

A New Leaf in Tanzania's tea industry



A New Leaf: Transforming livelihoods through the tea industry

Njombe Outgrowers Services Company (NOSC)
and smallholder tea development in Tanzania

 **NOSC**
Njombe Outgrowers Services Company

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Executive summary

The Wood Foundation Africa (TWFA) and Gatsby Africa (GA) have been in partnership since 2009 through the Chai initiative, a joint venture aimed at transforming the Tanzanian tea sector. In 2014, Chai launched the Njombe project in the Southern Highlands. The project's aim is to demonstrate how a partnership approach between farmers, a private sector investor (in this case Unilever), government, donors (in this case the UK Department for International Development, DFID), and philanthropic investors can overcome the challenges of a tea greenfield development, developing a sustainable industry that puts the interests of local farmers and communities at the heart of its model.

Underlying challenges to address included improving the economics of tea for farmers relative to other crops; stimulating investment in a sector that requires significant upfront costs and long payback periods; and service efficiency issues related to coordinating and managing smallholder supply.

Unilever committed to providing a guaranteed market with a majority smallholder-supplied tea factory and a price premium based on the quality of green leaf supplied by farmers. The farmers committed to supply the factory with the requisite volume and quality of green leaf. Unilever, TWFA and GA established a farmer services company – the Njombe Outgrowers Services Company (NOSC) – to provide farmers with patient capital as well as ongoing agronomy support, access to inputs and logistics support.

The model provides an example of how a greenfield development may be de-risked to allow an international tea company such as Unilever to partner with smallholder farmers in a long-term venture. It also demonstrates how credit, alongside professionally delivered farmer services may overcome traditional barriers for entering tea production, such as the logistics associated with fragmented supply, capital, and affordable access to inputs and services.

The block farming model employed by NOSC provides a potential blueprint for structuring smallholder farmer production that allows for improvement in terms of productivity, quality and efficiency.

NOSC has supported 1,553 farmers, efficiently delivered a range of extension support services, and established more than 1,360Ha of new tea planting. This is part of a long-term investment in Njombe's tea farming community.

The time required for a tea bush to mature coupled with the limitations on the amount of tea which may be planted out each year places significant challenges on a 2,500Ha tea development. There are risks assumed by both producer (smallholder farmer) and off-taker (Unilever). The producer has committed their land to tea and invested significant time and resources to develop their crop based upon an assumed end market demand. The off-taker has invested significant upfront capital into a rural industrial development - the success of which is fully dependent upon future and sustained supply of high-quality green leaf.

The Njombe project has the potential to deliver truly sustainable change in the livelihoods of smallholder farmers and provide a replicable model in other regions and sectors. TWFA and partners have already used this model at a further two greenfield investments in Rwanda, with a further two in the planning stages.

The purpose of this case study is to document the key elements of the NOSC model, alongside the drivers of success, the challenges, the lessons learned and targets to inform future interventions in smallholder agriculture that may benefit from scaling or replicating the model.



Note: All figures are quoted in US Dollars.

The vicious cycle of low quality and low returns

Njombe, a region situated in Tanzania's fertile Southern Highlands, has some of the best agricultural soils in the country and favourable rainfall patterns for a variety of agricultural crops. Despite this, there are relatively high poverty levels. Between 20 and 30% of the population live below the poverty line. A recent competitiveness survey found that those who had been farming tea in the region had been earning an average annual gross margin of \$208 from tea production per Ha¹.

These figures stem from a vicious cycle familiar in the field of agricultural development. Limited investment and yields are creating a market of low-quality produce and low prices. Processors are not receiving the necessary green leaf throughput to operate efficiently and minimise costs. Therefore, their ability to offer premium prices to farmers is limited. A low yield does not provide farmers with the capital to invest in the productivity of their crops through measures such as applying fertiliser.

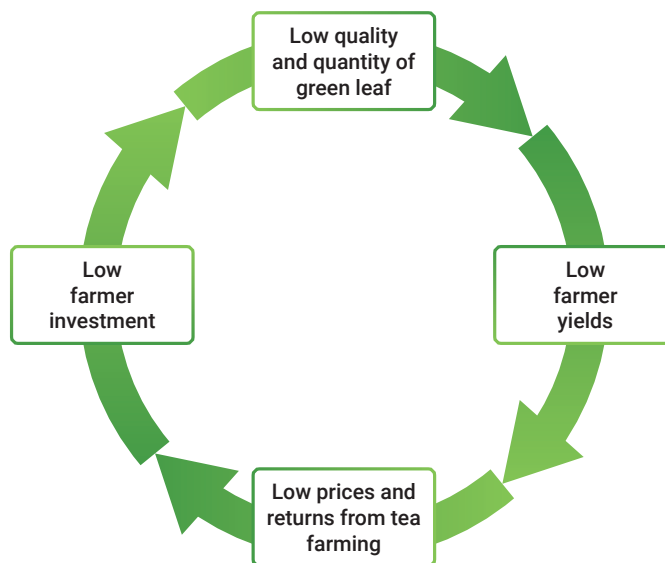
This downward spiral makes Tanzanian farmers among the lowest paid in the region. They receive a smaller share of the sector's earnings at 37% of the made tea sale price. This is compared to more than 70% received by Kenyan smallholders who benefit from ownership of factories.

