



Some market systems successes but no sector transformation

**Lessons from Gatsby Africa's
Tanzania Cotton Sector Development
Programme**



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**Tanzania's
cotton sector is a
sleeping giant**

*Boaz Ogola, Alliance
Ginneries, 2018*

Summary

Gatsby began working in Tanzania's cotton sector in 2007, following an invitation from President Jakaya Kikwete to support both the cotton and textiles industries. Between 2007 and 2009, we conducted agricultural, market and business analysis, identifying key constraints and opportunities. Drawing lessons from other cotton-growing countries,¹ we developed pilot projects aimed at driving inclusive growth. By 2010, we scaled up to launch a full programme.

In 2022, after over a decade of involvement, we ended our support for Tanzania's cotton sector. While Gatsby's programme delivered tangible benefits to farmers and the industry, the broader transformation we sought remained elusive. The sector was still stuck in a cycle of relatively low use of inputs, low yields, and low quality. Introduction of improved seed brought significant benefits to farmers, but these gains are unlikely to be sustained in the long-term as the underlying seed system was not transformed. Despite positive results from mechanisms that enabled government to drive ginner investment in farmer productivity, nationwide rollout needed strong political backing, which was never fully secured.

Gatsby's ability to work over a long-time horizon and our goal of sector transformation, allowed us to work at a national and systemic level - testing and refining practical solutions for the whole industry in close collaboration with local institutions. Our approach was able to deliver viable solutions which a different political leadership may have been able to implement nationally. Interestingly, our ex-post impact assessment revealed that sector actors have started reintroducing the 'competitive concessions' contract farming model we proved could work, recognising its potential to transform the sector.

Throughout the programme, Gatsby pursued a complementary strategy to strengthen rural market systems – establishing 575 new businesses supplying inputs, services and advice to farmers. This network has driven uptake of conservation farming practices among over a quarter of cotton farmers in the areas where it was promoted, leading to approximately 70% higher yields and 80% higher profits. These businesses are profitable and expanding, meaning improved farming practices are likely to persist. By strengthening rural market systems in parallel to working on government-led change, Gatsby has left behind a sustainable network of service providers that continue to improve agricultural practices and farmer returns, even without broader industry transformation.



¹ See for example, Tschirley, D. L., Poulton, C., & Labaste, P. (2009). Organization and performance of cotton sectors in Africa: Learning from reform experience. World Bank

Lessons from our experience

While Gatsby did not achieve our ambitious goals for transforming the cotton sector, our experience generated key lessons that shape our approach and can also benefit other stakeholders. These lessons are elaborated in more detail in the final section of this case study:

1

It is important to choose sectors carefully to ensure there is scope for transformative change, but also to understand the underlying incentives of key actors to assess if such change is feasible.

2

When a sector is stuck at a low level of performance, pursuing improvements within the existing industry structure or market system can deliver incremental progress, but is unlikely to drive transformation of incomes or the wider sector.

3

A fit-for-purpose strategy for sector transformation is not a lengthy document listing aspirational activities and targets. It is a set of strategic choices about a realistic vision for the sector and a viable path to get there, owned by those with the power to effect change.

4

When devising a viable sector strategy and vision, it is critical to identify where investment can come from at a scale and on a sustainable basis to drive the sector's transformation.

5

Individual sector characteristics determine the degree of dependency on government for achieving sector transformation.

6

Pursuing transformative – as opposed to incremental – change, particularly in sectors where transformation depends heavily on the role of government, requires programmatic approaches that may not align with the parameters of all development actors.

The Opportunity

When Gatsby started its full cotton programme in Tanzania in 2010, its research and trials had shown that the sector has the potential for sustained competitive, inclusive and resilient growth – and hence for transformation.

Competitive:

Tanzania's cotton sector has good natural conditions to become competitive globally: good timing of harvest for world markets; suitable soils and bi-modal rainfall pattern; a strong cultural attachment to production amongst smallholder farmers; and significant processing capacity. While it suffered from very low farm productivity and low quality of cotton, these elements can be substantially improved, e.g. with investment in farming and in new seed varieties, investment in processing facilities, in tackling quality incentives and in enabling greater throughput of processing facilities.

Inclusive:

Cotton was grown by an estimated 500,000 households. It was estimated that higher productivity cotton production alone could drive 12.5% growth of the Lake Zone economy and reduce poverty by up to 11%, lifting 631,900 people out of poverty². Given its importance in the Lake Zone economy, there are also significant multiplier effects benefiting others beyond the cotton growing households. Cotton was estimated to have the potential to add TZS 232 billion (USD 90 million) to the Lake Zone economy each year.

Resilient:

There were several risks to the sustainability of growth of the cotton sector in Tanzania, including climate change, the rise of synthetic or alternative fibres, the weakness of existing supporting institutions and a lack of effective collaboration in the sector, but there was potential to overcome each of these. While cotton is a relatively drought tolerant crop, its farmers face substantial challenges with the irregularity of rain for their food crops and a growing problem of pest incidence, given greater and more frequent stress on the plants due to infrequent rainfall. There are ways to mitigate the rainfall stress and increasing use of pesticides using conservation farming techniques, but these were uncommon. Institutionally, there was a lack of research into pests, diseases, new seeds or farming practices, so farmers were not receiving updated advice attuned to the current conditions or improved varieties to continuously improve yields and quality. Industry bodies did not represent the interests of all players, and the regulator was significantly resource and politically constrained, so the industry was not responding effectively to different industry shocks (e.g. weather, global commodity market dynamics, trade policy) or creating the conditions for there to become a long-term symbiotic relationship between processors and producers.

Figure 1: Sector Transformation = sustained rapid growth that is...



² Kagin, J. et al (2015)



The big objective was to transform the entire system of farming, cotton buying, and ginning to deliver really substantial and sustainable improvements in livelihoods and profits.

