

Edmund Barrow

300,000 Hectares Restored in Shinyanga, Tanzania — but what did it really take to achieve this restoration?

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Case Study

300,000 Hectares Restored in Shinyanga, Tanzania — but what did it really take to achieve this restoration?

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Abstract *This paper presents ecosystem (Miombo and Acacia woodland) restoration that has taken place in Shinyanga, Tanzania since 1985. Prior to 1985, the region had been degraded of its Acacia and Miombo woodlands (as part of tsetse fly eradication and cash crop based agricultural expansion). As a result, these two ecosystems nearly collapsed. By 2004, more than 300,000 ha of woodland had been restored across the 833 villages of the region with an economic value of US\$14 per person per month. Nearly every family had their own restored patch of woodland, while groups and villages had much larger areas of restored woodlands. While the details of this large scale ecosystem restoration are reasonably well known, the underlying reasons for the success of the restoration are less well known. They go way beyond the technicalities of ecosystem restoration. The case study explores how issues of personalities, enabling policy, decentralized and participatory governance, gender, traditional knowledge and institutions, contribute to woodland restoration (where all scales count — from small family forests to larger village forests). Both the more technical aspects of ecosystem restoration and all the socio-political aspects were central to this success. However even these issues are part of ongoing processes of negotiating and re-negotiating local level governance and management arrangements. Overall the combination of the ecosystem restoration and governance arrangement resulted in more resilient communities, land use and ecosystems.*

Keywords: Forest landscape restoration, Tanzania, traditional knowledge & institutions, policy, multiple benefits, governance, champions, elite capture, livelihood and conservation benefits.

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Box 1. Facts and Figures: Shinyanga Ecosystem Restoration

***Location:** Shinyanga region is in north Tanzania, and south of Lake Victoria; the region has an area of approximately 50,000 sq.km.

***Ecosystems:** Heavily modified Miombo and Acacia woodland ecosystems (mostly converted to other forms of use).

***Size of Community:** Approximately 833 villages with a population of 2.25 million people.

***Restored Area:** Between 1986 & 2004 approx. 300,000 Ha (& probably considerably more by 2014) – most farmers had their own restored patches together with restored village forests.

***Budget (estimate over 25 years):** Approx. US\$ 1.9 million, or approx. \$6.4 per restored hectare (figures based on estimates of investment).

***Institutional and Technical Partners:** Government of Tanzania (Ministry of Natural Resources and Tourism), Government of Norway, Shinyanga Regional, District and Village Governments, variety of NGO’s, ICRAF, IUCN.

***Main Objectives and Benefits:** Restore goods and services of Miombo and Acacia woodlands in the region; support equitable community and village ownership and management of woodlands. Restoration contributes \$14 per person per month across the whole region (see Table 1).

1. BACKGROUND

Shinyanga region, in north Tanzania (and south of Lake Victoria), is one of the country’s poorer regions, has over 2.25 million people with an average growth rate of 2.8% p.a. (1990s), and covers 50,000 square kilometres with a population density of 42 people per square kilometre. The high population density, combined with the people’s agro-pastoral land use depending on livestock, subsistence, and cash cropping, exacerbated already serious problems of land clearing both prior to, and after 1986 (Barrow *et al.*, 1988; Kilihamu, 1994; Maro, 1995; Mlinge, 2005; Otsyina *et al.*, 1993). The region has an average annual rainfall of 600-800 mm, which is erratic and poorly distributed. The natural vegetation in Shinyanga historically consisted of extensive Miombo and Acacia woodlands (Burt, 1942; Malcolm, 1953).

Shinyanga by 1985 represented an ecosystem in transition, and was called the “Desert of Tanzania” by President Julius Nyerere (Ghazi *et al.*, 2005). Woodlands were cleared to eradicate tsetse fly, create land and space for agriculture and cash cropping, and cater for the needs of a growing population. As a result the system was close to collapse, and ecosystem conversion came at a cost. The goods and services that trees and woodlands provided were lost. Fuelwood took between 2-4 hours to collect. The end of dry season forage so badly needed by oxen was no longer readily available, thereby compromising land cultivation. Wild fruit and medicinal plants were difficult to find. In short, all those things vital for the livelihoods of the Sukuma people were disappearing.

