

Using market incentives to drive regreening: the case of Sahara Sahel Foods

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The logo for ETRN (Ecosystems, Trade, and Resilience in Northern Africa) features a stylized white leaf icon above the lowercase text 'etfrn'.

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“This innovative business provides much-needed income for rural women and men while promoting greening and dryland restoration.”

Introduction

In Niger, since the droughts of the 1970s and 1980s, one of the most successful land restoration strategies has been the regeneration of native trees in farmers’ fields. This has led to a reduction in soil erosion and an improvement in soil fertility (Garvi 2001; Birch et al. 2016). But the focus has often been on the positive effects of trees on annual crop yields, missing the other direct benefits that trees provide. The most valuable of these benefits is the potential contribution of trees as food sources, which is also a historic use that had largely been forgotten. Wild food trees are productive as well as resilient to drought and very nutritious. Readopting their consumption on a large scale could be game-changing to the Sahel: it would catalyse their propagation, bring better food security and nutrition, counter desertification, sequester carbon and sustain biodiversity. The founders of Sahara Sahel Foods felt that in order to bring forth such a revolution, an inclusive food processing industry should be created to serve as a stable outlet for produce harvested by rural communities from their surviving and regenerating trees.

A new life for ancient stigmatized foods

Sahara Sahel Foods was created on the assumption that the more people’s livelihoods depend on the use of well-managed indigenous trees, the more they will care for them and propagate them. Experiences in direct seeding and natural regeneration showed that the main challenges to scaling up greening were not technical but social. People didn’t want more trees than what they saw a use for, and they didn’t see a need for native food trees, because their focus was mainly on producing subsistence cereal crops. This was especially true for men, who were the decision-makers regarding what to grow in the fields, whereas women tended to

show a greater interest in keeping these age-old food plants.

Compounding the problem was a cultural stigmatization that had taken place, fuelled by the cultural influences of arabisation and westernisation. Over the course of the past two centuries, once cherished tree foods had gradually been relegated to famine foods and their consumption was seen as a sign of extreme misery. National policies, international relief agencies and news channels considered the consumption of protein-rich products such as hanza (*Boscia senegalensis*) seeds and jiga (*Maerua crassifolia*) leaves as indicators of famine, while the vitamin-rich fruit of the native jujubes (*Ziziphus* spp.) was being sidelined by experts who promoted grafted Indian varieties instead. Could such foods ever be brought back to importance in a modern world, or were they just nostalgic memories of a fading, primitive past?

Sahara Sahel Foods argued that these foods were not losing out because of their poor flavour or other negative qualities. Scientific studies showed they had impressive nutritional value, and when properly processed they had pleasant tastes. What was getting lost was the knowledge of how to use them properly; in addition, they were penalized by the time, firewood and water needed to prepare them, and by the cultural biases. Industrial, imported foods were taking over Sahelian urban markets because they were clean, accessible and easy to cook. What tree foods needed was the means to be processed by small- or medium-sized industries, coupled with modernization and innovation.

Establishing a novel food industry

Sahara Sahel Foods was established in 2014 in the provincial capital of Zinder, Niger, in a region

that its founders were attached to and where they were highly familiar with both the flora and its people. Drawbacks were the low local purchasing power and the lack of an enterprising culture; there were only three officially recognized industries in spite of Zinder Region being the most populous in the country. The company aimed to serve as a stable outlet for surplus tree produce from smallholders and for making products that people found technically challenging to prepare. Sahara Sahel Foods would source from farmers and nomads, especially women, and process foods that could be attractive to urban West African consumers.

A combination of traditional and novel products was developed from 21 native species, including pseudo-cereals, oils, drinks, nuts, sauce leaves, fruit powders, pastry, spices and jams (Table 1). There are currently about 60 products being

manufactured, with more planned. The products were generally met with scepticism at first, which meant the company could not find retail partners. Instead, it opened its own shop, which became a meeting point for customers and potential partners, with news spreading by word of mouth and social media postings. The company also participated in industry expos; six of its products won awards this way, including the Prime Minister's prize in 2017, 2018 and 2019 at the biggest annual trade show, SAHEL Niger. This testifies to the destigmatization taking place, which accelerated the acceptance of these tree foods. Top-class restaurants introduced them on their menus, and an ice cream producer uses them for one-third of the flavours in its product range. International NGOs also now recognize them, and national academics are studying these plants for their food potential more intensively than before.