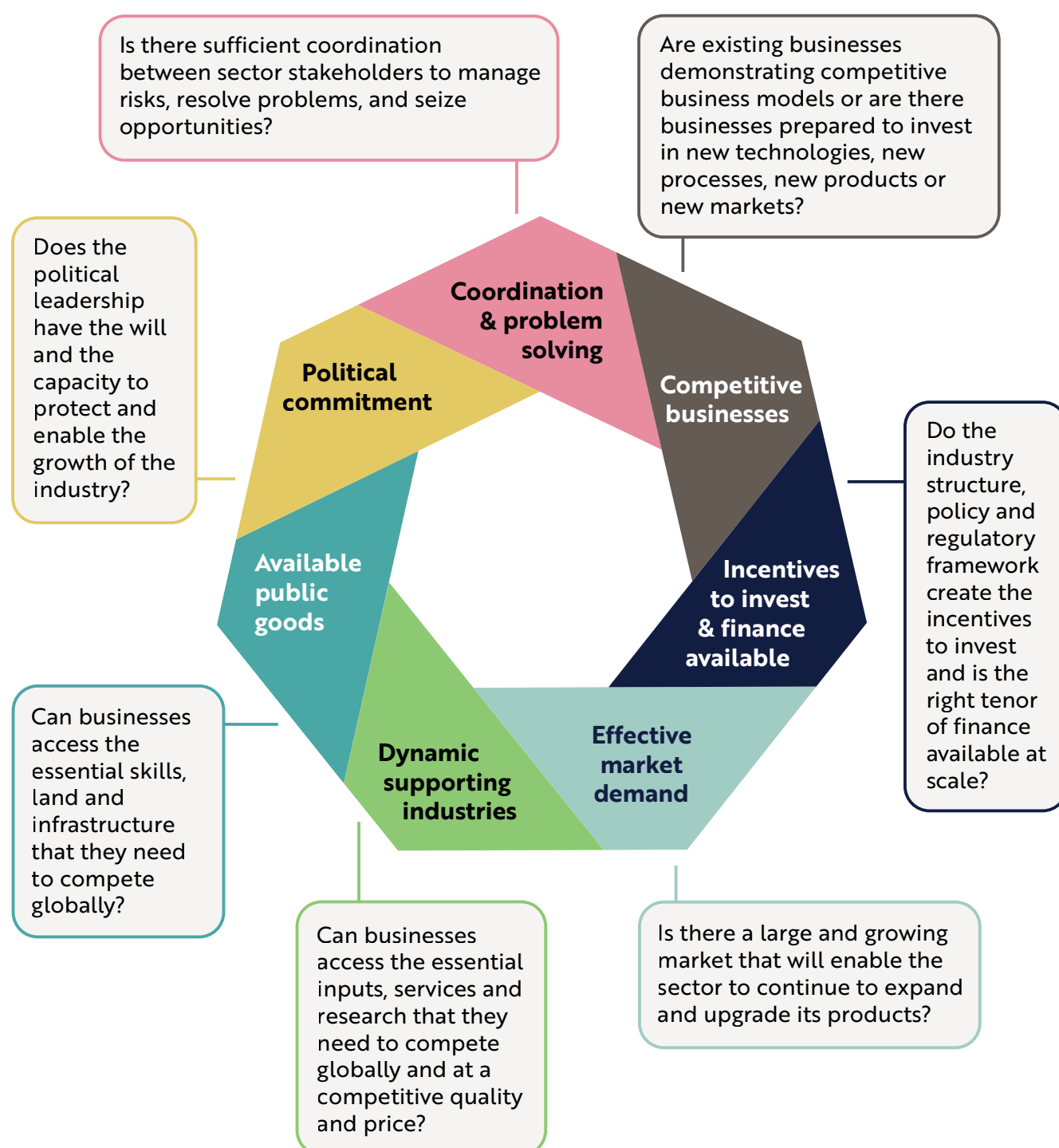
The sector was clearly not operating at its potential and suffered from a continuous cycle of international market price-led production swings, with limited domestic value addition to cushion these swings. But, with a sustained package of services for smallholder cotton farmers our research had established that they could triple their productivity. This would in turn enable the ginning industry to operate at 70+ percent capacity utilisation rather than at levels well below 30% on average, making the whole

industry more profitable and cost effective. These profits or cost savings could be utilised to maintain the services to farmers and keep the whole system operating at that level. The challenge was how to change the whole system of farming, cotton buying and ginning to deliver and sustain these changes.

The Context

Gatsby uses a sector conditions framework (Figure 2.) to diagnose opportunities and challenges, as well as to prioritise where to place effort. Among the sector conditions relevant to Tanzanian cotton, the following were found to be particularly important:

Figure 2: Gatsby sector conditions framework



Political commitment:

- Tanzanian cotton is politically important, as the major, long-standing cash crop in an area that covers almost 40% of Tanzania's population.
- Several cotton processors (ginners) are politically connected (or they are politicians themselves); while many of the cotton traders (intermediaries between farmers and ginners) are closely linked to local councillors, so policy or regulatory decisions that go against the interests of these groups are likely to face substantial political challenges
- Whilst the Cotton Industry Act and related regulation provides a robust legal framework for the sector, it is not well implemented. This is exacerbated by an interventionist history in Government and complex power dynamics between different arms of Government, with for example, Ministers of Agriculture having the power to overrule the Tanzania Cotton Board (TCB) in delivering its mandate e.g. issuing marketing and export licenses and permits³.
- The low capacity of the TCB or local governments to protect investments made in farmers such as inputs on credit (i.e. to preventing side marketing under contract farming arrangements) was a further deterrent to firms investing in the industry. As a result, many ginneries had outdated, inefficient equipment, and are unwilling to provide services to farmers.

