



*Drying of the sisal fibre in the sun.*

*Photos: J. Boethling*

## An East African comeback

Until the late sixties, Tanzania was the world's leader in sisal production. But the advent of synthetic fibres brought about a collapse of the industry that it took very long to recover from. Now cultivation and processing of this natural fibre, which is both environmentally friendly and used in a wide variety of areas, is experiencing a new upswing in northern Tanzania.

Damien Ruhinda is a true phenomenon. After leaving the state Tanzania Sisal Authority 25 years ago, he bought an abandoned sisal plantation at the foot of the Usambara Mountains in northern Tanzania at a low price. Weeds were thriving on the 1,750 hectares of land that he had acquired, many of the agaves were old, going to seed and no longer of any use for natural fibre production. Now more than 300 staff are cultivating and processing the thorny, green leaves of *Agave sisalana*, the fibres of which surround the vascular tissue in the pulp and were once referred to as "Africa's blond gold".

"Yes, sisal really is tough," says 80-year-old Ruhinda in his little office at D.D. Ruhinda & Company Limited in Tanga. His mobile is buzzing on his desk; his son has sent him an SMS from South India, informing him about new contacts to Indian carpet manufacturers. "First of all, I must emphasise that sales are not a problem; production is the real challenge," Ruhinda explains. But his mission goes beyond his own business ambitions. He seeks to contribute to sisal fibre regaining its past significance. It once used to be Tanzania's most important export commodity.

### ■ Demand is on the increase

However, in order to achieve this, the entire Tanzanian sisal branch, from plantation growing to the downstream processing levels, still has a long way to go. But the present circumstances

are not that bad. International demand for the natural fibre is on the increase again. In addition to the local market, Ruhinda refers to buyers in the Arab countries, in China and also in Europe, where he is in touch with the Hamburg merchant house Wilhelm G. Clasen. The largest share goes to the Arab countries, where large amounts of the fibre are used as structural material in the plasterboard industry. Further contingents end up in carpet manufacturing world-wide, although demand is also on the increase again in agriculture and shipping after many years of stagnation. For example, shipping organisations in Australia and New Zealand want to have the use of synthetic hawsers banned because they do not rot, which puts a strain on the oceans. With such a ban Down Under, it is hoped that shipping lines will return to hawsers made of sisal, which can be disposed of without harming the environment.

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Tanga is a rather sleepy Indian Ocean port. From here, northern Tanzanian sisal produce is shipped overseas. In colonial days, railway trucks brought the golden fibre to Tanga, but this has long been a thing of the past. Today, it is lorries that carry both the raw fibres and yarn from the plantations and the spinning mills to the port. In addition to Tanzanian actors such as REA Vipingo Plantations Ltd., Chinese and Indian players like Mohammed Enterprises Tanzania Ltd. (MeTL) operate these mills. "Mkonge ni Tanga, na Tanga ni Mkonge," it says in big letters on the signboard still dating back to colonial days on the front of the Tanzania Sisal Board building. Translated from local Kiswahili, this means "Sisal is Tanga and Tanga is Sisal", and it underscores the immense significance this renewable raw material had for the city and the surrounding region in the past.

In the sixties, the sisal trade was still employing 100,000 people, and currently, it is providing 30,000 with an income again. And whereas sisal was still growing on 500,000 hectares of land in 1964, according to Yunus A. Mssika, 173,000 hectares has been planted with sisal, only 43,000 hectares of which is however regularly harvested. "Our efforts are focused on significantly raising this figure over the next few years," adds the young man from the Tanzania Sisal Board, which has a membership of 43 sisal companies. "By 2021, we want to attain a production volume of 210,000 tons again."

Damien Ruhinda puts a damper on being over-optimistic. "The wish is of-



*Farm worker Nuru Waziri harvesting the Agave leaves.*



*The spinning unit at Tancord (1998) Limited. The fibres are subsequently turned into carpets, doormats, cables, ropes, hawsers, nets sacks and yarn.*

ten father to the thought," he says in an old industrial shed that he has rented and in which he intends to set up a new spinning mill in order to raise the company's own value added. "Everywhere in Tanzania, we have a lack of capital," the grand seigneur explains, pointing to the old, used spinning jenny named "Fibre Mackhigh Good Machine, built 1967". He bought it in South Africa only recently. A handful of workers in blue overalls are having a job getting the old spinning jenny

going again. When it is at last switched on for a trial run, it creates a hellish noise in the hall. "It is difficult to get hold of these machines because the decline of the sisal fibre also had an impact on the machine manufacturers", Ruhinda explains. "This means that de facto, there is not a single mechanical engineering innovation in the field of sisal processing, which is why we are forced to resort to tried-and-tested but old technology."

Meanwhile, the machines in the factory sheds of Tancord (1998) Limited on the outskirts of Tanga are spinning incessantly. "We are producing carpets, mats and ropes with a workforce of 250," says general manager Maige Hamisi Maige. "We above all supply the local markets with our products as well as Kenya, Mozambique and South Africa." The company is also keen to export goods overseas. "But this requires innovations to refine the fibres," Maige maintains. "Although it is technically feasible, the conviction that investing in research in this area would be worthwhile still seems to be lacking. The result is that we are stuck at an unchanged level of processing as a leftover from European colonial days." Maige also explains that adding value in sisal cultivation should not be limited to obtaining the fibres. "The fibre accounts for just four per cent of the entire plant. In future, we will have to make better use of the remaining 96 per cent, for example to generate biogas. Extracting agave agents for pharmaceutical industry would also be conceivable. And you can brew liquor with agave juice as well."