Table 1: Wild food plants used by Sahara Sahel Foods

| Species/products | Drinks | Oil | Pseudo-cereal | Fruit powder | Pastries/sweets | Nuts | Edible leaves | Spices | Jam |
|--------------------------------|--------|-----|---------------|--------------|-----------------|------|---------------|--------|-----|
| <i>Adansonia digitata</i> | ✓ | ✓ | | ✓ | | | ✓ | | ✓ |
| <i>Balanites aegyptiaca</i> | ✓ | ✓ | ✓ | | ✓ | ✓ | | | |
| <i>Borassus aethiopum</i> | ✓ | | | | | | | | |
| <i>Boscia senegalensis</i> | ✓ | | ✓ | | ✓ | ✓ | | | |
| <i>Citrullus colocynthis</i> | | ✓ | | | | | | | |
| <i>Cordia nervillii</i> | ✓ | | | | | | | | |
| <i>Diospyros mespiliformis</i> | ✓ | | | | | | | | ✓ |
| <i>Detarium microcarpum</i> | | | | ✓ | | | | | |
| <i>Grewia bicolor</i> | ✓ | | | | | | | | |
| <i>Grewia villosa</i> | ✓ | | | | | | | | |
| <i>Hyphaene thebaica</i> | ✓ | | | ✓ | | | | | |
| <i>Lannea microcarpa</i> | ✓ | ✓ | | | | ✓ | | | |
| <i>Maerua crassifolia</i> | | | | | | | ✓ | | |
| <i>Neocarya macrophylla</i> | | ✓ | | ✓ | | ✓ | | | |
| <i>Parkia biglobosa</i> | | | | ✓ | | | | | |
| <i>Sclerocarya birrea</i> | ✓ | ✓ | | | ✓ | ✓ | ✓ | | ✓ |
| <i>Salvadora persica</i> | | | | | ✓ | | | ✓ | |
| <i>Tamarindus indica</i> | ✓ | | | | | | | | |
| <i>Vitex doniana</i> | ✓ | | | | | | | | |
| <i>Ziziphus mauritiana</i> | ✓ | ✓ | | ✓ | ✓ | ✓ | | | |
| <i>Ziziphus spina-christi</i> | ✓ | ✓ | | ✓ | | ✓ | | | |



Delivery of produce using a local bush taxi. Photo: Sahara Sahel Foods

Early years and lessons learned

Organizing a network of suppliers was slow at first, impeded by minimal financial resources and security issues that greatly limited the possibilities for field visits. In 2012, trustworthy villagers were approached — typically teachers, traditional chiefs, mayors or others of high social standing — who could relay information, help groups to produce shipments, and distribute payments. But this was a complete failure, with hardly any results and vanishing cash advances. Where traders acted as intermediaries, they applied constant pressure on both sides of the value chain to get the lion's share of profits; quality was often sub-standard; there was no opportunity to convey environment-related messages to producers; and some traders would simply cheat people.

In 2013, the company recruited a dedicated community agent, who visited communities on a motorbike, sourcing produce and arranging transport to Zinder using local bush taxis and ox carts. He was first met with disbelief; people did not think there could be any market for such foods outside the village itself. They were also wary of investing efforts in harvesting produce only to see Sahara Sahel Foods fail on its promises. Initially the agent bought whatever small quantities people had in their homes and from