The relative success of Tanzanian estate planting indicates there is significant opportunity for improvement. On average, a Tanzanian estate plantation will yield 9,000+ kg of green leaf per Ha over the course of a year, compared with 4,500 kg per Ha for smallholders.

There are several underlying challenges that, if resolved, could bridge this productivity gap and break the cycle of low investment, prices and yields for smallholders. Bridging the productivity gap and breaking this vicious cycle can be addressed by:

- i) **Improving the economics of tea for farmers relative to other crops**
- ii) **Structuring appropriate financing to address the significant risk, upfront costs and long payback periods**
- iii) **Addressing service efficiencies related to coordinating and managing smallholder supply**

Figure 1: Low investment low return



¹ Source: Chai Tanzania Competitiveness Study undertaken by Cambridge Economic Policy Associates. Unpublished.

Improving the economics of tea farming

There has been a tradition of nascent tea farming in Njombe, mostly carried out on small, low-yielding plots with limited extension support. These sites did not generate significant income. The incentive to invest time and resources into green leaf production was therefore limited. Most produced small quantities from pre-existing bushes to supplement their income. Tea producing was not managed as an enterprise. The choice of whether or not to actively invest in tea was offset by the relative value of tea compared to other crops.

The illustrative analysis below shows a simple gross margin calculation per Ha for other crops in the region against the implied annual minimum wage for agricultural labour in Tanzania.

This shows the need for an alternative tea production and pricing model that focuses on higher productivity and more attractive rewards for quality, requiring upfront investment and the provision of services that are not often available to smallholders.

Figure 2: Tea vs. other crops (gross margins per Ha, excluding labour costs), USD current prices

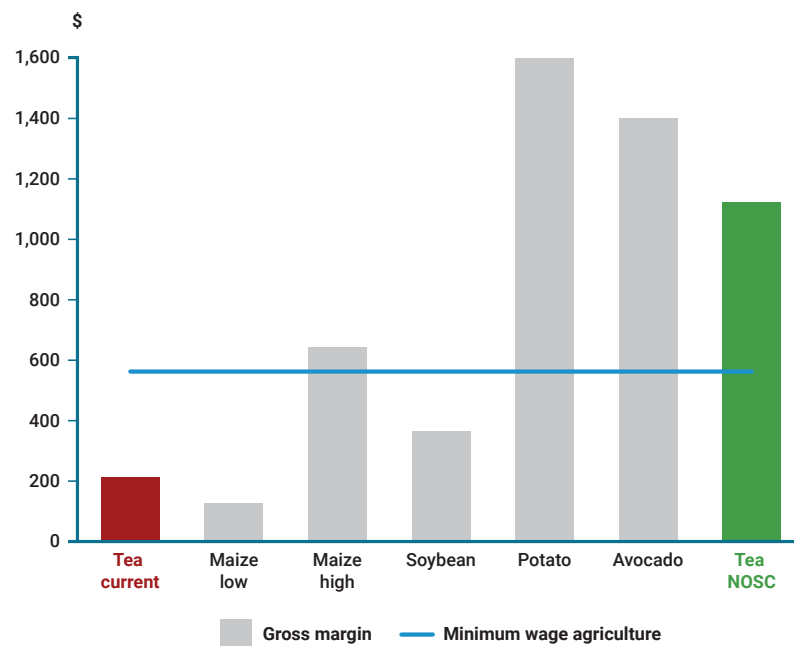
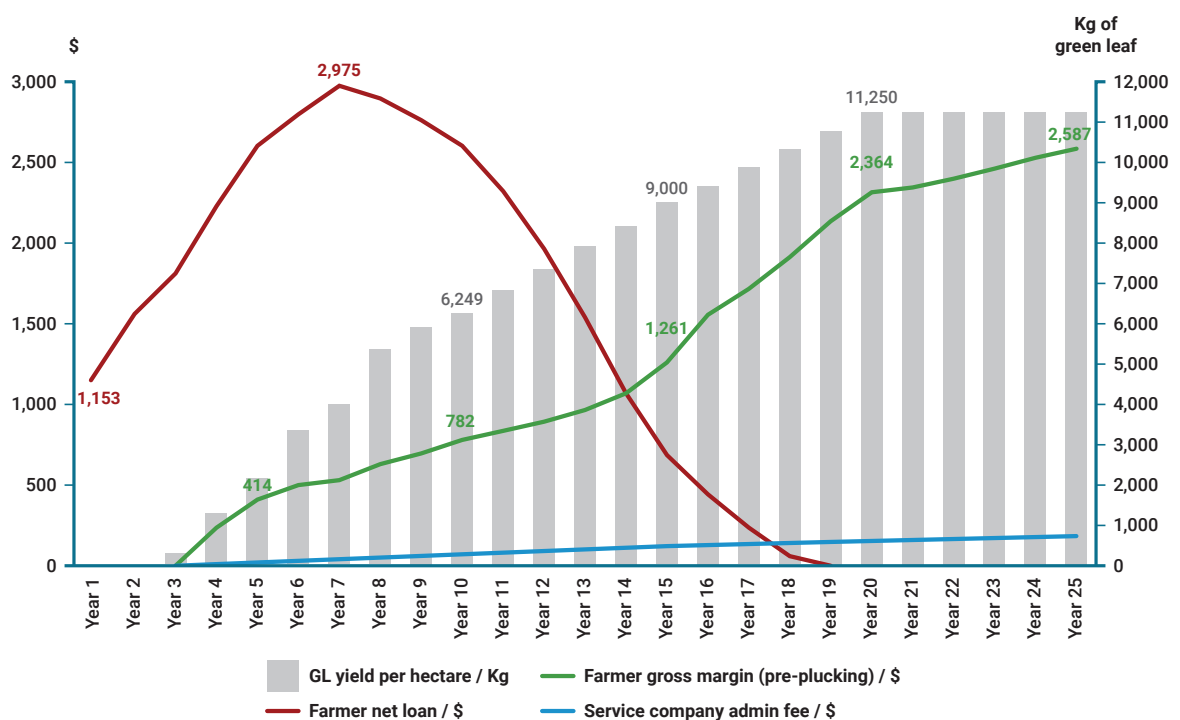


