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YIELD IMPROVEMENT EFFORTS IN ZAMBIA OVER THE LAST 20 YEARS- A PERSPECTIVE FOR COTTON RESEARCHERS

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In Zambia, Seed cotton is grown mainly by smallholder farmers, numbering 400,000 at its peak in 2011 through agro-business links with the ginning companies. The number of farmers growing cotton has dwindled to around 150,000 due to pricing and commodity competition. The number of farmers growing cotton and hectareage in a growing season varies depending on cotton prices offered in the previous growing season and incentives provided for producing competing crops.

The challenge of low yields and, thus, poor income for farmers in Zambia has been an issue for a long time; the factors contributing to low yields include

1. The late planting of seed cotton by farmers who prefer to plant maize first, a traditional package of practices,
2. Due to the poor quality of inputs, most companies give farmers cheap generations of molecules(chemicals)
3. The inadequate inputs offered by out-grower companies do not include fertilizer, and thus, the smallholder

farmers do not use fertilizers, adversely affecting productivity. However, some studies claim that soil depletion in Zambia is so extensive that fertilizer application would only provide minimal benefit.

4. Low level of adoption of improved agronomic practices,
5. The pricing of seed cotton has affected the number of farmers adhering to agronomic practices; they are concentrating on taking care of the other crops other than cotton

Over the years, Zambia has had several interventions to improve yield through various programs, including Cotton Made in Africa (CmiA) and the International Trade Centre(ITC), doubling of yield program, FAO farmer field schools, We Effect study cycle approach through Cotton Association of Zambia, Solidaridad, and ITC. The most significant interventions in improving yields in Zambia have been the CimA, FAO, and ITC programs.

Since 2005, Cotton Made in Africa (CmiA) has been an initiative of the Aid by Trade Foundation (AbTF) that assists in helping people help themselves through trade to improve the living conditions of cotton farmers and their families in Sub-Saharan Africa. Approximately 150,000 smallholder farmers in Zambia participated in the CmiA program. Through training programs, Cotton Made in Africa teaches cotton farmers about modern, efficient, and environmentally friendly cultivation methods and having a business sense that will help them improve the quality of their cotton, yield higher crops, and thus earn a better income.

Five Fingers Good Agricultural Practices Approach

- Early land preparation
- Early planting
- Correct plant population
- Weed control
- Integrated Pest Management Approach

The program is embedded in empowerment, learning, and discipline principles, which aim to increase smallholder cotton farmers' agricultural net income through increased productivity (yield per hectare). The training of farmers in these practices was through farm field schools of selected farmers, who were given some primary inputs and used as a demonstration site for the surrounding farming community. Having a good sense of business and making farms more productive with management skills has been the goal of the Farmer Business Schools. The program was successful as long as the companies supported the farmers to the extent that some could achieve up to 600 kg of seed cotton per ha.

Based on the reported level of success, the program attracted the Bill & Melinda Gates Foundation, which extended its life.

Although it is expected that by adopting improved technologies of the Cotton YIELD Programme, cotton productivity would rise, translating into enhanced agricultural net income for the beneficiaries, the impacts of programs promoting improved technology on agricultural income over the past decades have been mixed (World Bank, 2006). Therefore, it is unclear if the Cotton YIELD Programme has increased the agricultural net income of smallholder cotton farmers in Zambia, as no rigorous assessment of the program's impact on agricultural income has been conducted over a reasonable period.

Food Agriculture Organisation

FAO implemented a farmers' field school approach where farmers would gather in groups to discuss their farming challenges; one particular approach stood out: Integrated Production and Pest Management. It encompassed climate-smart approaches of timely planting, weed management, scouting for pest and sustainable land use, and integrated soil fertility management.

The program brought together extension officers from the government and private sector who worked through contact with farmers and conducted training of trainers on farmer field schools. Field days were equally held to showcase modern climate-smart technologies; 6300 farmers were trained through this approach.