Dynamic supporting industries:

- A Minimum Input Package including seeds and pesticides⁴ continues to be procured by the Cotton Board under the auspices of the Cotton Development Trust Fund (CDTF), funded by an industry levy. Back in 2010 this raised approximately \$3m for the supply to all farmers. While this appears to be an excellent initiative on paper, the low quality of the seed and pesticides supplied, coupled with often late delivery, meant that farmers were getting a bad deal. The limited value of the levy meant that it often wasn't sufficient to provide enough inputs and was not able to drive increased levels of farmer investment.
- In 2010 there were very few rural agro-dealers selling inputs at a village level across the Lake Zone, with some available in towns.
- There were several pesticides suppliers, though problems of fake pesticides were regularly reported.
- In 2010, the most recent seed variety to be released for use was from 1991 and there was no pipeline of improved seed varieties. New varietal trials take 5-7 years to produce new varieties for commercial use, hybrid trials were opposed on the basis of price and import dependence, and the Tanzanian Government opposed any promotion of GM/Bt crop varieties.

³ [Cotton Industry Act \(2001\)](#), Crop Laws (Miscellaneous Amendments) (2009), Cotton Industry Regulations (2011)

⁴ 6kg delinted/20kg fuzzy seed plus 4 sprays of pesticides per acre.

Coordination and problem solving:

- Back in 2010 there was a good deal of mistrust between sector actors. Particularly between farmers, traders and ginners. While there were dialogue meetings, the evidence discussed about the state of the sector was rarely agreed and so conclusions were driven by those with most influence.
- The introduction of the collective farmer levy to pay for inputs was a good initiative, but it had gradually become poorly managed and had stopped funding research, with questionable quality pesticides often distributed late.
- The TCB was not seen as the key entity to solve problems in the industry, as its power was regularly undermined by the Ministry.

Incentives to invest and availability of finance:

- The highly competitive ginning industry structure with substantial over-capacity of ginning for the cotton production levels, forced processors to compete to secure adequate supply, driving up prices and reducing quality. The nature of cotton being non-perishable and easy to transport, meant ginners started travelling further and further afield to compete for supplies, raising their costs and further reducing quality. Overall, it led to a "race to the bottom" with ginners buying any quality of cotton, traders cheating both ginners and farmers by under and over weighing purchases, and, farmers adulterating their cotton to add weight to sacks.
- This situation meant ginners were unwilling to invest in the sector (e.g. in raising productivity and production and/or upgrading their equipment), given they were not sure of securing enough cotton at the end of the season.
- Low start-up costs and a number of cotton gins available to hire mean that there are low barriers to entry, and some processors will opt in and out of the market from season to season depending on price dynamics. Many processors are diversified companies that can divert resources to other parts of their business when cotton is less commercially attractive. Few are vertically integrated into spinning and textiles.
- Competitive dynamics have contributed to several ginners defaulting on international contracts, landing them on the ICA blacklist, and forcing all Tanzanian cotton to trade at a discount, further squeezing margins.

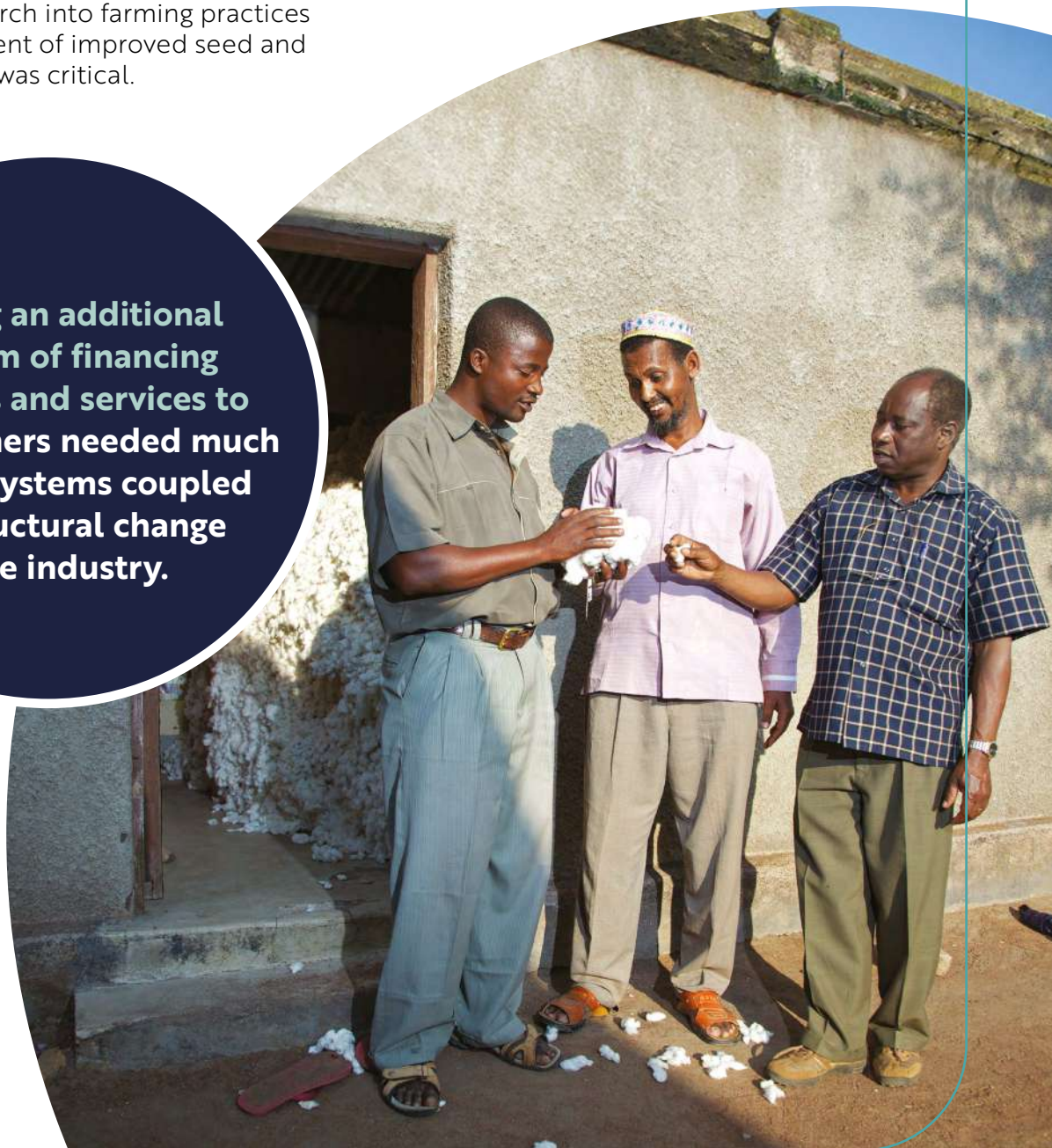
In conclusion, the context in 2010 showed poor sector conditions, with particular problems of inputs quality, quantity and timeliness; a general lack of advice or knowledge of good agricultural practices; ineffective oversight of buying posts leading to low quality and trust problems; too many ginneries and low quality ginning equipment; as well as a poor international reputation and discounted international prices.