Figure 3: Illustrative 1Ha economics for smallholder farmer in USD, nominal



Structuring appropriate finance

Financing greenfield development is a classic 'chicken and egg' problem. Farmers need tangible proof that there is a market for their tea before beginning to plant. Processors need a guaranteed supply to warrant investment. In addition to requiring big upfront capital investment, fixed operating costs for tea factories are high and they need to be offset by requisite throughput to be profitable.

Smallholders cannot afford establishment costs such as labour, seedlings and fertiliser for new greenfield developments. There are concerns around committing land, their most valuable asset, without revenue-generating opportunities in the short-term. A tea bush does not produce commercially viable green leaf until year three and thereafter takes up to 20 years to reach maximum productivity. In the first year, the cost of seedlings and fertiliser is more than \$1,000 per Ha. There are additional fertiliser costs before the tea comes into bearing and revenue flows back to the farmer. This results in a maximum net debt per Ha of almost \$3,000. Thus, without the provision of suitable finance during establishment years, farmers would need to forego income while simultaneously incurring significant costs; an impossible proposition for farmers living close to subsistence levels.

Addressing service efficiency issues

The model of farming small, isolated plots increases the costs and logistical challenges faced by factories to collect green leaf. This reduces the quality due to the time taken for it to reach factories. It also makes delivering yield-boosting extension services at scale costly. As a result, in some parts of Tanzania the systems required to support higher smallholder tea production have simply broken down. Farmers lack the inputs and the information to support the improvement of farming practices and, in turn, improve yields and productivity. In addition, the administrative challenge of attracting and managing disparate farmers and deal with local dynamics is significant.

The average cost of borrowing through a local Savings and Credit Cooperative Association (SACCO) is around 20% per annum. At this rate, it is not feasible for farmers to borrow to invest in tea.

Given these challenges, there is an overarching issue of insufficient resources and investment in smallholder tea farmers. The difficult question is where the additional funding should come from. In this context the private sector is a fundamental partner with support from investors, development finance institutions and donor funds to rehabilitate existing plots and expand smallholder production. This requires a long-term view at significant financial risk.

There is a need to support a model that can deal with this complexity by providing professional farmer services and credit to catalyse, aggregate, and maximise production in an efficient and effective manner for the farmers while de-risking the overall investment by guaranteeing sustainable high-quality supply for the off-taker.

The NOSC model

In 2009, The Wood Foundation Africa (TWFA) and Gatsby Africa (GA) launched the Chai initiative aimed at transforming the smallholder tea sector in Tanzania. With additional funding from the UK Department for International Development (DFID), Chai has adopted a portfolio of interventions which includes matching grants, loan guarantees, co-investment in greenfield development, as well as technical assistance where appropriate.