ITC/ICAC Doubling of yields

Since 2020, the International Trade Centre (ITC) has been leading the implementation of the micropillar level of the Programme under the EU sponsorship under the context of the joint ACP-EU Programme for ACP Private Sector Development Support, adopted by ACP-EU Council of Ministers in Nairobi in 2014. The 11th European Development Fund finances it. The program focuses on two core themes: (1) Increase small farmers and processors' value addition, productivity, and competitiveness, and 2 Promoting inclusive productive and commercial Alliances and investment to strengthen VC governance and MSME competitiveness. Under this program, ITC partnered with ICAC to work with local Zambian stakeholders to Improve cotton production from the current average of 600- 800 kg per ha to 1200-1600 kg per ha.

Under the direction of ICAC, Cotton Development Trust (CDT) spearheaded the introduction of four critical simple principles to double the incomes of small-scale farmers across the Cotton growing areas, working with all willing local stakeholders, including the Cotton Board of Zambia and ginning companies and Cotton Association of Zambia.

Objectives of the ITC project

The doubling yields project for the past three seasons has aimed to mitigate abiotic and biotic challenges to help the farmers attain double the yields.

- i) to increase productivity through improved seed varieties and better research/extension linkages; and
- ii) to increase the use of better and sustainable farming practices, including conservation farming and low-input agriculture as focal points for investment for women and young people

Doubling seed cotton yields using.

The four simple steps are;

- (i) Seed health (acid-delinted seed)
- (ii) High-density planting (10 cm x 90cm has proved to improve the yields by over 30% due to the increased number of bolls per square meter)
- (iii) Integrated Pest Management
- (iv) Soil health (use of BioChar and Bokashi helps rejuvenate the soils (fields) not applied with fertilizer and hardly have enough land for crop rotation)

Farmers have learnt simple steps for increasing their seed cotton yields significantly. These lessons have proved to be working more effectively than the usual practices farmers have been engaged in in Cotton growing. About 580 demonstration plots had been planted for the previous two seasons, and most of these had better yields than ordinary farmers' fields. Average seed cotton yields in Zambia have ranged between 300kg/ha to about 500kg/ha during the last ten years. The average yields under the 351 project trials more than

doubled these figures. On average, yields increased to 1,025 kg/Ha in the Southern Province, 1,082 Kg/ha in the Central Province, and 1,471 in the Eastern Province. In the three provinces, the upper quartile was (i.e., 75% of farmers achieved at least) 1,368, 1,442, and 1,620 Kg/ha in the respective provinces. These demo farmers saw the practical interventions

provided in their demos and the positive changes. With the 580 demonstration plots implemented and the over 50,000 farmers reached through training supplemented by other developmental organizations like SOLIDARIDAD, Challenge Fund, and WE Effect, more key interventions need to be continued to positively impact the cotton farmers who are not part of the project.

Empowering Women Artisans: A Success Story of ITC/ HATTAZ's Collaborative Efforts

Doris Phiri- HATTAZ National Coordinator and Dafulin Kaonga

International Trade Centre National Coordinator

Introduction:

HATTAZ's collaborative efforts with International Trade Centre under the African Caribbean Pacific project exemplifies a commitment to empowerment, sustainability, and growth within Zambia's textile industry. Through strategic partnerships, market engagement, skill development initiatives, and active participation in events, HATTAZ continues to make significant strides in empowering women artisans and promoting economic development. Together with its partners and stakeholders, HATTAZ is weaving a brighter future for Zambia's textile industry, from farm to fashion.

In collaboration with the International Trade Centre (ITC) under the ACP Business-Friendly program, the Handloom and Textiles Technologies Association of Zambia (HATTAZ) embarked on a journey to empower women's groups across cotton-growing provinces in Zambia. ITC has stimulated artisanal textile production through its initial collaboration with CAZ in

2014 and later the HATTAZ by rolling out handloom textile technology in Zambia. Through strategic partnerships and targeted initiatives, HATTAZ has successfully implemented activities to enhance skills, expand market reach, and foster sustainability within the Zambian textile industry.

Partnership with HATTAZ

The introduction of low-cost fibre transformation technologies, including handloom development at the village level, has enabled smallholder cotton farmers in Zambia to add value to their cotton by transforming it into yarn to produce hand-woven items, which in turn has promoted linkages between local farmers, spinners, and weavers. To achieve this, ITC continues to work closely with the Handloom Textiles Technology Association of Zambia (HATTAZ) to train existing and potential HATTAZ members on business opportunities in the textile industry. Handloom activities can generate

employment and increase incomes for women and the youth in rural areas.