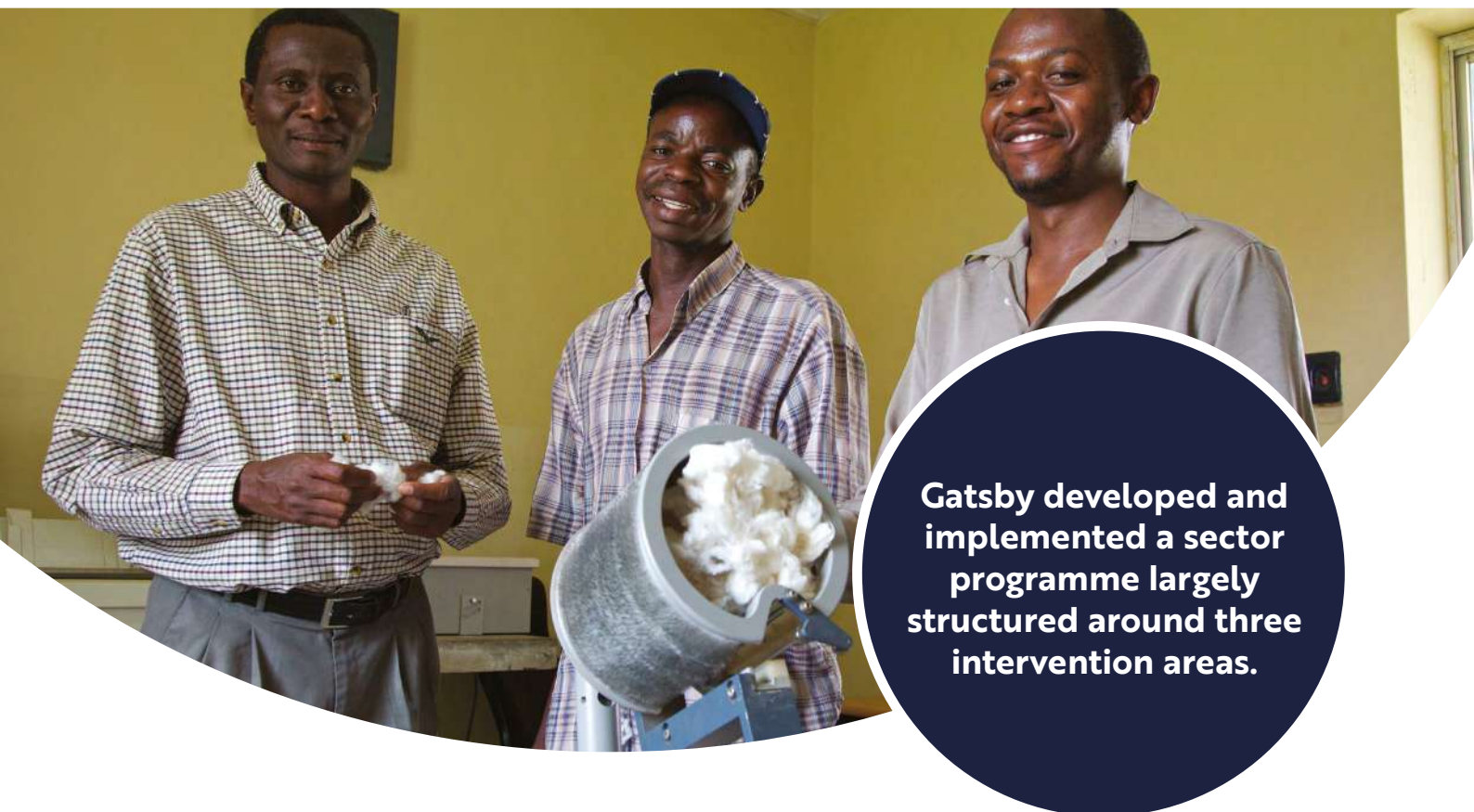
The Strategy

Gatsby's initial agricultural research in the sector had shown what was feasible given the agro-climatic conditions, even with current seed varieties. What was needed was much greater investment in their farms by smallholders in the form of pesticides, manure/fertilisers and labour, coupled with improved practices, such as early planting, minimum tillage, mulching, weeding, pest scouting and effective pesticide and manure/fertiliser application. At the same time, the industry needed to properly regulate the buying posts to remove malpractice, reward quality seedcotton production and to enable investment in quality ginning equipment. Furthermore, research into farming practices and the development of improved seed and pesticide varieties was critical.

By 2010, Gatsby had turned its initial work testing agricultural solutions to improve yields into a programme of support to develop conservation agriculture and best practice demos across the lake zone. While this programme was starting to show signs of bringing farmers on board with good practices incrementally, it was clear that a solution to provide greater levels of finance for all cotton farmers was critical and that this would need substantial structural change of the industry.