2. THE “WHAT” — 300,000 PLUS HECTARES RESTORED

In response, in 1986, the Government of Tanzania started the Shinyanga Soil Conservation Programme, or HASHI (Swahili: *Hifadhi Ardhi Shinyanga*) (Barrow *et al.*, 1988). This helped establish the basis for restoration and enhancing the resilience of the overall system. Resilience refers to the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure and feedbacks, and therefore identity, that is, the capacity to change in order to maintain the same identity (Folke *et al.*, 2010). The Government of Tanzania was the major donor, with additional funding from the Government of Norway. The key vehicle for restoration was “*Ngitili*” or “enclosures” or “fodder reserves” in the Sukuma language (Malcolm, 1953).

During a detailed survey (late 1990s) of a sample of 172 villages, there were 18,607 *Ngitili* (group or village, household or individual) covering an area of about 78,122 ha (Maro, 1995). The average size of group or village *Ngitili* was 164 ha, while the average size of the individual *Ngitili* was 2.3 ha. Ninety per cent of the people in the 833 villages of Shinyanga had their own *Ngitili*. By 2004, approximately 300,000 ha of *Ngitili* had been restored (Table 1). This resulted in a mosaic of woodlands, savannahs and agricultural land without tsetse. The HASHI

experience went way beyond the dreams of many of the early proponents. This was acknowledged at the Johannesburg World Summit on Sustainable Development (2002), where the HASHI programme was selected as one of the Equator Initiative Award winners.

3. HOW AND WHY DID ALL THIS HAPPEN?

While there are important technical aspects to forest landscape restoration (FLR), the reality is that FLR is more of a social construct, and social issues need to be integrated and respected to ensure success in the short and longer term. FLR is an approach to managing the dynamic and often complex interactions between people, natural resources and land uses that comprise a landscape (Maginnis *et al.*, 2007). I briefly examine a number of these social issues that underpinned the success of the restoration in Shinyanga.

3.1 CHANGES IN POLITICS: UJAMAA

The Tanzania political process of “Villagization” (or “*Ujamaa*”) aimed to transform rural society and create rural economic and social communities where people would live together for the good of all, instead of living on scattered homestead plots. Land was farmed by cooperative groups rather than individually. Nyerere’s philosophy of *Ujamaa* was rooted in traditional African values and had, as its core, the emphasis on family and communalism of traditional African societies (Ibhawoh & Dibua, 2003). Nyerere (1962) noted:

“...we must reject the capitalist methods which go with it. One of these is the individual ownership of land. To us in Africa, land was always recognised as belonging to the

community. Each individual within our society had a right to the use of land.... But the African’s right to land was simply the right to use it” (p.4).

The failure of *Ujamaa* was predicated on three main factors: a. failure to gain the necessary ideological acceptance amongst villagers; b. use of coercion militated against the effective operation of *Ujamaa*; and c. efforts to build *Ujamaa* villages were greatly constrained by bureaucrats who held out government aid as incentives to peasants to move into villages. Nevertheless, the *Ujamaa* villages were seen as important units for the provision of social services to the people, and was also a development strategy, based on a self-reliance (Ibhawoh & Dibua, 2003).

Since the 1960s, *Ujamaa* did much to undermine existing land use and further exacerbate the clearance of woodlands. Under *Ujamaa*, land was nationalized and people lost rights to tree and forest products, thus removing incentives to conserve them. It serves as an example of how even well-intentioned policies can have serious negative results, as villagization no longer encouraged the management of woodlands and *Ngitili*. Indeed many *Ngitili* were destroyed during this period as the process of villagization undermined traditional institutions and practices (Monela *et al.*, 2005).

Early attempts at tree planting largely failed, as they lacked local ownership and were top-down in implementation. By 1987, this started to change, as policies that encouraged forest degradation were replaced by supportive ones, and transformed pressures to degrade the environment into incentives to restore it. Access to, and control over resources increased the willingness of individuals and groups to restore

Table 1: Some outcomes from the *Ngitili* study. In all cases, \$ refers to US dollars.