To achieve the development of the handloom sector, ITC identified key challenges facing the industry and undertook activities to:

1. Development of HATTAZ's 2021-2025 Strategic Plan
2. Creation of the association's website to help with the online marketing of products, development of a member database, and creation of membership books for farmer groups for proper record keeping.
3. The revolving fund is established to carry out specific activities, and the primary advantage of this fund is that it may be loaned or spent repeatedly.
4. Supported various groups with ten new handlooms
5. An advanced weaving training capacitated 30 local trainers who have subsequently started training additional women in selected communities.
6. Support community-based training of members in weaving, spinning, and business knowledge through HATTAZ.
7. Develop a form for accessing grants from Government rural beneficitation

Activities undertaken

Training and Skill Development:

HATTAZ has conducted several trainings, the most recent being an advanced national training program in Chongwe, Lusaka Province, focusing on weaving, spinning, and tie and dye techniques. The program aimed to advance participants' skills to the level of master trainers. The training enhanced their understanding of fabric utility, pricing strategies, collaborative teamwork, and value chain enhancement. The training empowered participants to share their newfound knowledge within their communities, ensuring the sustainability and multiplication of positive impact.

Market Engagement:

HATTAZ actively participated in the Dutch Reformed Saturday Market, establishing a solid presence and generating significant sales. By consistently engaging in markets and forging valuable connections, HATTAZ successfully expanded its market reach and increased sales revenue for its participating members.

Expansion of Sales Channels:

Through partnerships with the Lusaka Collective enterprise and collaborations with fashion designers such as Popoka Styles and Queen of Chitenge, HATTAZ secured a prominent presence in the airport retail environment. The expansion into new sales channels diversified market opportunities and showcased artisanal creations to a

broader audience, both locally and internationally.

Participation in Events and Exhibitions:

Throughout the project, HATTAZ actively participated in the Zambia Agriculture and Commercial Show, leveraging the platform to create market linkages, understand market dynamics, expand its customer base, and lay the groundwork for effective product branding. Participation in events like World Cotton Day further highlighted the impactful endeavors of rural cotton women farmers and advocated for a fair and sustainable cotton industry.

Membership Database and Website Enhancement:

HATTAZ successfully integrated its members into an electronic database system, ensuring accurate and up-to-date information management. Additionally, introducing a newsletter section on the HATTAZ website gave stakeholders timely updates on initiatives, collaborations, and achievements.

Coordination and Collaboration:

HATTAZ actively collaborates with organizations such as We Effect and government agencies like the Ministry of Agriculture, Ministry of Commerce trade and Industry to promote sustainable development and empower local communities within the cotton value chain.

THE ACHIEVEMENTS

- One thousand five hundred women received training in weaving and spinning.
- Increased Income: Farmers with access to looms supplemented their income through weaving, generating an additional average income of \$20 per month for committed individuals.
- Five Rural groups have been actively participating in the Saturday market every last Saturday of the month.
- Following support to apply for CDF, two weaning groups in Chadiza and Sinazongwe have secured grants from the Government.
- We have successfully connected two (2) prominent fashion designers with women weavers.
- Helping weavers understand the importance of cotton growing for their weaving business and establishing village banking groups
- Over 100 women attend the training on doubling cotton yield.
- HATTAZ collaborates with diverse stakeholders, including government agencies, international organizations, independent designers, private companies, and local communities.
- Encouraged We Effect partners with HATTAZ to offer training in value addition and provide market access for women.

Way forward.

- i. More training is needed to upgrade the quality of products from the rural

areas, training in marketing products locally, and weaving training to include experienced weavers, tailors, and fashion designers, which will also create a working linkage between them.