After Unilever decided to expand its supply of smallholder tea, the Njombe partnership was launched in 2014 between Chai, Unilever and the Igominyi tea farmers with the specific aims of:

- Developing a core estate and tea processing factory that was majority smallholder-supplied
- Planting and developing 2,500 Ha of smallholder tea
- Establishing a services company to enhance smallholder greenfield production

The Njombe Vision, as it has come to be known, involves three pillars:

- Farmers providing a supply of green leaf to Unilever at requisite quantities and quality**

- Unilever in turn providing a guaranteed market and committing to pay farmers based on quality**

- Chai supporting the relationship through the provision of professional services to farmers**

To achieve this vision, the Njombe Outgrowers Service Company (NOSC) was formed to provide patient capital at zero interest, tea planting services, agronomic advice and production logistics such as collection, weighing, transport, and payment to smallholder farmers on a commercial, cost-recovery basis.

Green leaf production is expected to rise from 0.5 kg in 2014 to 0.5m kg by NOSC's 25th year of operation. At full production, NOSC is expecting its farmers to produce an annual average of 11,250 kg of green leaf per Ha.

This is a significant increase in productivity from the average 4,000 kg reported in Chai's 2014 baseline survey and will require strong execution. In turn, this is expected to have a significant impact on the livelihoods of smallholder farmers, who will be producing more tea and receiving a premium price from Unilever tied to quality.



Farmer progression with NOSC

NOSC supports smallholder farmers throughout the cycle of a greenfield development. Outlined below is an illustrative example of an individual farmer's experience with NOSC.

- 1 Farmer sensitisation & outreach**
NOSC prepares an awareness programme of activities that includes village meetings, radio and print media, working through the primary cooperative network and its extension worker network.
- 2 Farmer recruitment & clustering**
NOSC registers farmers by signing a services and supply contract. Farmers are clustered into production areas or blocks.
- 3 Nursery development & seedling propagation**
NOSC develops the nursery that supplies the appropriate clonal seedlings to farmers.
- 4 Procurement & provision of inputs**
NOSC undertakes bulk purchase of fertiliser and herbicides, and provides these as well as seedlings to farmers on long-term patient capital, at no interest.
- 5 Land preparation – ploughing service**
NOSC offers an optional fee-based tractor service to support land preparation outsourced to a local provider.
- 6 Agronomic extension**
NOSC provides support to farmers through its network of field-based extension workers as well as training through Farmer Field Schools.
- 7 Farm management**
NOSC offers an optional fee-based farm management services to larger sized farms and smallholder farming blocks.
- 8 Sorting, weighing service & quality control**
NOSC staff assist in sorting and quality control of green leaf which is transported to the factory. NOSC issues farmers receipts at the collection centre for acceptable green leaf through electronic weigh scales.
- 9 Payment**
NOSC receives payment from Unilever and then pays farmers following deduction of a service fee. An additional quarterly bonus is paid to farmers based on green leaf quality supplied.

NOSC structure and ownership

NOSC was registered as a company limited by shares in 2014. Initially, it was 5% owned by TWFA and 95% owned by East Africa Tea Investments (EATI), a charitable investment vehicle jointly controlled by TWFA and GA. Subsequently, 49% of NOSC shares have been transferred to farmers through NJOTCOJEC, the farmers' joint enterprise cooperative.

Chai's initial collaboration with the farmers' association leaders was initially challenging. Issues including commercial and politically vested interests were tackled through the development of a grassroots approach. The Tanzania Cooperative Development Commission (TCDC) created a new smallholder representational structure, whereby three Agricultural Marketing Cooperatives (AMCOs) were formed along with the joint enterprise cooperative NJOTCOJE.

Once the joint enterprise cooperative was duly constituted, 49% of NOSC shares were transferred to NJOTCOJE and the remaining 51% were held by EATI.

Three Farmer Directors, a representative from each AMCO, work with four EATI Directors who are tea experts. These directors provide strategic and operational guidance through the NOSC board.

Unilever sits on the NOSC board as an observer. The long-term goal is that EATI will transition full ownership of NOSC to NJOTCOJE.

While NOSC is a private company, its sole purpose is to benefit farmers engaged in the Njombe Vision. NOSC does not seek a commercial return for its investors. Rather, it strives to provide professional services on a cost-recovery basis.

NOSC currently has 45 permanent staff and between 200 and 300 seasonal workers. Crucially, it receives technical backstopping from TWFA through Chai, which was vital during the inception phase of the programme.