Issue	Outcome
Economic value of restored <i>Ngitili</i> .	\$14 per month per person (c.f. national average rural consumption is \$8.50 per month per person)
Costs of wildlife damage due to restoration.	Approximately \$65 per family per year
Average value of 16 natural resource products used per annum.	Per household \$1,200 p.a. Per village \$700,000 p.a. Per district \$89,620,000 p.a.
Species of tree, shrub and climbers found.	152
Other flora found (dry season only).	Up to 30 different families of grass, and herbs
Bird and mammal species recorded (dry season only).	145 bird and 13 mammal species
Reduction in time to collect certain natural resources.	Fuelwood 2 to 6 hours Pole 1 to 5 hours Thatch 1 to 6 hours Water 1 to 2 hours Fodder 3 to 6 hours
Percentages of households using <i>Ngitili</i> products for various reasons in seven districts (average, and whole range).	Education 36% (10--61%) Diversify nutrition 22% (7-55%) Fodder and forage 21% (10-37%) Medicinals (over 30 spp) 14% (5-36%) Fuelwood 61% (54-63%)
Estimates of carbon sequestration (but villages would not be able to trap all the value, and this is averaged over 25 years).	Total carbon sequestered 23.21 million tonnes Equivalent in CO2 42.6 million tonnes Total value of sequestration \$213 million Average value (25 years) \$10,227 per village per year Average value (25 years) \$3.8 per person per year

Sources: (Ghazi *et al.*, 2005; Monela *et al.*, 2005; Otsyina *et al.*, 2008)

and manage them sustainably. This policy change was one of the keys to unleashing the restoration that subsequently happened. While tenure changes were a fundamental building block, on their own such changes would not have been sufficient.

3.2 POLICY CHANGE: VILLAGE AND FORESTS

Since HASHI started, there has been an increasingly enabling policy and legal framework for natural resource management in Tanzania, including those relating to forestry, land tenure and local government reform. This included linking land tenure with forest policy reform, which created the enabling environment for local (farmer, village, group) security of rights and responsibilities to invest for the longer term (Alden Wily & Mbaya, 2001). The HASHI programme was well grounded in government policies, but more than that, official government approaches started to respect and integrate the importance of local knowledge and local institutions. In the early days of participatory processes including the use of Participatory Rural Appraisal (PRA), HASHI was an early adopter — in a period where “top-down” and expert driven development was still more the norm (Chambers, 1983). The increased local interest in natural resource management, for improving *Ngitili*s was also supported by the decision to take a longterm (nearly 25 years) approach and investment by the Governments of Tanzania and Norway.

3.3 LOCAL NEED: RECOGNIZED LOSS OF TREE PRODUCTS

By 1986 the people of Shinyanga had started to understand the impacts of the woodland clearance of the previous decades. This included losses of important products (food sources for livestock, tree products for household use, medicinals), increased levels of efforts to collect key household needs (fuelwood, medicinals, water). These pressures were felt particularly by women. Local need for the products of *Ngitili* became increasingly important and helped drive local ownership of what needed to be done. This in turn enhanced the adaptive capacities of the Sukuma people and their institutions, and the importance of restoring diverse ecosystems and their services.

The Sukuma agro-pastoralists (and their customary institutions) are the main stakeholders, together with village, district, regional and national government officials, and Non-Governmental Organizations and community groups. The private sector was not much involved — though many of the products from restored *Ngitili* were marketed through the private sector at local and regional levels. But there was a significant change as the private sector (at the local level) engaged with the production of tree seedlings (Box 2).

Box 2.

In 1986, there was one Government tree nursery in Shinyanga region producing approximately one million mainly exotic tree seedlings per annum. Many of these seedlings were unwanted and unplanted at the village level. By 2004 there were over 1,500 tree nurseries spread all over the region — as there was demand for seedlings, mostly indigenous, and a willingness to pay. Local entrepreneurs at the village and district levels had their own nurseries and were selling seedlings. Meanwhile the government nursery produced about 10,000 seedlings mainly for research.

3.4 MULTIPLE BENEFIT FLOWS (PEOPLE, GENDER, LIVESTOCK, EDUCATION, HEALTH)

Table 1 demonstrates the multiplicity of benefits from restored *Ngitili*, while Box 3 reflects local comments about what the restoration meant to them. Other Sukuma agro-pastoralists pointed out that trees and catchment conservation improved water quality. Restored woodlands provided fodder for oxen at the critical end of dry season times. Revenues from the sale of tree products, such as honey and poles, helped pay for children’s schooling. The multiplicity of tree goods (fuel, building timber, fruits, gum, medicines, fodder) and services (water catchment, erosion reduction, cultural) spread the risk of crop failure and enhanced resilience. This in turn helped diversify the local economy, added variety to the diet (and improved nutrition), provided for contingency needs (in the event that, for example, one income stream should fail), provided cash needs (education, home improvement), and enabled local people to re-enter the local markets to trade in tree products (medicinals, honey, fruits for example).