- ii. Quality standards are established to guide groups for acceptable product quality in their value-addition activities. Through the project's affiliates' building and monitoring activities, the promoter and HATTAZ should constantly remind the groups to comply with the standards to access the available markets effectively.
- iii. The demand by village women groups to participate in handloom activities is so high that greater support is needed to acquire more handloom and spinning equipment. HATTAZ continues to encourage various women's groups to apply for the CDF.
- iv. Development of handloom Centers of excellence weaving clusters at Mumbwa, Lusaka, and other cotton

Growing areas need to be used as bulking centers, outlets for handloom products, and centers for skills development for the youths

- v. It is necessary to engage most Zambian designers to explore this woven fabric in the form of clothing, home décor using the fabric, and other art craft accessories; it will be good to let them add more value to these and make different products like clothing.

There is also a need to participate in local districts and regional exhibitions organized by district and provincial show committees. By doing so, weavers could attract potential buyers such as local hotels and lodges in their areas, schools, boutique owners, local designers/tailors, and sponsors. Participation would also create healthy competition among the different weaving groups.

REGENERATIVE COTTON STANDARD

Inka Sachse

Aid by Trade Foundation

COTTON CONFERENCE

Introducing AbTF's Regenerative Cotton Standard

- About Regenerative Cotton Standard
- Principles and Requirements
- Management Transition
- Learnings from the pilots

About Regenerative Cotton Standard

- Voluntary farm-level standard with a commercial focus on cotton grown by small-scale farmers.
- Based on Cotton made in Africa's farm level criteria, governance and assurance system.
- Third-party verified.
- Full traceability starting at gin level.
- Aims to improve overall resilience and productivity of small-scale farming communities while adding value to farmland, rural communities, the biosphere, and the quality of life of farm animals.

What Regenerative Agriculture means to the Aid by Trade Foundation

Creating co-benefits in interaction between nature, people, society, and the economy to bring agricultural systems into a better state than they are currently in.

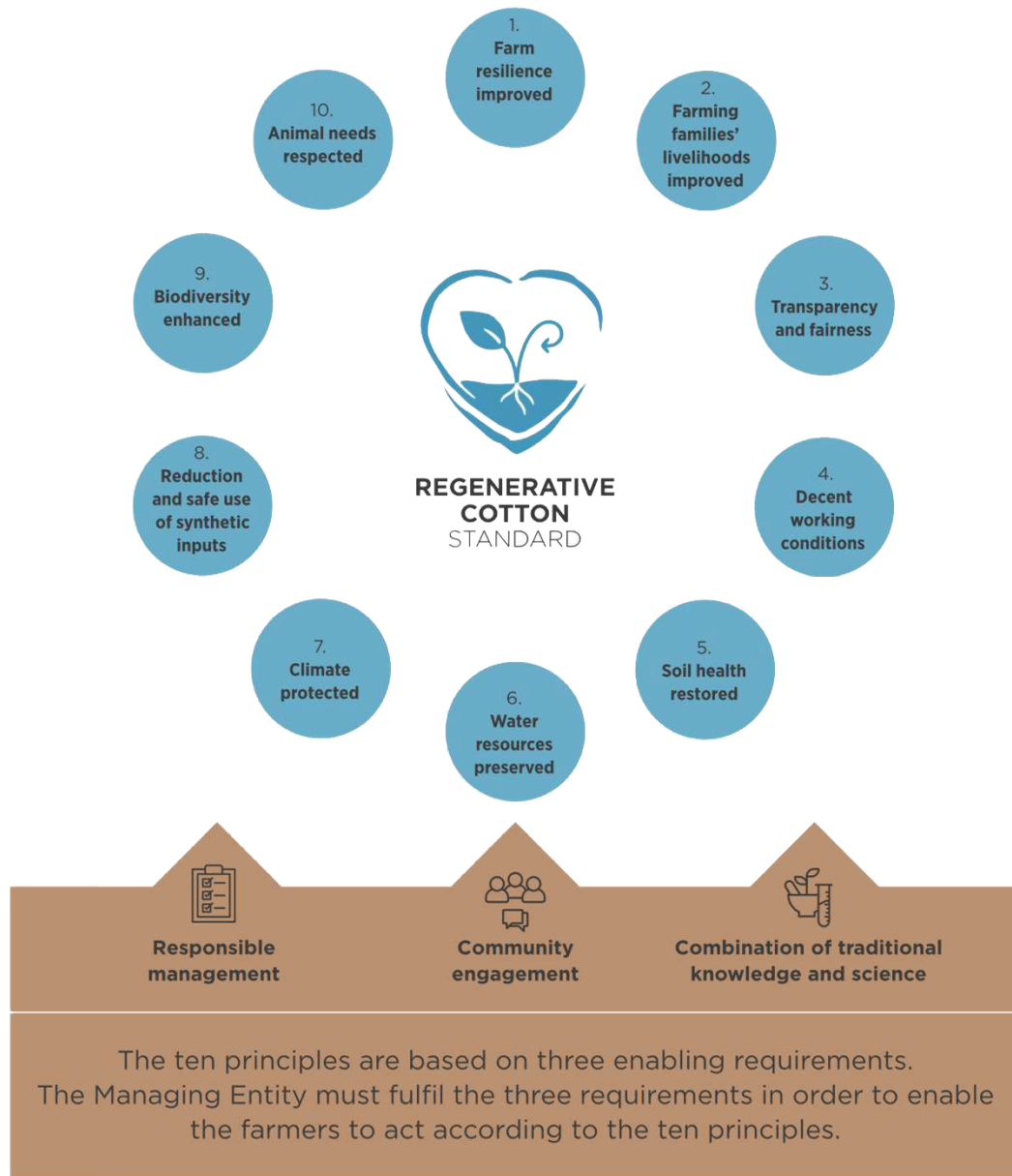
It is therefore key to combine suitable and available traditional knowledge and farming approaches with scientific insights and state-of-the-art digital technology.