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How the NOSC model addresses key challenges

NOSC has employed a series of innovations that provide incentives to farmers including a tailored financing package that recognises the unique nature of this development, alongside consolidating services for improving delivery efficiencies. Close collaboration during the design of NOSC and related agreements was absolutely critical to identify and align interests so as to ensure commercial and social sustainability as well as coordinate the donor finance. This would have been challenging, if not impossible, without an organisation such as TWFA to broker and facilitate interactions.

Improving the economics of tea through quality premiums, timely payments, and transparent pricing

The approach taken by NOSC and Unilever to develop a mechanism for incentivising smallholder tea farmers to establish, produce and deliver high-quality tea is a first in Tanzania.

NOSC and Unilever became a leader in the strategy shift by offering a premium payment that is tied to the quality of green leaf supplied to the factory and is based on agreed criteria. As a result, farmers have received a 27% premium on top of the 37% government-mandated made tea price. Farmers partaking in this model are paid 49% of the made tea price.

In addition to the price premium, the quality of inputs, in particular seedlings and support services provided by NOSC are driving estate level productivity for smallholders. This significantly increases the attractiveness of investing in tea.

Electronic weighing scales have introduced transparency and confidence in the collection system. Prior to their introduction, tea weighing at collection centres was reported to be chaotic and marred by numerous disputes on issues such as the collected weight and the level accepted at the factory. Tea is weighed directly at the collection centre and a receipt is provided. The information is captured in a database from which a farmer can request their statement on monthly tea deliveries. Payments are made based on this record and farmers are now certain of their income once green leaf is handed over to NOSC.

Lastly, payments made are timely and straightforward. Prior to NOSC, farmers were paid 90 to 120 days' late². Payments are now made on the fifth day of the month via three Savings and Credit Cooperative (SACCOs) which cover 35 villages within the catchment area.

Farmers out with the SACCOs' regions are subject to a delay of only two or three days. NOSC is investigating an electronic payments solution, based on mobile money, that will facilitate faster payments to farmers, reduce the transaction costs, and provide a platform from which information can be disseminated to farmers and feedback generated at minimal cost.

² Source: Based on interviews with the farmers in the NOSC catchment area and those outside the area in Lupembe.

Stimulating investment through long-term, patient capital and interest-free loans

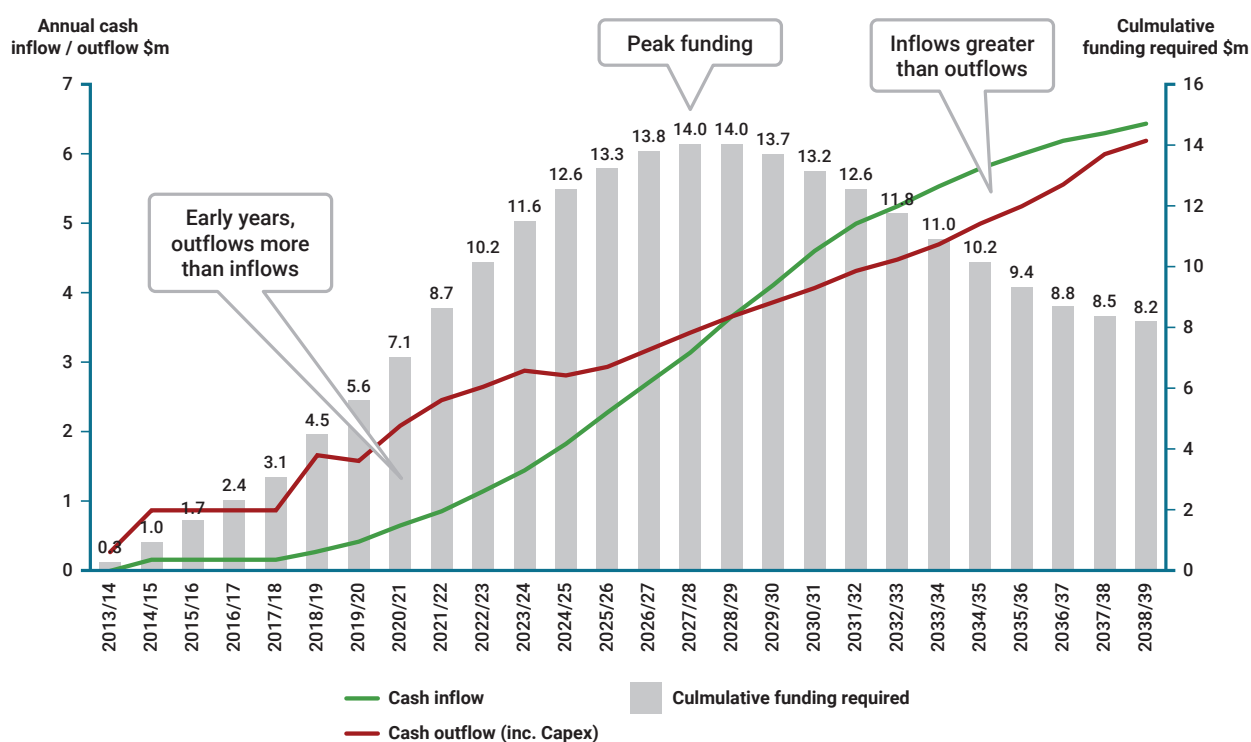
In order to kickstart greenfield investment, NOSC provides loans to farmers at zero interest with a grace period tied to repayment which begins once green leaf is sold. This is an essential condition for encouraging new entrants into the market and building a viable supply base for Unilever's factory. Repayment is tied to farmer green leaf payments to reduce their risk.