Box 3.

“Trees gave birth to livestock,” says one villager, referring to the fact that the sale of tree products allowed him to buy livestock. *“I now only spend twenty minutes collecting fuelwood. In the past I spent between two to four hours collecting fuel”* says a Sukuma lady as she now uses fuelwood harvested from the family *Ngitili*. In a number of villages, the sale of *Ngitili* products *“built our teachers house”*, and *“financed my two sons’ University Education”*.

There were clear benefits to women (Table 1), who use many of these products, as the time taken to collect fuelwood, fruits and wild foods was dramatically reduced, thereby enabling women to focus more quality time on the home and their children. While gender inequalities may often be pervasive,



and even ‘gender-neutral’ programs may deepen inequalities (Bandiaky, 2007), the HASHI programme did produce important benefits for women. Gender-responsive forestry policies need to consider a wide range of issues, including ownership, usufruct rights, access to forest-generated income, participation in decision-making, and traditional knowledge (Martin, 2004). It would seem that the involvement of women and being able to address gender related issues in HASHI paid dividends — as it is very clear (Table 1) that women gained large benefits from the restoration.

3.5 LOCAL KNOWLEDGE

HASHI relied on the rich local knowledge of the Sukuma people about their natural resources and ways of managing them. *Ngitili* were traditionally used for conservation and restoration of rangelands, and governed under customary law (Barrow & Mlenge, 2003; Malcolm, 1953). The traditional knowledge and institutions for managing their natural resources combined with supportive village governments, was key to creating the right management framework, and building on such local knowledge — not replacing it. Post *Ujamaa*, the traditional knowledge about the importance of trees and reserved grazing areas was still known, and there were still residual miombo and acacia trees as a basis for restoration (Ghazi *et al.*, 2005; Monela *et al.*, 2005).

HASHI recognized the importance of *Ngitili*, and the traditional knowledge as the basis for the restoration. Unlike many programmes of the time, the empowering approach of HASHI in promoting *Ngitili* as the vehicle for restoration was critical as this increased local people’s ownership over, and capacity to manage their own natural resources (Kaale *et al.*, 2002). It enhanced the adaptive capacities of the communities in Shinyanga (institutions, respect of knowledge, local ownership). In order to protect and restore those goods and services, participatory planning including women’s groups, youth, village government, and individual farmers, was essential to try and ensure equitable forest management and to try to avoid elite capture.

3.6 RESPECT FOR LOCAL INSTITUTIONS

The strength, robustness, and legitimacy of local institutions for forest management are key to the success of decentralization. Local institutions can provide efficient monitoring and sanctioning (Bromley *et al.*, 1992; Ostrom, 1990). However, the establishment or strengthening of community institutions encounters challenges such as:

- defining boundaries—which can lead to a resurgence of otherwise dormant conflicts;
- gaining official recognition and relevant powers—which can determine their relative importance;
- introducing responsive and accountable local government systems—which can conflict with the recognition of traditional authorities;
- recognizing heterogeneity—which can raise intra-village or local power struggles; and

- creating equitable gender representation—where equal representation does not necessarily result in equal participation in decision-making.

By 1986, it was clear that nearly all the aspects of resilience had been lost, including the institutions of management (*Ngitili*, local guards or *Sungusungu*, and the local management institution of *Dagashida*). But knowledge of these important institutions had not been lost. The HASHI programme recognized, and legitimated the importance of the traditional practices (knowledge, institutions) of managing forests with *Ngitili*, and used the traditional knowledge as the basis for the restoration. It is clear that the social and ecological memory is important, as the social memory and the genetic repository of the Miombo and Acacia woodlands was an important additional factor.

The success of the restoration (ecosystem outcome) was a result of local people restoring ecosystem functionality as a livelihood strategy. Local environmental knowledge was important. The reinvigoration of traditional institutional arrangements (*Ngitili*, *Dagashida* and *Sungusungu*) was essential for demonstrating that adaptive capacities, though weakened, had not been lost (Mlenge, 2005). One major contribution of the HASHI programme was allowing traditional institutions to function, which worked by removing constraints (Barrow & Mlenge, 2008).