To bring an additional \$50-75m of financing for inputs and services to cotton farmers needed much stronger systems coupled with structural change in the industry.





Gatsby developed and implemented a sector programme largely structured around three intervention areas.

A second pilot initiative was run from 2009 with a group of ginners in one region where there were few competitors and they could see the value of cooperating to raise the amount of cotton produced. This form of contract farming had the potential to facilitate all of the changes required above by ensuring that ginners invested in farm production, by ensuring closer relationships between ginners and farmers to reduce problems at the trading point, by enabling a stronger focus on quality, by raising productivity and profit for farmers and hence raising throughput and profitability for those ginners that were able to invest. The pilot was successful at raising the production in that region with each ginner seeing greater throughput and higher profitability after supporting the farmers locally with advice, alongside timely delivery of seed and pesticides. The four ginners involved saw it as a positive initiative that they wanted to repeat and replicate, with the Minister of Agriculture and the Cotton Board agreeing that this was the way forward for the whole industry.

Gatsby was invited to support the development of this national cotton contract farming initiative. While it was clear that rolling out an initiative that had been piloted in the area most likely to succeed to the wider industry would be much more challenging, it became the cornerstone of Gatsby's programme of support to the government and the wider sector. This was complemented by additional activities.

Gatsby developed and implemented a sector programme largely structured around the following intervention areas and partners, although there was significant variation and evolution over time. Sector progress to inform programme adaptation was tracked through annual farmer surveys and other insights, whilst Gatsby conducted endline and post-endline impact assessments of specific programme interventions⁵.

⁵ It is important to acknowledge the challenges measuring and attributing specific interventions to changes in farmer productivity, due to the effects of external factors e.g. weather, pests, diseases, global commodity markets.

Intervention
area

1

Contract farming and related policy/institutional changes

Intervention type: Supporting public implementation capacity to drive market systems changes in the cotton sector.

Key partner: Government of Tanzania, primarily through the Tanzania Cotton Board.

Key objective: To motivate processors to provide value chain financing, inputs distribution and farm advice to raise smallholder and ginner productivity, profitability and overall production. At an institutional level our work aimed to enhance data collection and analysis, dialogue and policy development processes, as well as to ensure effective implementation of regulations, e.g. monitoring and enforcement of penalties for breaching licencing, contract farming and other arrangements - critical to enabling the investment by ginners in farmers.

Intervention
area

2

Seed and research systems with technology transfer

Intervention type: Supporting the development of a sustainable system for commercial financing of public research institutions for cotton.

Key partner: Private seed companies, ginners and TARI (Ukiriguru Research Institute).

Key objective: To establish a pipeline of seed trials and other cotton research, with the local market providing sustainable financing mechanisms for ongoing work including commercialisation.

Intervention
area

3

Last mile distribution, finance and farm advice systems

Intervention type: Facilitating the development of a commercial rural agro-dealer network, with connectivity to financial service providers and with conservation agriculture advisory capacity.

Key partner: Rural extension officers and entrepreneurs.

Key objective: To establish a network of rural agro-dealers with the ability to offer farmers local access to inputs, advice and finance.

While intervention 1 had the potential to transform the industry rapidly, it was high risk, given the context of the industry. Intervention 2 had some potential to deliver new technologies and large-scale farmer impact, but had dependencies on intervention 1 for financial sustainability. Intervention 3 was identified as lower risk without dependencies on 1 or 2 or much reliance on the government, so seen as a valuable plan B so that farmers would not lose all access to inputs, advice and finance if interventions 1 and 2 failed.

Ultimately, our ex-post impact assessment of the programme shows that intervention 2 delivered substantial impact for a multi-year period but that this impact is reducing over time as the seed quality deteriorates and research outputs become out of date. Intervention 3 has delivered lasting impact through a commercially viable network of an estimated 800 agro-dealers, albeit not yet at transformative scale.



Gatsby created lasting impact by facilitating the development of a commercially viable network of around 800 agro-dealers, offering an estimated 250,000 farmers continued access to inputs, services, advice, and sometimes even finance.

Intervention area 1:

Contract farming and related policy/institutional changes

Gatsby's programme worked very closely with the Tanzanian Cotton Board (TCB) over many years to:

- 1 Introduce **supportive legislation** for contract farming and to enforce this through the TCB's licencing authority
- 2 Establish district and **village task forces** to support farmer registration, inputs distribution and loan recovery
- 3 Facilitate **contracting negotiations** with the provision of data and analysis
- 4 Introduce a transparent, best-practice minimum **farm gate pricing formula** linked to global lint prices, to overcome the concerns that contract farming could lead to low prices for farmers.
- 5 **Monitor implementation** including challenges such as side marketing.

While these changes had the reported buy-in from President Kikwete and the Minister of Agriculture back in 2010, they lacked the capacity to push them through in the face of political pressure from well-connected industry stakeholders who did not want to make the required investments in farmers. As a result, TCB's ability to enforce contract agreements in contested areas was regularly over-ruled, leading to ginners not being able to recover their farmer loans due to side-selling and hence a breakdown in trust among otherwise invested ginners.