NOSC has frontloaded its resources in the initial years of operation in order to encourage investment. Recouping expense is delayed until tea bushes come into bearing. Consequently, even with the zero-interest concessional financing from its funders, NOSC requires sustained investment for its first 15 years of operation (peaking at \$14m) before repayments can begin, highlighting the long-term nature of this investment.

At a macro-level, NOSC is funded through a combination of grant and long-term, interest free loans. This concessional finance allows NOSC to run at an operating loss during its initial years, when low production allows for limited revenue generation. This results in a business that requires significant upfront capital to operate, as highlighted in Figure 5.

In the long-run, NOSC will be self-sustained through a combination of a service charge levied on farmers, currently set at 5% of the green leaf price, a small handling charge for inputs and an agronomy fee paid by Unilever to contribute to agronomy services provided to farmers. The service charge will be set at a level that allows NOSC to break even and provide quality services. There will be no return to shareholders.

Figure 5: NOSC funding forecast



¹ Source: Chai Tanzania Competitiveness Study undertaken by Cambridge Economic Policy Associates. Unpublished.

Addressing ongoing service efficiencies through consolidation of production and service bundling

Consolidating production

To drive improved efficiency, tea farm clusters ensure efficient transportation of freshly picked green leaf and delivery of support services. NOSC intends to have at least 80% of smallholder production in production blocks. Block farms act effectively as mini estates, where land is consolidated into contiguous land areas and farmers work together to minimise costs. Each block farm has a central collection point and a designated extension officer. Likewise, other services such as mechanised plucking, land tillage and irrigation can be layered cost effectively.

For this model to work, land titling is crucial and issued to farmers as a group in order to maintain the collective model of farming, while ensuring each farmer has their individual ownership rights secured. In Tanzania, this is complicated. While village land is plentiful and arguably well-suited to a communal farming model, defining the bounds of tenure and ownership can be challenging. This is most acute when individual farmers have made significant investment in land preparation.

NOSC farmers are organised through Special Landholding Cooperatives (SLHCs), that act as the legal entity through which the title of block farms is registered. To date, 970 farmers have been organised into 42 SLHCs across 1,300 Ha and issued with land titles.

Service bundling

Many of the services provided by NOSC have been available to smallholder farmers in various forms over the years. However, NOSC is unique in that it offers a 'one-stop shop' model, while providing professional management services as affordably as possible.

NOSC has partnered with stakeholders to develop and strengthen extension services offered to tea farmers, offering access to seedlings in nurseries and facilitating the bulk purchase of appropriate inputs such as fertilisers and herbicides. Each extension officer is provided with a motorbike, GPS system, laptop, mobile phone, accommodation and operation allowance from NOSC while the government pays their salaries. This provides the incentive to work in remote rural areas and offers a template for how best to deliver this service in other value chains.

The introduction of Farmer Field Schools (FFS) has been a vital component in building the professional capacity of farmers. In addition to tea industry training, other courses include topics such as record keeping. This supports the management of household finances, ensuring farmers are well-positioned to repay loans thereby supporting the foundations of future prosperity.

NOSC outsources a number of services in order to improve delivery while managing in-house costs. NOSC's current policy of outsourcing the transportation and delivery of inputs demonstrates an understanding that retaining this service in-house means retaining assets that have both replacement and maintenance costs. Another example is that of tractor services, which are in the process of being fully outsourced to farmers in the community who are better placed to make more effective use of the machines. Other outsourced services include nursery development as well as plucking services. In outsourcing, NOSC carefully manages the quality of service delivery within a cost structure that benefits both the smallholder and the service provider.

NOSC's journey and lessons learned

To date, NOSC has supported 1,553 farmers to develop 1,360 Ha of smallholder tea fields, efficiently delivered a range of extension support services, secured quality premiums for tea, and established a long-term strategic partnership between farmers and Unilever.