3.7 ROLE OF PERSONALITIES AND CHAMPIONS

The HASHI staff worked closely with both district government staff and village government (Ghazi *et al.*, 2005). Early on, though, more traditional top down approaches were used. In the early stages of restoration, HASHI provided hundreds of thousands of mostly exotic seedlings, from one central tree nursery. Few of these were planted. The villagers told HASHI experts, “we want to plant our trees, not yours” (pers. comm., W. Mlenge, 1987).

The HASHI programme leader made a very important shift in focus: rather than telling what villagers should do, he started to understand and respect their detailed local knowledge, ownership rights, and customary institutions. At a time of generally “top-down development”, such empowering and participatory approaches, though well justified, were fraught with risk. The fact that these now seemingly simple risks were taken by the HASHI project leader and his staff is testament to the importance they attributed for having such approaches. These relatively simple decisions demonstrate the importance champions and personalities can play, and helped to lay the foundation for overall success. At a time when participatory approaches were in their infancy, most decision-making was technical and expert-driven. The importance of the right personalities at the right time was another critical success factor, albeit one that cannot be planned for.

3.8 IMPORTANT CONSERVATION GAINS CAN ALSO BE ACHIEVED

At a time when conservation is increasingly being asked to justify itself in the context of livelihood security, poverty reduction and the Millennium Development Goals (and now the Sustainable Development Goals), the HASHI experience offers refreshing and detailed insights into the reasons for considering biodiversity conservation as a key component of livelihood security and poverty reduction. Restored natural trees and woodlands are important livelihood and economic assets. But in achieving significant livelihood outcomes, it is clear that large areas of biodiversity were restored in the context of underlying livelihood objectives (Table 1). It demonstrates that natural resource assets are more important in terms of livelihood security and economic benefits than is generally assumed. There is a clear message here for government investment in Poverty Reduction Strategy implementation, *viz* that the environmental goods and services have to be more clearly taken into account and invested in at the local, district and national levels. Further, and though not part of the original objectives, *Ngitili* also made a significant contribution to carbon sequestration (Table 1) as well as being important for risk management and resilience enhancement.

3.9 BUT GAINS CAN BE FRAGILE: ELITE CAPTURE

Yet within this success there are dangers that need to be acknowledged, understood and, where possible, mitigated. Elite capture, where resources designated for the benefit of the larger population are usurped by more powerful individuals — be it economic, political, educational, ethnic, or otherwise (Dutta, 2009) — is one such change. There are examples of where the powerful and rich try to usurp the process for their own benefit, and consolidate and further strengthen their own rights at the expense of the less powerful. This can create landlessness and inequity, or differential benefit accrual and wealth capture, as men may benefit more than women, and those with large land holdings can benefit disproportionately to those with smaller holdings (Shepherd, 2008). This is another kind of rigidity trap known as ‘success to the successful’ (Meadows, 2008), where from a development perspective, the villages and peoples of Shinyanga need to know how they can address such power shifts, for example by ensuring village government is representative and downwardly accountable to the villagers (Ribot, 2004). This implies the need for careful monitoring of unintended consequences, the importance of checks and balances, and the need for a self-critical approach.

Cross-scale interactions by powerful stakeholders have the potential to undermine trust in resource management arrangements (Adger *et al.*, 2006). If government regulators, for example, mobilize information and resources to reinforce their authority, this may disempower other stakeholders such as resource users. To counter this at the local level, user groups need to create and have their own social and political capital.

Even before the restoration started, social structures were not

equitable, and better-off households were able to capture a bigger slice of the restoration benefits compared to the poorer (with little or no land) or weaker (women). These differences were recognized, and efforts were made to improve equity, where, for example *Ngitili* were used as one of the strategies through which some communities indirectly cushion the vulnerability of households classified as poor, *e.g.* the elderly, widows, and households with no assets (Monela *et al.*, 2005).

Successful processes such as *Ngitili* cannot be left to take care of themselves. Folke *et al.* (2009: 105, Figure 5.1) summarize the importance of learning and feedback loops to help pick up such issues. Table 2 articulates these learning and feedback loops in the case of Shinyanga. If balance and equity are to be achieved, they need to be constantly re-negotiated so that the poorer and less powerful can also improve their livelihoods.