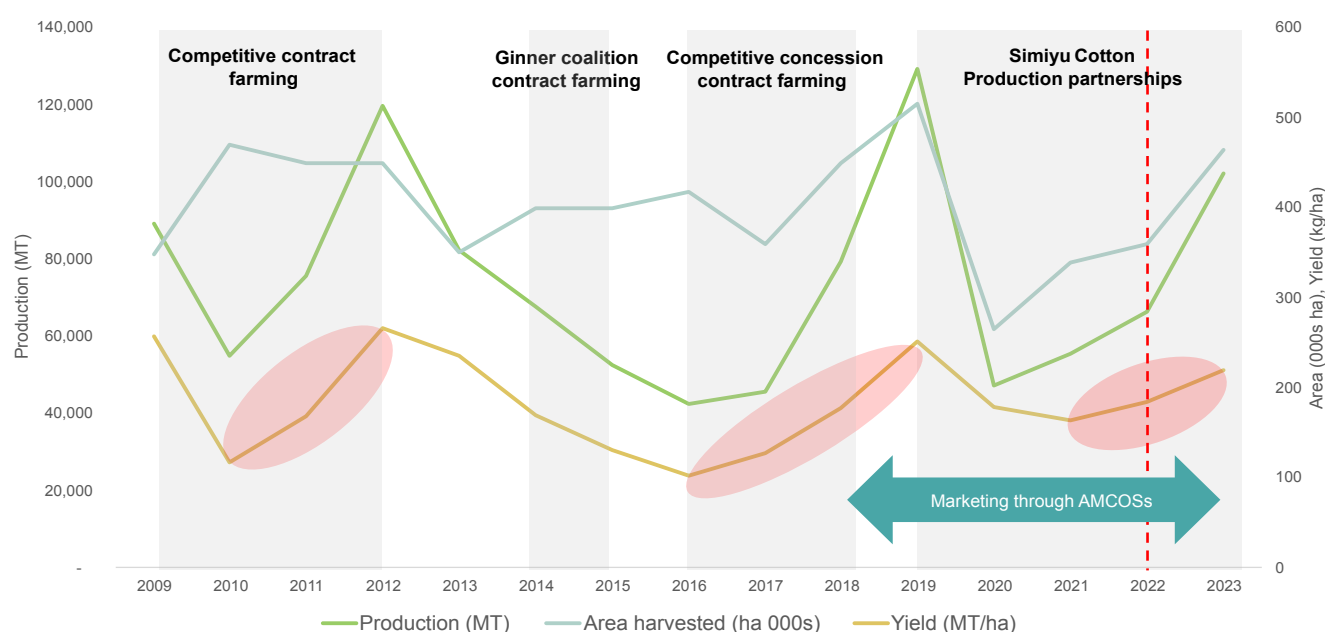
Gatsby's programme worked with the TCB to adapt the approach to contract farming three times over a 7-year period from 2012, trialling different ways to gain alignment between farmers, ginners and potential oversight institutions. The most successful of these models was "competitive

concessions", a mechanism whereby the local government at a regional and district level 'auctioned' the rights to buy cotton in different districts with ginners committing to provide improved services to farmers such as a range of inputs alongside advice to 'win' the rights to buy cotton from their nearest districts. This concessions model showed the highest productivity and income gains for farmers as well as overall production gains.

This model was introduced in 2016 and saw less political pressures and complaints, given the new government of President Magufuli had demonstrated much stronger commitment to enabling smallholder income growth. However, it was halted when ginners withdrew following the introduction of Agricultural Marketing Cooperative Societies (AMCOSs) as the mandatory mechanism

for engagement with farmers. The reintroduction of this model two years after Gatsby's programme closure in the 2023-24 season with support from ginners, farmers and Government supports the view that it delivered significant benefits for those stakeholders willing to invest.

Figure 3: Phases of different contract farming systems trialled by TCB with Gatsby support



The crucial metric for programme success was the improvement in yields, as this is what drives farm profits and reduces the likelihood that farmers switch out of cotton if prices fall, leading to the boom and bust cycle of prices and production that is found in many cotton growing countries across Africa. Sadly, the successes in raising yields through the different mechanisms were not sustained as farmers' access to crucial services stopped at the end of each phase.

It is important to note that the programme worked closely with several of the more pioneering firms such as Alliance Ginneries, BioRe, Biosustain and Olam during this period, each of whom brought in innovations to continue delivering farmer support under more informal contracts that helped to increase supply, improve quality, reduce transport costs and enhance capacity utilisation.

The programme also adapted its focus hugely across these different periods, at times working closely with local and regional governments, raising their awareness of the potential from cotton and their role in driving investment into cotton farming. We trialled different financing options, through commercial banks and by developing farmer credit scores with financial platforms. We sought to find ways for the cooperatives to play a useful role in overseeing farmer loans when they were introduced in 2016, and we provided matching-grants to ginneries to buy down their risk in trialling contract farming-related innovations working with cooperatives.

Throughout this period we had a clear sense of the critical aspects of the industry structure that were needed for farmers and ginneries to drive yields, quality, throughput and profitability. At each point when we felt that transformative change was slipping away we sought to adapt our approach to find a new way to tackle these problems, given the ever-changing environment.

The risks to success were well known and well-established through detailed political economy analysis, but overall, the scale of the potential benefits from embedding an effective contract farming approach for the whole industry and the wider Lake Zone economy was what kept Gatsby engaged in seeking solutions over this long period.

Conclusions

This intervention area has been shown to have temporarily impacted on yields and hence farmer incomes, at different times over the 12 year period, but it has not delivered the transformative change we hoped for. The pricing mechanism that we developed with the industry remains in place providing a fair formula for farmers and ginneries. When this mechanism was overruled by the Minister of Agriculture in 2019 it caused a subsequent seedcotton marketing crisis and has been maintained ever since. Our ambition to enable the different institutions in the sector to gather and share data transparently for better decision-making was not realised outside of pricing.

The new plans to reintroduce the competitive concessions approach by the government is a positive step that may yet deliver the structural changes and the underlying system that we trialled and demonstrated could work.

Intervention area 2:

Seed and research systems with technology transfer

Gatsby worked on improving the capacity of the cotton research institute to deliver an ongoing pipeline of seed research trials and other research for the industry for more than 10 years from 2010- 2021. Initially, we supported the research institute to bring in improved seed varieties from elsewhere and to start trials to identify those with the best characteristics for Tanzania.

Over time we sought to build the systems for royalty payments and industry engagement in the research plans to ensure that the research institute's ongoing pipeline of trials and research could be sustainably funded and commercially driven. This involved finding alignment between the regulator (TCB), the seed inspection agency (TOSCI), a private seed company (Quton) and the research institute (TARI-Ukiriguru), as well as ginners.