The commissioning of Unilever's Kabambe factory in Njombe is the biggest indicator of success to date, bolstering smallholders' comfort in the investment.

When the programme launched, green leaf was securing an average of TSH 190 per kg. This has risen to TSH 454 per kg.

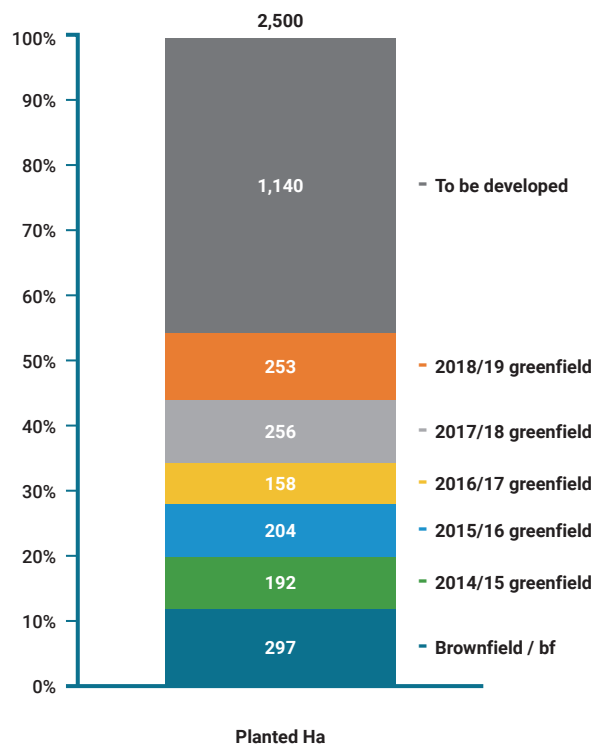
This figure is augmented by higher productivity per Ha and will further improve as the tea bushes mature. Farmer income and profitability will continue to rise as a result of quality premiums delivered by Unilever.

When a baseline survey was undertaken in 2014, average yearly gross green leaf income was reported as TSH 1.3 million (\$550) and profitability per Ha was TSH 955,678 (\$400). At the end of 2018, green leaf income had tripled to TSH 3.2 million (\$1350+).

As incomes have risen, increasing numbers of farmers are seeking to grow tea. The proliferation of block farms is a strong indicator of the value and potential that farmers now see in the sector. Key drivers have been outreach campaigns run by NOSC, support provided by local government officials and, more recently, Unilever paying its first of its kind quality-based payments to farmers. This payment bolstered the farmers' faith in Unilever.

NOSC and Unilever have created more than 900 jobs, many of which are in long-term professional positions. Outsourcing services to the local private sector has also created a further 200 permanent and indirect jobs.

Figure 6: Planting progress



Lessons learned

The NOSC model requires:

- i) **Long-term, no-interest, patient capital, ideally alongside grant funding as seed capital**

- ii) **A reputable tea company able to operate with a long-term vision as the lead off-taker**

- iii) **Confidence in a sustainable business case for individual farmers and the company, once initial concessional finance has been provided**

- iv) **An operational partner to de-risk the smallholder investment and lead operational execution**

i) Long-term, no-interest patient capital

NOSC's access to no-interest, patient capital in the development stage was essential. This allowed interest-free loans with a three to four-year grace period in order for bushes to mature to a plucking stage before farmers were asked to begin repayments.

This type of capital, in most cases, must be blended with early stage grant funding. In this case, the combination of funds from a bilateral donor and two private foundations with similar values willing to take a majority stake and have a long-term investment vision, were crucial to the establishment and development of NOSC.

The model has been replicated at two greenfield sites in Rwanda. The first of these, also with Unilever, is in Nyaruguru. The Services Company Outgrowers Nyaruguru (SCON) is supporting smallholder farmers to develop 3,400 Ha of tea with patient capital from TWFA and GA, and seed grant from DFID. Unilever will develop a new factory to buy and process the tea. The total investment for this greenfield project is estimated at more than \$60 million, of which \$40 million is foreign direct investment by Unilever.

The second greenfield is with Luxmi Tea Company. The Rugabano Outgrowers Services Company (ROS) is supporting smallholder farmers to plant 4,000 Ha of tea with funding from TWFA, GA and DFID. Luxmi will develop a new majority smallholder supplied factory to off-take the tea. This second greenfield represents an overall investment of more than \$50 million, of which \$30 million is foreign direct investment by Luxmi.

ii) Reputable tea company with a long-term vision as the lead firm or off-taker

A key barrier to sustainable smallholder production is lack of a guaranteed market. A reputable tea company that is able to operate with a long-term vision and take a strategic interest in the smallholder farmer, while undertaking the risk of a factory that is majority smallholder-supplied is critical for this model. Ideally, the off-taker should also be aligned in terms of focusing on quality and willing to pay a premium to incentivise smallholder productivity and quality enhancing measures.

