

Living Lab for Regenerative Cotton & Resilient Livelihoods in Chad

The Phase 1: piloting regenerative cotton production in Chad (2022-2024)

The Phase 1 piloted regenerative agroforestry-based cotton production and land restoration in Logone Occidental and Lac provinces. Led by CBA with national and international partners, the project tested how combining ancestral farming practices with scientific knowledge can restore degraded landscapes, improve soil health, strengthen climate resilience, and diversify farmer livelihoods.

Key achievements include the establishment of a community tree nursery (producing over 20,000 native and fruit seedlings), 20 farmer-led agroforestry cotton demonstration plots covering 20 hectares, and the validation that smallholders are willing and able to adopt regenerative practices when they are co-designed and supported. Early environmental benefits were observed, including improved soil cover, reduced water loss, enhanced agrobiodiversity, and increased biomass during the dry season.

The project also delivered extensive capacity building, reaching over 2,000 producers (including 375 women) through a training-of-trainers model, enabling the expansion of agroforestry practices to an additional 277 hectares. In the Lac region, Phase 1 initiated restoration of degraded land (28.8 hectares), piloted soil and water restoration techniques, and established a one-hectare forest garden to support food security and community livelihoods.

Initial economic analysis suggests agroforestry cotton systems can increase cotton yields by around 10% per year, with additional long-term income from fruits, fuelwood, timber, and shea, though upfront costs remain a barrier. Early engagement with value chain actors, notably Cotton Chad, indicated interest in regenerative cotton, with future potential for market differentiation and price premiums.

Overall, Phase 1 demonstrated strong proof of concept but highlighted the need for Phase 2 to deliver rigorous scientific evaluation, deeper financial modelling, and stronger value chain and market engagement. These steps are essential to develop scalable, bankable business models and a replicable blueprint for regenerative cotton systems across Chad and the wider Sahel.

The Phase 2: CBA Living Lab on regenerative cotton and resilient livelihoods

The CBA is supporting the evolution of our pilot work in Chad into a **CBA Living Lab ‘2.0’** on regenerative cotton with the goal of creating a fully-fledged model that is replicable in other African countries, especially in the Sahel region. Through this Living Lab, from 2026-2029, we seek to establish a platform for innovation, evidence-building, and systems change. We will deepen scientific and financial analysis to refine the design and quantify the return on investment for farmers, companies, and investors. We will strengthen the enabling conditions by scaling up nurseries, expanding women's participation, and embedding structured training through local academic institutions.

Crucially, this phase will also **build the market architecture** needed for scale. We will co-create procurement models with global companies, link local processing and value addition opportunities (e.g., cotton ginning and shea butter production) to regional and international buyers, and create pathways to premium markets. By partnering with the private sector and aligning with national priorities, the Living Lab will serve as a replicable example of **how regenerative cotton systems can work in fragile landscapes**, generate returns, and be created across the Sahel and beyond.

The proposed CBA Living Lab will focus on four categories of activities, with these described – together with anticipated outcomes – described further below:

- 1) Expansion of regenerative cotton agroforestry and landscape restoration
- 2) Market development and local value addition for regenerative products
- 3) Capacity building and strengthening enabling conditions, including women and youth economic empowerment

1. Expansion of regenerative cotton agroforestry and landscape restoration

Activities

- Convert 250 hectares to regenerative agroforestry cotton systems, expanding the original pilot areas of the Lac and Logone Occidental regions.
- Restore degraded land to improve ecosystem services and climate resilience, similarly in the above regions.
- Integrate drought-resistant and improved varieties of fruit trees and crops for food security.
- Establish nurseries to supply high-quality and diverse planting material.

- Validate regenerative agroforestry cotton benefits using CBA's Seven Principles.

Indicative outcomes

- 1.1. 250–400 tonnes/year of regenerative cotton produced by year four.
- 1.2. Up to 300 hectares of land restored, with improved soil and water resources.
- 1.3. Enhanced on-farm biodiversity and soil fertility across pilot sites.
- 1.4. Sequestration of 5,500-7,500 tonnes CO₂e annually via biomass gains.
- 1.5. Improved household food security through integrated agroforestry systems.

2. Market development and local value addition for regenerative products

Activities

- Support cooperatives and local enterprises to identify opportunities for building processing and value addition capacity, such as through cotton ginning or shea butter production.
- Explore opportunities for development of organic inputs using cotton ginning residues (e.g., compost, biofertilisers).

Indicative outcomes

- 2.1. Growth of local businesses and women- and youth-led enterprises.
- 2.2. Improved access to bio-based inputs, reducing costs and supporting more sustainable farming practices.
- 2.3. Greater value retained within local economies through on-site processing.

3. Capacity building and strengthening enabling conditions, including women and youth economic empowerment

Activities

- Provide technical training and extension support to smallholder farmers in agroforestry and NTFPs, especially for women and youth.
- Establish Masters and PhD programmes with national universities within Chad.

Indicative outcomes

- 3.1. 500 households supported with training, tools, and sustainable livelihoods.
- 3.2. Strengthened local capacity for sustained adoption of regenerative practices.
- 3.3. Empowerment of women and youth through new livelihood and leadership opportunities.

- 3.4. Enhanced knowledge infrastructure to drive long-term landscape transformation.
- 3.5. Improved community resilience and ownership of regenerative land use systems.

From Living Lab to systems change

After three years of Living Lab implementation, we expect to have robust ecological, social, and economic data from the regenerative cotton transition in Chad. Only with this evidence in hand can we develop a credible, scalable blueprint that shows what works, for whom, and under what conditions. This blueprint will then be used to inform and influence key stakeholders—governments, companies, and investors—to replicate and adopt the model, unlocking the capital, partnerships, and policy shifts needed to drive action at scale.

This blueprint will be grounded in rigorous scientific assessment of climate and nature outcomes, detailed social impact analysis, and financial modelling conducted throughout the Living Lab. It will include clear data on the costs and benefits of agroforestry-based cotton systems (e.g., reduced input requirements), revenue streams from regenerative cotton and associated ecosystem services, and the capital investments needed to scale the transition to regenerative cotton production across Chad and globally. A comprehensive financial analysis will be undertaken to estimate risk-adjusted returns across different investment scenarios—ensuring relevance for diverse types of financiers.

Multiple interconnected strategies for scaling regenerative cotton in Chad—and potentially beyond—will be explored. These include:

- Off-taker agreements with fashion brands that reward traceable, nature-positive cotton production;
- Blended finance mechanisms to mobilise transition capital in Africa; and
- Policy recommendations to support the enabling environment for regenerative agriculture at the national level.

CBA will engage key partners such as the World Bank, French Cooperation Development Agency, insurance providers, asset owners, and impact-oriented asset managers to explore viable blended finance structures and derisk investment in fragile geographies.

As an independent convenor, the **CBA will convene a high-level stakeholder platform** to help inspire this investment and scaling strategy. This platform will include Cotton Chad, the National Union of Cotton Producers, farmer representatives, the Ministry of

Agriculture, international fashion brands (via the SMI Sustainable Fashion Taskforce), the World Bank (particularly in its role in providing insurance and guarantees), and financial institutions with an interest in impact investing across Africa.