PRINCIPLES AND REQUIREMENTS

Approach and principles of Regenerative Cotton Standard

- Broad focus including entire crop rotation animal welfare and traditional farming knowledge
- Room for targeted interventions alongside farmers needs
- Strategic process guidance helps Managing Entities to navigate the set

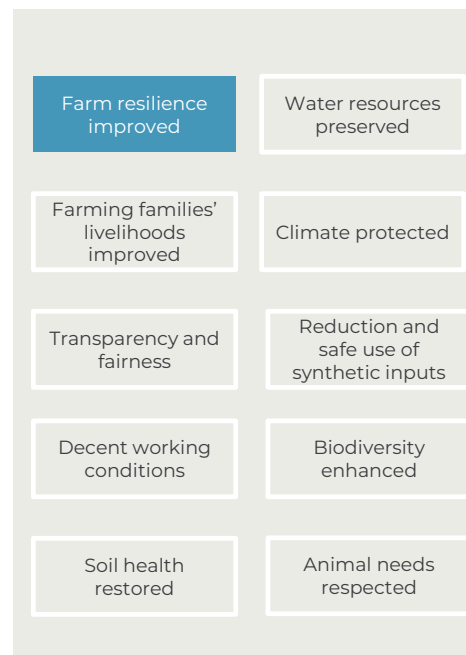
- of principles and criteria, setting suitable priorities
- Yearly updated self-assessments ensure continuous progress monitoring
- An updated baseline assessment proves medium-term impact after five years



FARM RESILIENCE IMPROVED

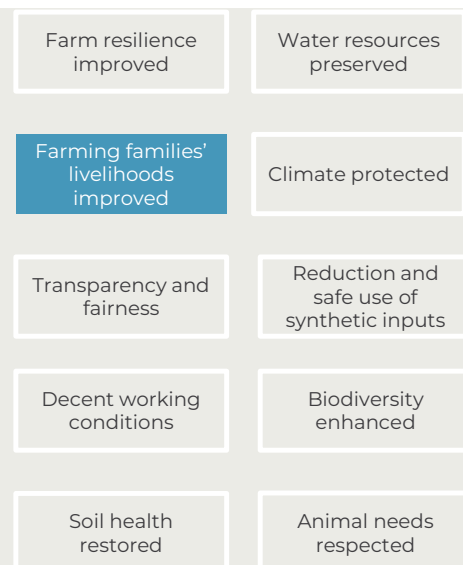
Empowerment of farmers against increasing climate extremes and ecosystem instability with diversification, resource

efficiency and knowledge on regenerative farming practices as well as providing additional marketing channels for crop rotation products.