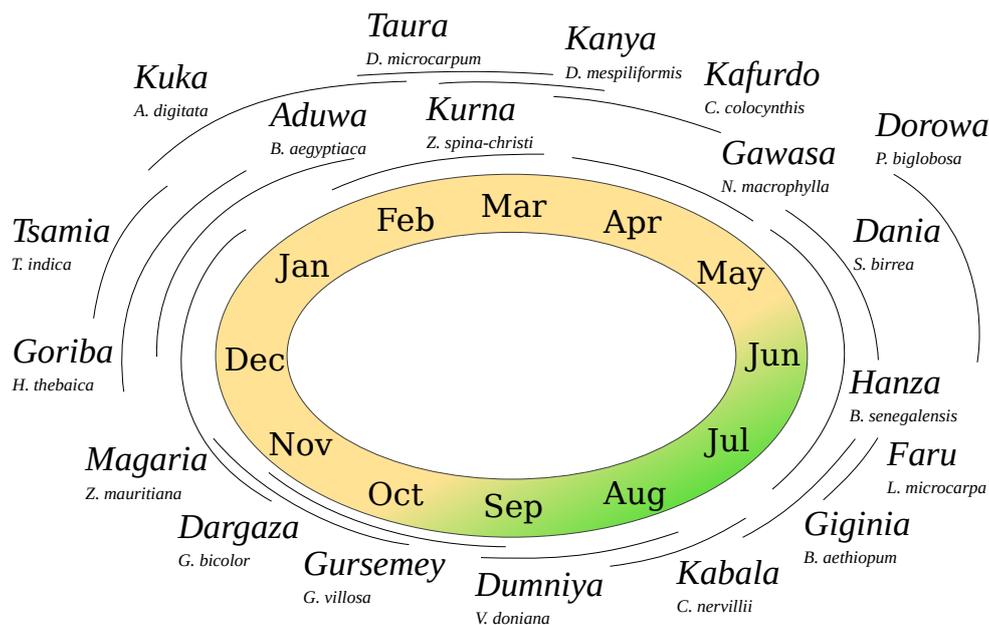
children who collected fruits in exchange for some coins. There were no community structures to build on, but he advised them to pool their produce with neighbours to minimize transport costs to Zinder the following year. The target was 25 tonnes, but only 9 tonnes was obtained after five months of intensive scouting. This, however, was enough to convince communities that the market was real.

In March 2014, well before harvest time, people in the communities started calling the company, asking how soon they could deliver produce. The target was again set at 25 tonnes, but Sahara Sahel Foods became overwhelmed and ended up with 56 tonnes, so quotas had to be imposed on suppliers and restrictions made on new communities that could join.

Winning over smallholder families

Interest from the network of suppliers has remained strong. They currently number about 1,500 people, overwhelmingly women, from 70 villages spread over an area of more than 80,000 km². As the number of species used has expanded, several groups are now active for most of the year, since each species has a different harvest season (Figure 1).

Figure 1: Harvest seasons for the fruits from different tree species (with local names)



Communities now pressure the company to increase their quotas, with suspicion among suppliers that other groups may be obtaining larger quotas. There is a need both 1) to increase the volume sourced and processed, which is currently limited by the capacity to process and to sell; and 2) to create clear rules for quota distribution that all suppliers consider equitable, and that reward those who are diligent and quality-minded and penalize those who try to cheat. It is also necessary to fine-tune the system to promote good environmental practices and reduce exploitation by intermediaries.

Ideally, since environmental regeneration is one of the two fundamental goals of this activity, the company should follow the effects on greening efforts very closely, but this is limited by a lack of dedicated finance. Nonetheless, the company regularly trains producers in greening strategies, direct seeding techniques and potential uses of wild tree foods in cooperation with another enterprise, Rewild.Earth. A survey of three villages in Zinder Region showed that 95% of suppliers are protecting trees and 30% are actively propagating them (Moussa Maman 2019). The latter is remarkable, as local culture traditionally held that planting trees was God's domain and could not be done by people.

Sahara Sahel Foods initially targeted women as suppliers, but interest from men is also growing.

This creates a dilemma, as men are typically the land owners and thus exert more control over the greening of their fields. The tree food business has already empowered many women, who had very few opportunities for economic activities. It was normal for women to be the main harvesters of wild tree produce, a tradition dating back to hunter-gatherer societies. Now, as these crops grow in importance, they are becoming an interesting alternative to cereal crops, which are the natural domain of men in Nigerien society. Enrolling networks of men or encouraging their integration in large numbers into women's groups carries risks of marginalizing women again and rolling back the social progress that has been made. The ideal would be if a team spirit could emerge across the gender barrier, for productive cooperation within families and communities, that would let the women retain their well-deserved respect and position as pioneers of this trade.

In total, the enterprise purchases some 80 tonnes of produce yearly, injecting €18,000 into the rural communities this way and which represents 47% of the company's food sales revenue. Income varies widely from one community to another, however, depending on the species being harvested, their abundance, relative demand at Sahara Sahel Foods, and the industriousness of collectors. Some women earn only a few euros per year, which they use for pressing family needs;



Debittering hanza seeds. Photo: Sahara Sahel Foods

others earn hundreds of euros annually, enough to purchase livestock, land or materials for building or for expanding their homes. In addition, the factory in Zinder has 21 permanent staff (10 men and 11 women), and 300–400 temporary workers (all women) who crack nuts on a seasonal basis.

