



## **Sustainable sisal in Tanzania**

The boom in demand for sisal fibre has come at the right time for smallscale farmers in Tanzania.

*credit: Katani Ltd.*

While prolonged dry periods and erratic rains have largely ruined their food crops, the Makuyuni villagers in the Usambara mountains of north-eastern Tanzania are thankfully not starving. A few years ago they planted the tough, drought-resistant sisal (*Agave sisalana*) alongside their maize. So even when their cereal crops stand wilted in the field, they have still been able to buy food with the sale of sisal leaves for processing into fibre.

The current boom in global demand for sisal fibre has come at exactly the right time for these smallholder growers and others like them across Tanzania. Many have seen their livelihoods raised well above subsistence level, earning as much as US\$400 per month from the crop, where previously they could only expect to earn around US\$30 per month from maize, and only if the rains were timely.

### **Sisal - a return to form?**

Sisal is not new to Tanzania, but it is experiencing a revival. Using seeds smuggled from the Yucatan peninsula in Mexico in the late 19<sup>th</sup> century, what was then Tanganyika became the largest grower in the world. By the 1960s, 200,000 tonnes was produced each year. But a long decline triggered by nationalisation of the industry and competition from synthetic fibres meant that, by the end of the 1990s, production was limited to a few large plantations and annual output had slumped to less than ten per cent of heyday figures.

But the world is changing, and sisal fibre is once again in vogue. Traditionally used for making ropes and twines, the fibre is now used to reinforce plastics in car interiors. The construction industry also uses it in roofing materials, piping, and fibreboard and the low grade fibre is also an essential component for strengthening paper pulp in the paper recycling process. Although Brazil is currently the world's largest producer of sisal, Tanzania is a distant but albeit promising second, involving over 2 million smallholders.



***FOTO:** Intercropping drought-tolerant sisal with maize provides an income to farmers even when rains fail.*

*credit: Katani Ltd.*

Working hard to make sisal a profitable crop for small Tanzanian producers, like those in Makuyuni, is Katani Ltd., a private sisal production and processing company located at Hale, north of Dar-es-Salaam. The company buys sisal leaves from farmer cooperatives, which own a 40 per cent stake in local processing plants. Currently, 2,500 farmers are involved in the scheme and Katani not only buys the sisal, but also offers financial and technical assistance to its outgrowers, encouraging intercropping with maize and beans. This means that with good rains, food and fibre can be produced side-by-side. But - if the rains fail - the farmers still earn an income from sisal.

"Many people are now planting sisal as an insurance crop and they are seeing very significant increases in their incomes," explains Katani's managing director Salum Shamte, with infectious enthusiasm. Indeed, he believes Tanzania could once again lead the world in sisal production.

### **More than just fibre**

However, 98 per cent of the sisal plant normally goes to waste and is not used. "Everyone growing sisal has been throwing away most of the biomass," explains Shamte, "but you have to use the *whole* plant." As a result of 15 years of what Shamte describes as "feverish" research, Katani has developed new and innovative uses for the biomass and the company's flagship processing plant at Hale is now using the waste to produce electricity, fuel, fertiliser and animal feed for use by local communities.

At a cost of over US\$2 million, funded from the Common Fund for Commodities (CFC) the United Nations Industrial Development Organization (UNIDO) and the Tanzanian sisal industry, the Hale plant has required substantial investment. But the plant is at the cutting edge of sisal processing and provides an important model for making sisal production more sustainable.

To make fuel, the residual biomass is fed into a digester along with cow dung. The bacteria in the dung feed on the crop residues to produce biogas which is then used to generate electricity, used as fuel for transport, cooking and lighting, or for powering farm machinery. Liquid effluent from the process is high in nitrogen, potassium and calcium and is sold as fertiliser to be used on the next generation of sisal crops. The effluent is also used as a nutritious animal feed, which is proving particularly popular with livestock keepers with limited access to grazing lands.



The Hale biogas plant uses sisal waste to produce electricity.

*credit: Katani Ltd.*

In July 2008, the Hale biogas plant was officially inaugurated by Tanzania's President, Jakaya Kikwete. "You can imagine the elation," enthuses Shamte. "When we started out some people told us we were in dreamland, that we were crazy! So to be able to stand up and tell your president that this is the result of 15 years of hard work was very satisfying. I feel that if I've left anything for this world, this is my contribution."

<http://www.new-ag.info/09/03/focuson/focuson4.php>