Alongside this work, Gatsby supported other public institutions working on seed inspection and certification to enhance their engagement in the cotton sector.

Significant benefits were realised from the commercial introduction of an improved seed – titled UKM08 (see diagram). This was the best of a pipeline of trialled seed varieties that Gatsby supported through the whole cycle of trials, registration, multiplication and distribution to farmers. In total this new seed through improved yields, higher outturn and better quality, generated an additional \$25m of revenues split between farmers and ginners in the first year alone.

Figure 4: Benefits of introduction of UKM08 seed



* from the cultivation of UKM08 seed in the 2017/18 season



In 2010, commercial seed company, Quton (subsidiary of Seed Co Ltd, now majority owned by Mahyco), was granted an exclusive seven-year contract for the provision of certified, delinted seed⁶. It established a state-of-the-art acid delinting facility in 2012⁷. However, due to mounting unpaid Government debts for subsidised cotton seed procurement, Quton now only offers a commercial delinting service on a “toll” basis.

Since 2022, Quality Declared Seed (QDS) is produced in seed multiplication zones by smallholder farmers under ginner contracts with Agricultural Seed Agency (ASA) supervision, using basic seed produced by the Tanzania Agricultural Research Institute (TARI). This process and the lack of certification of seed is likely to lead to more rapid deterioration in the ‘improved’ characteristics of UKM08, so the impact of this seed will decline over time.

The lack of certification of seed also eliminates royalty payments to the research institute with only one small payment made to the research institute before the industry switched to quality declared seed. As a result, the overall seed system still faces the same set of constraints that were apparent at the start of our programme. Despite emerging pressures such as new pests and diseases that warrant a pipeline of new varieties, currently only early-stage investment in seed varietal trials remains ongoing and the small industry levy remains the only sustainable financing system for ongoing research, which is totally insufficient.

Conclusions

The seed system and broader cotton research system remains dependent on the cotton levy administered by the TCB, with limited input from the private sector and no royalty payments for seed sales to drive a more dynamic pipeline of seed trials. Benefits of the improved seed that GA brought through from arranging the original technology transfer to supporting the trials, the multiplication and the distribution, have been impressive but will not be sustained in the long-run.

⁶ <https://allafrica.com/stories/201008301287.html>

⁷ <https://allafrica.com/stories/201203270171.html>

Intervention area 3:

Last mile distribution, finance and farm advice systems

Between 2010/11 and 2014/15 Gatsby supported ~2,700 Lead Farmers to become competent in best agricultural practices and to deliver training in conservation agriculture across all districts in the Lake Zone, including through demo plots. The programme recognised that this model was unsustainable and so pivoted to provide an opportunity for the more entrepreneurial among these lead farmers to set up as agro-dealers, recognising that they could continue to deliver advice to farmers, but also provide a wider service of making inputs more available locally. By creating a network, Gatsby hoped to enable these rural agro-dealers to collectively bargain for better prices from wholesalers and hence to be able to provide better value inputs locally.

Gatsby supported and trained 575 entrepreneurs to set up new businesses – Village-based agro-dealers (VBAs). These 575 VBAs were estimated to be supporting over 170,000 farmers in 2021. The network generated an estimated USD 6.5mn profit in the first half of 2021, with VBAs seeing an annual growth in profits of 94%, and 91% accessing credit and business linkages with inputs suppliers. Gatsby also helped the government to adapt its approach to training and licensing agro-dealers to make it easier for entrepreneurs to meet all the requirements for setting up an agricultural inputs shop through one training course and permit, facilitating quicker registration and opening up.

Gatsby has also supported the establishment of service providers in tractor ripping (156) and in pesticide spraying (385), with the aim to help farmers adopt good practices (e.g. minimum tillage) and to manage the very real risks from poor pesticide management.

Cotton yields of farmers served by VBAs were 246 kg/acre compared to others at 180 kg/acre. By 2021, 89% of farmers in villages with VBA shops had access to improved seeds, inorganic fertilizers, pesticides and herbicides. By 2024, a large town-based agro-dealer reported a 25% growth in annual profits which she attributed to new products, enhanced access to credit and better distribution systems. She estimated that the more than 100 VBAs she serves have average weekly sales of TZS 500,000 - 3 million (USD 190 - 1,130).



Our ex-post impact assessment showed that a further ~200 VBAs have now crowded in to set up new shops and offer similar services.

Figure 5: Results from ex-post farmer survey

Average yield and profitability by farming model, 2023



By 2015 21% of cotton farmers surveyed nationally saw higher yields as a result of conservation agriculture. They adopted a range of practices: 79% of farmers did land preparation, 38% of farmers used manure, 11% used compost, 18% used mulching but only 1% of farmers used minimum tillage (ripping).

By 2023 a smaller survey suggested that the proportion of cotton farmers benefitting from the use of conservation agriculture (CA) techniques had risen to 26% in areas with ongoing access to relevant inputs, advice and services from our VBA network, active lead farmers as well as learning from neighbours. Farmers who grew cotton using CA practices had ~70% higher yields and despite higher production costs saw profits almost 80% higher than conventional farmers⁸. Adoption appears to have continued in areas where Lead Farmers have independently continued actively promoting CA and where agro-dealers with the right training are continuing to advise farmers. The network of tractor ripping providers and spray service providers are supporting the ability of farmers to adopt these practices too.

Conclusions

GA's work to initiate the uptake of conservation farming and to improve the availability of inputs and services in rural areas to cotton farmers across the Lake Zone have been significant successes. The network of VBAs, service providers and some remaining lead farmers is continuing to provide farmers with the inputs, services and knowledge they need to adopt conservation farming practices. Given the increasingly erratic rainfall, these practices will become increasingly important and show substantial benefits compared to standard practice, with gradual growth in uptake over the past 8 years.