FARMING FAMILIES' LIVELIHOODS IMPROVED

Farming families' livelihoods are improved by pre-financing schemes, business training and supporting small farmers business development, in order to increase income stability, productivity and food security.



SOIL HEALTH RESTORED

- As the core of regenerative agriculture soil health is the most essential prerequisite for the long-term productivity and resilience of agricultural soils.
- When soils can be used long-term or exhausted fields can be

used again, less virgin land has to be converted to farming land.

- Attention is given on soil assessments which can also be done by farmers, so they can take better decisions.

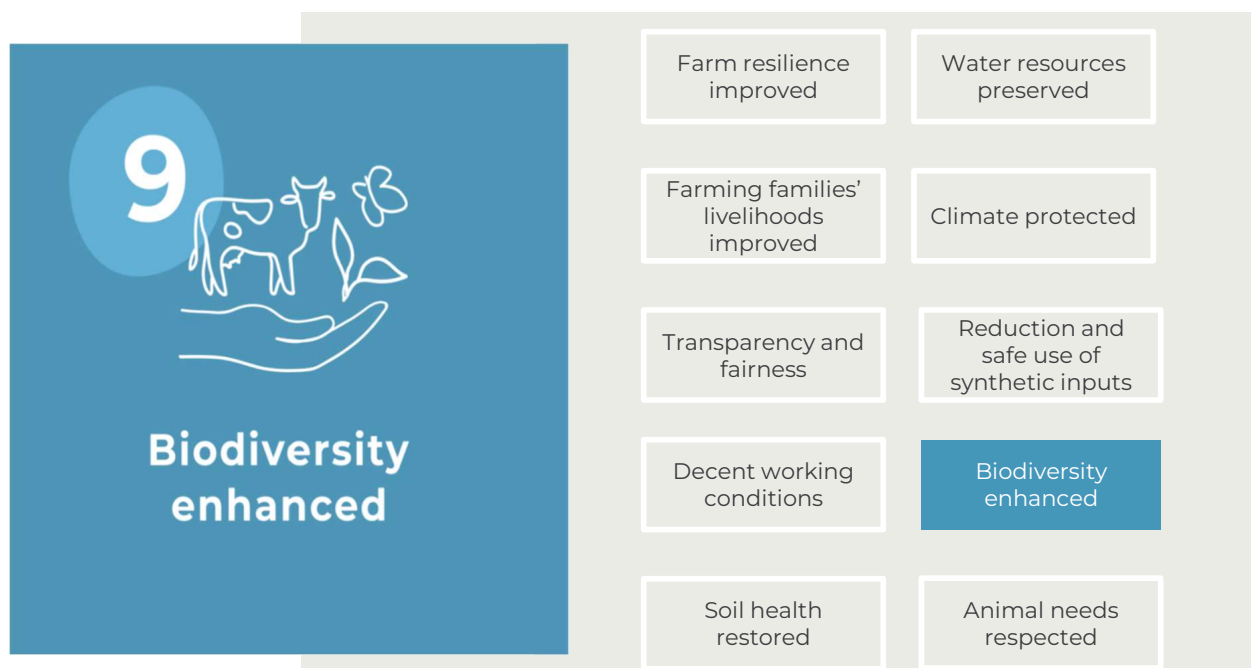


BIODIVERSITY ENHANCED

Awareness about endangered and invasive species in the respective growing areas and management of invasive species

Actions for preserving and enhancing biodiversity within the circle of influence

of the Managing Entity and RCS-associated farmers, e.g. leaving or planting indigenous trees and hedges on and between the fields.



ANIMALS NEEDS RESPECTED

- Basic rules and guidance for assessing and ensuring health and welfare of farm animals.
- Guidance in awareness- raising processes to benefit the welfare of

working animals and animals as a food resource.

- Farmers will benefit from easy handling and strong, healthy animals.