In the case of NOSC, Unilever was committed to setting up a majority smallholder-supplied factory in Njombe, guaranteeing a market for the smallholder tea and a premium price based on pre-agreed quality standards. Additionally, there was also significant alignment with Unilever's tea supply strategy and company commitments to incorporate smallholder farmers into high-value supply chains for livelihood improvement and economic growth.

ii) A sustainable business case beyond the initial seed capital

When deciding whether to employ this type of model, crop selection is critical. It is important that it has significant value as well as consistent demand that justifies long-term investment. This suggests that the type of crop should be of export nature (other examples may include coffee, tobacco or cocoa) or have a strong domestic end-market demand. The product must have the potential to benefit from a well-regulated, closed market system due to the very real prospect of side-selling.

A commodity such as tea, whereby the bush may be harvested throughout the year once mature, can also provide regular cash flow for farmers allowing for steady and gradual debt recovery for NOSC. Additionally, having a ready investor gives farmers confidence that their investment and ongoing service costs will be offset by a guaranteed market. In this case, the establishment of a Unilever factory provided confidence to the local tea-growing community that NOSC's commitments would be honoured. This was further enforced by quality premiums paid by Unilever during the first season of operation.

Key challenges

In Njombe, competing land use demands – for forestry, tourism, tea, avocado, mining and subsistence agriculture – imply that land use planning will be vital in securing land for future tea cultivation. The approach taken in block farm registration provides a template for what can be done to secure farmers' rights to land and improve their access to finance.

The practice of side-selling of low-quality green leaf continues to pose a challenge to the system NOSC and Unilever are introducing in Njombe. Tea rejected by NOSC is still finding its way to factories in nearby markets despite this practice being illegal under current tea industry regulations. A lack of effective oversight has allowed a secondary market to be sustained that undermines the government's goal of achieving high levels of quality across the entire value chain.

Although it does not seek a commercial return, NOSC must be commercially viable to ensure sustainable provision of farmer services in the future. As such, NOSC is a registered company limited by shares and bound by the Tanzania Companies Act and related tax policies meaning it is bound to the same rules as any commercial operation.

Tanzanian tax legislation requires a company to pay an alternate tax of 0.5% of its annual turnover if it declares zero profits after the third year of operation. Given the greenfield nature of the NOSC development, which requires gradual recovery of farmer debt once tea comes into bearing, it will be at least 17 years before NOSC breaks even. The imposition of an alternate tax on loss-making businesses, regardless of the business model and mandate, undermines the operation.

iv) An operational partner to de-risk the smallholder investments and lead operational execution

The operational partner will have to ensure professionalised smallholder services and logistics are delivered efficiently while also guaranteeing to meet the off-taker's expectations in regards to timeliness, quality and volume.

This model must be lean to be commercially-viable. Instead of introducing sophisticated solutions which are unlikely to be sustainable, the model should focus on what is achievable ensuring it can be driven by the communities in the future.

NOSC is undoubtedly a challenging model with a number of complexities and tight margins. Competent, industry-leading staff with a range of competencies are essential in the early stages to get the project in motion. Although this is costly, the investment is vital to the overall success of NOSC.

Aside from these regulatory constraints, other challenges have included limited availability of suitable labour, long dry periods given Njombe's unimodal rain pattern, and relatively low throughput for the Unilever factory during the early phases of the project due to insufficient quantities of green leaf.

Chai partners and NOSC trialled mechanised harvesting, as well as providing workforce incentives and training programmes to overcome the labour challenge. The Chai initiative is also supporting a pilot block irrigation scheme to explore a feasible solution for smallholder tea irrigation which can be scaled up and replicated to further improve productivity. Finally, in the initial years, Unilever diverted green leaf from NOSC to its Mufindi factory to overcome low throughput challenges at the Kabambe factory in Njombe.

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Conclusion

A large-scale tea greenfield development that is majority smallholder-supplied presents significant risk for both producer and off-taker. However, by providing agronomic extension, quality inputs, patient capital, block management, and production logistics support, NOSC lowers the barrier to entry for smallholder farmers. By managing all aspects of the smallholder experience, NOSC ensures Unilever a guaranteed supply of certified green leaf at the quantity and quality required, while freeing the off-taker from challenges such as supplier credit and farmer politics.

It is through this portfolio of support that the vicious cycle in tea may be eventually broken.

Acknowledgements:

The base material for this case study was developed by Kato Kimbugwe (Dynamic Analysis Ltd) on behalf of The Wood Foundation Africa, Gatsby Africa, and the UK Department for International Development who have further developed this paper internally.



Prepared January 2020

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