Shepherd (2008) stated that “poor women explained to us that wealthy men were rapidly acquiring land for their private *Ngitili* forests (for grazing their cattle) while too little was being set aside for communal *Ngitili* for the needs of poorer users” (p.3). Putting in place participatory monitoring (to assure that some of those danger signs are picked up and addressed early) and evaluation (so that external perspectives can help point out potential problem areas together with the means to address them) are important in the longer term and beyond the project cycle. This demonstrates the importance of continued interaction, and ensuring that there are mechanisms to ensure equity both within the family (gender), and within the village (to reduce elite capture).

Table 2: Learning and Feedback Loops in Shinyanga: a Continuous Process

Over the nearly 30 years of the HASHI programme, learning has been a central theme at village, government and NGO levels. Much of the learning originated in the recognition of the rich local knowledge and institutional base of the Sukuma people. From the first learning that the people wanted to plant/restore “their” trees as opposed to those of the Government, this fostered a culture of “learning from the people, building on what they know” (W. Mlenge, personal communication, 1987).
Loop 1: Government Forest Authority produced many (over one million) mostly exotic trees, which were, in the main, left unplanted by villages and people. Learning: Listen to and respect what trees local people want to plant and restore, build on importance of local institutions (<i>Ngitili</i> , traditional Sukuma guards, or <i>Sungungu</i>).
Loop 2: HASHI support for natural restoration and tree planting using species people wanted, respecting local institutions, and ensuring that such knowledge and institutional systems are respected by government. Learning: Success can sow the seeds for its demise. As the restoration increased in scale and scope, governance becomes an issue as land, hitherto with little value, assumed significant value — resulting in elite capture becoming an important issue to deal with and manage.
Loop 3: Local governance to respect farmers, groups and villages restoration is still an issue, and could be exacerbated by climate change impacts. Restoration now spread beyond the region to neighbouring regions. Learning: Need for improved tenure and secure rights for local people, as well as enhanced legal recourse for such people, combined with the importance of downwardly accountable representative government (especially at district and village levels).

Fair negotiated tenure rights would appear central to fostering equity, and reducing incidences of elite capture.

Here ‘institutional choice’ matters (Ribot *et al.*, 2008). Donors, governments and NGOs may selectively engage elite elements of civil society, and so reinforce existing hierarchies of exclusions. Sometimes customary authorities can compromise or enhance representation. Choices of local partners and the structure of local representation influence the formation and consolidation of accountable and responsive local government.

4. CONCLUSIONS AND KEY LESSONS

Natural resources are important livelihood options to meet cash needs (education, building), for fuel and building timber, and to provide valuable medicinals at the local levels. These are also key qualities for risk management and resilience enhancement in that: a. there is diversity (different products); b. there are governance systems that are self-organizing (village government, traditional institutions); c. the techniques are both sustainable and owned locally (types of restoration, methods used); and d. there is learning and adaptation (different types used and scales of *Ngitili*). The main outcomes were largely a result of building social capital (appropriate local institutions which enhanced cooperation and built adaptive capacities), restoring the natural capital (ecosystem functionality), and developing transforming structures (policies that supported traditional knowledge and local institutions) (Barrow & Mlenge, 2008).

The *Ngitili* case is an example of trends that will become more common: if resources acquire greater value, there will be greater competition for ownership of them. The responses need to include improved tenure and improved legal recourse for the poor, or we shall see increased injustice and impoverishment. Combined with ensuring representation and downwardly accountable local government at all levels (but especially district and village), local rights and authority to act is the way that people can have a chance of adapting successfully in increasingly uncertain times. Community action can lead to significantly improved ecosystems, even if the goal was not ecosystem restoration.

The *Ngitili* example moved forest management from reserved forests to where even the smallest *Ngitili* is recognized as important. The main principles underlying *Ngitili* are simple: common sense, as this relates to forage and tree needs of the Sukuma people, so it is easy to adapt and replicate, which has now happened in at least two neighbouring regions (Mwanza and Tabora). But local ownership is key. Outsiders can play a supportive role (policy, technical, facilitation) in a context that embraces local knowledge and institutions in combination with local government institutions. This enables trade-offs to be made at the local level, supports local level decision-making, and recognizes the role that champions (often modest or even hidden) play at different levels.

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