the international carbon market. We collaborated with Ndugu, a farmer-led supply chain partner, to onboard 7,102 Ugandan coffee farmers onto the Trace platform.

This digital tool enabled detailed tracking of Carbon Removal Units (CRUs), ensuring that each credit could be linked to specific farming practices, such as agroforestry and sustainable land management. A critical goal of the pilot was to connect these CRUs to international buyers. Using blockchain technology, Trace ensures traceability, enabling buyers to verify the origin and impact of the carbon credits. This transparency fosters trust in the market and positions smallholder farmers as reliable contributors to global carbon trade.

The onboarding process focused on equipping farmers and cooperatives with the technical capacity to manage and verify their CRUs. Training sessions, supported by local agricultural institutions, introduced farmers to the platform and provided guidance on its use. By simplifying the process of recording and verifying regenerative practices, Trace helped farmers generate CRUs with transparent documentation required for market credibility.

Through this pilot, smallholder farmers in Uganda were able to generate verifiable carbon credits. So far, a total of 223 farmers directly connected 353 metric tons of CO_2 removal to their production, creating a new revenue opportunity linked to sustainable farming practices. These CRUs were integrated into traceable coffee batches, offering corporate buyers a transparent and credible way to meet their Scope 3 emissions targets.

Milestones

Onboarded
7,102 farmers
from Ugandan coffee exporter Ndugu to our traceability platform Trace

Connected the removal of
353 MT* CO_2 to 223 farmers

** This is the equivalent of **82.3** gasoline-powered passenger vehicles driven for one year.*

Conducted
surveys
with traders, brands, retailers, NGOs and service providers to validate the business case for batch-specific
due diligence

Lessons learned

As we don't want others to reinvent the wheel, we are keen on sharing some challenges and lessons learned. Here goes:

1. Long-term partnerships amplify impact but require alignment

While progress was made in integrating smallholder farmers and generating CRUs, challenges related to market uptake emphasised the need for clearer alignment on business priorities and value propositions to ensure long-term partner commitment. Data transparency and control may be valuable to cooperatives and supply chain partners, these must be paired with compelling incentives for buyers to engage fully in carbon projects.

2. The business case is critical for full adoption

The pilot demonstrated the importance of building a robust business case to align the interests of all stakeholders. While the link between CRUs, sustainability claims, and coffee production metrics was clear, these same market uptake challenges showed that additional work is needed to quantify and communicate the financial value of insetting (over offsetting) to corporate buyers.

3. Cooperatives are essential for scaling but need buyer commitment

Ndugu's ability to organise and onboard farmers efficiently highlighted the potential of cooperatives to scale carbon projects. However, the challenge of buyer participation in purchasing CRUs limited the financial benefits to farmers, revealing that cooperative efforts must be matched by committed downstream partners to unlock the full value of carbon insetting.

4. Transparency and storytelling build value but require market demand

The pilot's dashboards and storytelling tools effectively visualised sustainability impacts and linked CRUs to specific coffee batches, providing potential buyers with strong narratives. However, while transparency builds trust, creating market demand for sustainability-linked products is critical

5. Balancing collaboration and competition in partnerships

The pilot highlighted the importance of carefully navigating the balance between collaborative and competitive dynamics in partnerships. While shared goals around sustainability and farmer empowerment are central, differences in commercial propositions require a thoughtful and constructive approach to working within the collaborative space. This ensures alignment and mutual benefit without undermining individual organisational priorities.

Scalability and future directions

The pilot in Uganda provided a strong foundation for scaling traceable carbon insetting. By demonstrating how Trace enables smallholder farmers to generate verifiable Carbon Removal Units (CRUs) and link them to supply chains, we have created a replicable model for sustainable value chains. To build on this success, scaling efforts will focus on three key areas:

Expanding farmer participation

To ensure broader adoption of Fairfood's solutions, streamlining onboarding processes is key. By refining training and ensuring alignment with additional sustainability targets such as increased income stability and climate resilience, we can make these systems more accessible to a larger number of farmers, particularly across cooperatives. Supporting farmer participation at scale will also require effective communication and collaboration with local agricultural institutions and community leaders.

Strengthening data interoperability

As we look toward scaling, data interoperability becomes essential. Integrating platforms for standardized data management will ensure that diverse cooperatives, even across different regions, can participate in a unified system, and have more control over their data. This includes seamless integrations with existing agricultural technology, enabling better monitoring of impacts and more accurate data exchange to support decision-making and traceability.

Driving the flywheel effect

A key driver of scalability is the flywheel effect. As more companies adopt data-driven technology to substantiate their sustainability claims, supply chain partners gain greater access to and control over their data, enabling them to actively participate in carbon projects. This approach creates more opportunities for increased income and climate resilience across the supply chain. Over time, it fosters a self-sustaining cycle that not only enhances farmer livelihoods but also strengthens the overall sustainability and transparency of the supply chain.

What's next

Fairfood's digital solutions provide a scalable, transparent, and farmer-centric approach to carbon insetting. By linking CRUs directly to supply chains, we enable:

- → **Smallholder farmers to access new revenue streams through verified carbon credits.**
- → **Cooperatives to manage carbon projects efficiently and strengthen their role in sustainable markets.**
- → **Companies to meet Scope 3 emissions targets with credible, traceable sustainability claims.**

Looking ahead, our focus remains on expanding this model while ensuring that sustainability benefits flow directly to farmers and supply chain actors. By strengthening market incentives and fostering long-term partnerships, Fairfood is well-positioned to drive the next phase of traceable, inclusive carbon insetting.

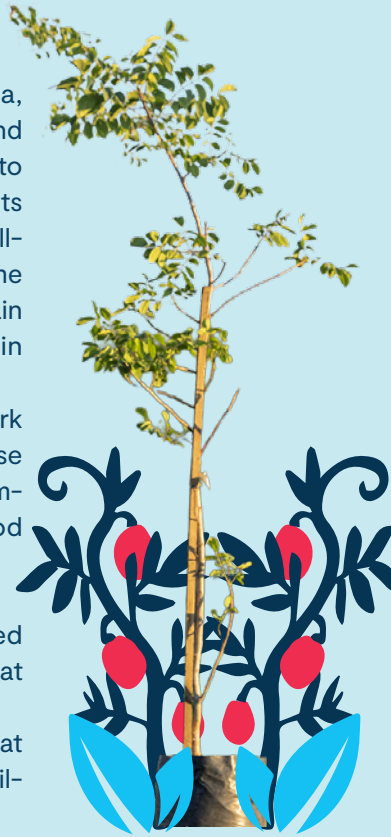
Conclusion

This pilot in the Climate Heroes Programme in Uganda, together with Solidaridad, demonstrates how traceability and carbon insetting can transform value chains, contributing to sustainability and resilience. By linking Carbon Removal Units (CRUs) to coffee volumes through the Trace platform, smallholder farmers are empowered to generate additional income while fostering transparency for companies and value chain stakeholders. These innovations can play a vital role in achieving global climate goals.

The lessons learned from this initiative lay the groundwork for scaling similar solutions worldwide. By building on these foundations, we can drive impactful change, benefiting farmers and advancing a more resilient, equitable global food system.

For further details or to discuss how you can get involved with this impactful work, please reach out to John Cherek at john@fairfood.org.

By building on these foundations, we can scale solutions that not only benefit farmers but also contribute to a more resilient and equitable global food system.



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