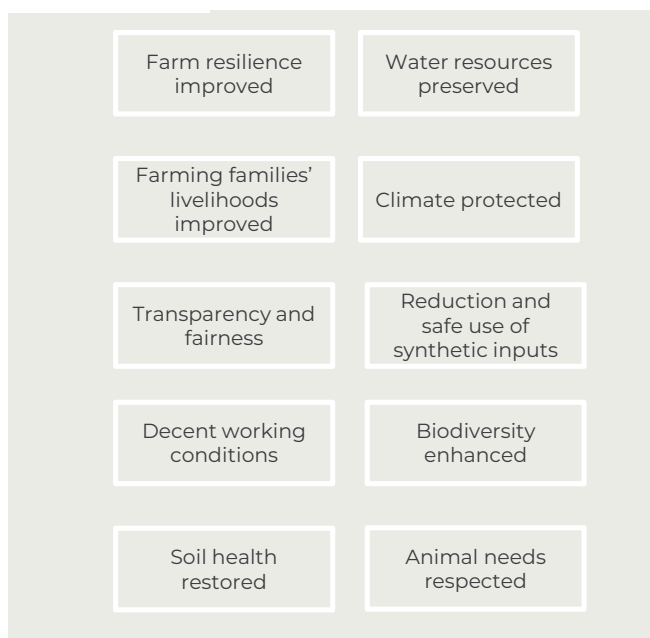
Underlying requirements: Responsible Management, Community engagement and Traditional knowledge

- Responsible Management concerns good governance, transparency and fairness.
- Throughout all principles, there are some for which farmers MUST be consulted.
- Emphasis is given on ensuring that the voices of farming communities and concerned indigenous groups are heard and that there are established

mechanisms for agreeing on practices and changes on and around the farms.

- Traditional ways and values of farmers are an important resource for regenerating the farming landscape. It is imperative that field officers keep open ears and an open mind for the knowledge and concerns of the farmers.
- Their knowledge can be combined with new learnings and multiplied to benefit multiple farmers.





Support for RCS- associated farmers



Building up **resilience** against the effects of climate change



Diversifying food sources and income opportunities



Preserving and improving agricultural landscapes



Ensuring the **respectful use** of natural resources

Managing Entities are therefore supported on:



Access to project funding



Bringing a credible, innovative, and traceable product to the market



Qualification of farm trainers

Differences to CmiA

RCS adds on to CmiA's farm criteria, while twisting its management approach towards even more active inclusion of farmer communities, honoring their knowledge and perspectives.



- Supporting small farmer businesses for RCS
- Fostering peer learning opportunities
- Use of low-input seed varieties
- Offering marketing opportunities for other crops beyond cotton



- Soil conservation and ecosystem restoration
- Soil health monitoring
- Targeting and amplifying entire crop rotation
- Integration of grazing livestock



- Supporting community-based regeneration measures



- Respecting basic farm animal needs



- RCS applies to the farm level. But: If the Managing Entity is a ginnery, CmiA requirements for ginners need to be followed.

Management of Regenerative Cotton Standard

- Stakeholder interest and farmer positions considered
- Strategic planning and internal steering instruments
- Focus and follow-up on critical, sensitive and degenerated areas
- Baseline renewed every 5 years to show mid-term impact
- Farmers must be consulted for 30% of indicators

Piloting RCS

- The Regenerative Cotton Standard is piloted with two established CmiA partner companies in Tanzania, as well as with one new partner in India.

- With each company, 5-10,000 small scale farmers are involved.
- For the African partners, RCS is merely an add-on to CmiA.
- For the Indian context, many items including training materials are being adapted.



- Currently, third-party verification is being prepared for Tanzania for harvest in 2024, and the data assessments are being finalized for India for harvest 2025.

Learnings

- While the many indicators seem complex at first sight and require guidance, the Management approach is received as very useful for companies.
- Many good practices are already being implemented. Some only at a piloting stage or in very small areas.
 - Need for systematization
- Legislative environment highly differs from country to country, making some criteria challenging to reach while others are already covered.
 - RCS requires a hotspot focus approach
- New topics e.g. animal welfare, need to be internally discussed and practised with company's extension teams, before reaching out to farmers
- Connection with like-minded actors in the countries is key -> ongoing.