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Heading inland for a couple of hours, we get to the Mkumbura Sisal Estate of Damien Ruhinda. Here, many hands lift the freshly harvested sisal leaves from the skip wagons and put them on a conveyor belt that takes them straight to the so-called decortication plant, which is driven electrically via large transmission belts and takes the fibres out. It beats the fleshy, lancet-shaped leaves with iron mallets. As the plants juice runs off through a channel, the golden fibre comes out of the machine on the other side, stacked in rows. Men wearing slippers stand in the frothy plant juice, pick up bundles of fibre and load them onto a wagon. After the fibre bundles have been decorticated, women hang them onto lines at hip-level. The scorching sun then dries and bleaches them in a matter of hours. The fibres are subsequently brushed with a machine that removes dusty plant residues and short fibres, making the fibre as a whole more ductile. Women workers protected from dust by scarves and caps once again comb the short fibres manually so that they can also be made use of. At the end of the process chain, a press turns the fibre material into bales weighing 250 kilograms or 100 kilograms.

## ■ A strictly organised system

“We harvest around five tons a day,” reveals manager Khalidi Mgundo in a plantation area that is set out in squares and symmetrically dissected by transport routes. Manual harvesting is a strictly organised system. The just below two metre tall agaves have a trunk around which 20 leaves are grouped forming a rosette. The rows are planted at intervals of roughly two metres, and plants grow at one metre intervals in the rows. Only the well-practised harvesting workers know which leaves are ripe for cutting. Among them is Nuru Waziri. She holds the knife, which looks like a machete, with a supple hand, skilfully cutting the thorny leaves that are about a metre long. The 35-year-old lays the leaves she has cut on the ground between the rows. In a second step, she picks up 30 leaves and

ties them into a bundle which she then carries out of the rows of plants to the transport route. There, she stacks the bundles into square heaps. One heap of exactly 110 bundles and a volume of one cubic metre will earn her around 5,300 Tanzanian shillings at current wage levels, which corresponds to roughly 2.15 euro. She manages an average of 2.5 heaps a day (in 7.5 hours).

Twenty years after resumption of operation, the sisal stocks of the once state-owned Mkumbura Plantation have recuperated. Even so, many agaves have already passed their yield zenith, which is at around 12 to 15 years. They have to be replaced by new seedlings (so-called bulbils) whose leaves can be cut after a four-year root-taking period for the first time. In order to grow sisal in the long term, manager Khalidi Mgundo has planted around 200 hectares with seedlings. Until the

first harvest, beans and maize are put in the ground between the rows in the Mkumbura Plantation. They yield additional income, and what is more, the harvest leftovers form valuable humus of which there is a lack in many parts of the plantation. “So far, we have been harvesting 1 to 1.5 tons a hectare each year on average,” says Mgundo. “Fortunately, there is no trouble with insect damage, fungus or Korogwe leaf spot disease, and as long as the soil gets a sufficient amount of nutrients and we additionally have enough water, which is not always the case owing to dry phases that have become longer and longer over the last few years, we can even achieve an increase of up to three tons per hectare,” Mgundo maintains, holding high hopes for the future in his Spartan office. He wants to drill wells to permanently secure water supply. Things are on the move again in sisal production to the south of the Usambara Mountains.

### Sisal – some statistics

In the early sixties, global sisal production peaked at almost 2.5 million tons. At the beginning of the seventies, an annual estimated 800,000 tons was still being produced. Then the advent of synthetic fibres such as polypropylene caused the market to collapse. The chief sisal-growing countries, among them Tanzania, cut their production by up to 80 per cent. But after the turn of the millennium, global production slowly rose again, eventually reaching a level of about 230,000 tons, with a slight tendency towards further growth. Setting out from the current price levels and the amounts supplied by the respective producing countries, the world-wide trade value of sisal fibres ought to be at around 300 million euro a year, according to the German hardboard expert Oliver Reimer-Wollenweber.

Currently, Brazil is the leading producing country, turning out roughly 85,000 tons of sisal fibre a year. Further important producing countries include Tanzania, Kenya, China, Madagascar and Mozambique.

### Sisal in Tanzania

In 1893, agricultural engineer Richard Hindorf was commissioned by the then German East Africa Company to bring the first sisal agaves from Mexico's Yucatan via Florida in the USA and Hamburg in Germany to Tanzania. In 1898, the German colonialists harvested the first 600 kilograms, and by the outbreak of the First World War, the amount harvested had grown to more than 11,000 tons. After the war, the British colonialists continued to expand sisal production up to the late fifties. Peak production was attained at 230,000 tons following independence in 1964. Afterwards, it was the triumphant march of synthetic fibres that put severe pressure on the Tanzanian sisal branch, while the expropriation of foreign sisal plantation companies did not bring about the economic developments reckoned with as a result of ujamaa, an African version of socialism declared by the country's then President Julius Nyerere. On the contrary, the productivity of the state-run sisal plantations declined dramatically, and many were shut down. Reprivatisation of the plantations after Tanzania had once and for all abandoned socialism in the early nineties resulted in a tedious and thorny U-turn, with rock bottom reached in 2000. Since then, annual production started to grow again, and by 2015, it had once more attained the level of roughly 40,000 tons.