⁸ Gatsby farmer survey, October 2023, in Bariadi, Busega, Kwimba and Kakonko districts.

Programme Insights

Gatsby's Tanzania Cotton Programme explicitly focused on different sets of activities, with different scales of ambition and risk profiles, but each attempting to solve the problem of farmer access to knowledge and quality inputs. While they were different approaches, they could reinforce each other with distribution of contract farming inputs and services via the VBA network.

Work on contract farming was high risk, given the political importance of the Lake Zone and the concentration of political leadership with business interests in the sector, but had the potential to transform farmer livelihoods and create a dynamic cotton sector that could have contributed to wider textile industry development. While work to develop a network of Village-Based Agro-dealers, with connections to spray-service-providers, tractor ripping providers and conservation agriculture lead farmers, was relatively low risk and with almost no dependency on government, but with the potential to more gradually reach large numbers of farmers and with a more gradual increase in yields and hence improvements in livelihoods.

Gatsby spent more than 12 years working on the cotton programme. We decided to withdraw because we had been unable to secure sufficient political commitment to drive a restructuring of the sector through contract farming and hence we did not see the transformation of the sector as a likely outcome. At the same time, our work developing the VBA network and local commercial service providers was showing signs of becoming resilient and was felt to be likely to continue growing without our support.

Our ex-post impact assessment validated our sense that the VBA and local service provider network was resilient, as it has continued to grow and evolve over the past few years. Should the government commit to re-instituting the competitive concessions model for contract farming and make this stick, this would be a major boost to the sector and make use of the previous lessons for success.



Samweli Kilua, then Director of Gatsby's cotton programme, hands a copy of the Simiyu Cotton Transformation Strategy 2019-2024 to Tanzania's then President, Samia Suluhu Hassan.

Reflections and lessons learned

While Gatsby did not achieve our ambitious goals for transforming the cotton sector, our experience generated key lessons that shape our approach and can also benefit other stakeholders:



1

Balancing potential with feasibility and risk

It is important to choose sectors⁹ carefully to ensure there is scope for transformative change, but also to understand the underlying incentives of key actors to assess if such change is viable. By picking sectors where it is realistic for hundreds of thousands of farmers to quadruple their net incomes or for hundreds of thousands of quality jobs to be created, programmes can contribute to economic transformation. However, these sectors are likely to have bigger risks to success than other more nascent sectors, particularly with political economy or incentive issues. Hence, taking time to understand the incentives of institutions and private sector actors and being clear about the political leadership needed to drive transformation is essential to assess when such change is feasible and when to think about trying a different approach or even a different sector.

2

Transformational change requires systemic shifts, not incremental improvements

When a sector is stuck at a low level of performance, pursuing incremental improvements within the existing industry structure and market system is unlikely to be sufficient to drive meaningful change. In cotton, Gatsby was able to deliver substantial impact in terms of income gains for farmers; but was not able to sustainably transform the underlying system. We knew that to do so required a fundamental shift in the interconnected system of cotton farming, buying and ginning that could respond to the core constraints the sector faced. We did agree a clear vision for this shift with the key government agencies and Ministers at different times and while this wasn't ultimately realised, it was the right level of ambition to pursue.

⁹ We use the term sector to explain any bounded programme of work focused on related businesses in a sub-sector/industry/value chain or cluster.

3

Strategic choices need to be politically acceptable

A fit-for-purpose strategy for sector transformation is not a lengthy document listing aspirational activities and targets. Instead, it is a set of strategic choices – owned by those who have the power to effect change – about a realistic long-term vision for the sector and a viable path to get there. In cotton, we tested different practical solutions that demonstrated a route towards a more competitive and inclusive industry, but political conditions and strength of vested interests meant we were unable to secure sufficient alignment around this vision. In addition, widespread misconceptions about what was holding back farmer incomes further hampered consensus.

4

Identifying scalable and sustainable investment

When devising a viable sector strategy and vision, it is critical to identify where investment can come from at a scale and on a sustainable basis to drive the sector's transformation. In Tanzania's cotton sector, where smallholders are caught in a low-profit, low-investment cycle, a key strategic challenge was establishing an industry structure that could drive investment in farmer productivity. Throughout the programme, we tested various models to leverage the incentives and capacities of key actors. The 'competitive concessions' model, for instance, sought to create mutual accountability between ginners, farmers, and local government. It tasked local government to work on behalf of farmers to manage an open tender process among ginners for the rights to buy cotton from different growing areas. Ginners that offered the most investment in farmer inputs and services would win exclusive timebound rights to buy their cotton. This approach aimed to use government regulatory capacity to create the incentives for ginners to invest in cotton farmers. Effective local government oversight in many areas did lead to increased investment by ginners but ultimately the new structure was scrapped as it did not align with a new national government agenda.

5

Sector characteristics determine the degree of dependency on government

Individual sector characteristics determine the degree of dependency on government for achieving sector transformation. In well-established and politically important sectors like cotton in Tanzania, reshaping industry structure will generally rely on strong government commitment and favourable political conditions. Other cotton sector characteristics - for example the importance of international markets and hence national quality reputation, as well as the lack of perishability of the crop - further influence the level of dependency on the role of government.

6

Balancing programmatic needs with actor limitations

Pursuing transformative – as opposed to incremental – change, particularly in sectors where transformation depends heavily on the role of government, requires programmatic approaches that may not align with the incentives and constraints of all development actors. In particular, it demands working politically, being highly adaptive and flexible, and committing to long-term timescales. In the cotton sector, Gatsby also pursued complementary strategies, like rural market systems building, which were less reliant on government and carried lower risk. Ultimately, however, political conditions proved to be the decisive factor in preventing the more comprehensive transformation we aimed for.

Transforming large well-established sectors is challenging but with huge potential impacts. Being long-term, adaptive and ensuring strategic choices are politically palatable is essential to have a chance of success.





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