Overcoming challenges

Company profitability

Achieving profitability was the main difficulty. Since it was established, Sahara Sahel Foods has benefitted from a regular subsidy from a donor with unusual qualities, including an appreciation for groundbreaking ideas, an understanding of the hurdles that bureaucracy can create, flexibility, and crucially, the importance of long-term commitment to achieve lasting change. Since 2015, Sahara Sahel Foods' sales has grown by an average of 43% per year, and in the first quarter of 2020 it generated 46% of its revenue from its own sales. At the current rate of development, the company should become financially independent in four to five years.

Marketing

This could be done better and faster without financial constraints. Interest in adopting these

novel foods is higher in the more cosmopolitan capital city of Niamey, where these rediscovered foods have quickly been considered fashionable, as opposed to the more conservative Zinder, where their reputation changes more slowly. Higher purchasing power in Niamey means that it would be a lucrative market to develop, but logistical difficulties and the lack of distribution companies for local products mean that most efforts are concentrated in the local region. The few specialty stores for local and organic foods sell more of the company's products than the supermarkets do, and setting up more such shops would have a quick impact. Most customers give great importance to health benefits. Scientific studies in this area need to be multiplied, to promote such products with confidence while avoiding "snake oil"-style sales pitches. Finally, connecting to local traditions is key. At first, promotion by outsiders was valuable in breaking stigmas surrounding these foods, but in the long term, connecting the products to their authenticity within Nigerien history has overtaken this in importance. Now, young people feel pride when they hear how these rediscovered foods were part of their ancestors' culture, and older people may still have vivid personal memories of them.



Training in the village Rigal Saude in tree establishment techniques. Photo: Sahara Sahel Foods

National policies

National regulations are not always well suited to the emergence of innovative, small-scale industries, and they need to be reviewed. They reflect to a large extent the heritage of old colonial economies, which focused on exporting raw materials and running large, state-controlled and well-established industries, while importing consumer foods for urban elites. The customs system is bureaucratic and expensive for small quantities, and free trade agreements with neighbouring countries (e.g., with Nigeria) do not always function well. In addition, the tax burden is high and double taxation is common due to cumbersome administrative procedures. Making documents or skilled human resources available to help explain the fine details of regulations, and providing access for start-ups to low-cost expertise to advise how enterprises can function effectively in real life while respecting regulations would also be of value. Providing tax incentives for enterprises whose activities reinforce greening would be helpful as well.

Financing

Experiences from Sahara Sahel Foods show that it is possible to fund such an initiative. Openness among funders is also growing, driven by the

mainstreaming of social enterprises with less polarized views on the worlds of business vs. charity. Added to this are growing concerns around the global climate and biodiversity crises, and the scarcity of economic options that include rural smallholders in drylands. To stimulate similar initiatives, social seed funding will still be needed, since returns on investment may be too slow for many investors, and a strong focus on profit can dilute environmental stewardship and social inclusiveness. To avoid developing donor dependency, seed funding could be channelled as sales subsidies, where values per unit sold would decrease gradually as volumes grow, until the subsidies can be suspended. This has the advantage of stimulating the growth of a business approach without distorting the market. The approach could also be adjusted on a per-species basis to give greater support to novel foods that require longer routes to mass markets or that have greater need of conservation and propagation. This could be accompanied by support for public campaigns to promote the consumption of native tree foods, recognizing their environmental, social and health benefits. Finally, providing financial support to enterprises that develop new products or processing tools and techniques would also be very valuable.

Conclusions

The company has come a long way in showing that a social enterprise can be used to create acceptance for stigmatized foods and build markets that channel resources from urban centres to remote rural areas. It has created opportunities for some of the poorest people on the planet, living in a very harsh environment, and has proved to be a catalyst for greening and biodiversity protection. And it has generated employment for a combination of low- and higher-skilled workers within the processing industry. It also shows that wild plants can be used for making high-quality foods without the need for so-called crop improvement programmes. There are still challenges to be met, the most crucial being to achieve financial sustainability, but the example of Sahara Sahel Foods shows that this novel idea can change the rules of food production in the Sahel.

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Cover photo: Sahara Sahel Foods' presenting various tree foods at a provincial forum for Local Economic Development policies. Photo: Sahara Sahel Foods



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