H.E. Jakaya Mrisho Kikwete inaugurated the First in the World Sisal Biogas Plant on the 16th July 2008 at Hale Sisal Estate. The plant was inaugurated two years after the completion of a study on the use of sisal waste for biogas and bio-fertilizers. The plant currently produces 300 kWe per day whereas the aim is to upscale to 600 kilowatts per day by 2010 and eventually 1 megawatts of power by 2015. Currently, negotiations with TANESCO are underway to examine the possibility of connecting the sisal biogas electricity to the National Grid.

The new Plant is a dream come true for the Sisal Industry in Tanzania which has embarked on a MISION to increase the utilization of the sisal plant from the current 2% to at least 50% by the year 2015. The US$ 2 million project is jointly financed by the Government of the United Republic of Tanzania through Tanzania Sisal Board [TSB], Katani Limited, the Common Fund for Commodities [CFC] and United Nations Industrial Development Organization [UNIDO].

The project is also funding pulp trials for the production of sisal chopped fibre for paper making. Sisal fibre is used as a reinforcing agent so that paper is repeatedly recyclable.

Tanzania Sisal Board, in collaboration with stakeholders, is preparing a sisal industry development plan which envisages the establishment of 1 Mega-watt sisal power plants in all Sisal Estates. Through the Sisal Industry Crop Development Program.

Following the decision by the United Nations to declare 2009 as the International Year of Natural Fibres, Tanzania Sisal Board has been in the forefront preparing for the year. Until now, the National Steering Committee has been formulated under the chairmanship of the Board. Activities which have been earmarked to celebrate the International Year of Natural Fibres include the Grand Opening Ceremony, Essay Writing Competitions, Photographic Competition, Saba Saba and Nane Nane Trade Fairs, and a Regional Conference. Other activities include Mkonge Cup football and netball competitions and Mkonge Day. On the other hand, the sisal industry participated in a symposium which was held in Rome in October 2008 and the Grand Opening Ceremony which was held in Rome on the 22nd January 2009.
Dear readers and partners,

Tanzania Sisal Board has been in existence for nearly 10 years. Throughout this period, TSB has truly become a Sisal Industry brand that knows no borders. It is with great pleasure that we have overseen the improvement of the sisal industry in the wake of global competition from alternative substitutes.

We have managed this by encouraging research and development of new applications and uses of the sisal plant for the production of biogas, bio-fertilizers, pulp, composites, inulins, bioethanol and geotextiles, just to mention a few. The next decade will witness the establishment of modern sisal processing industries in all sisal growing areas.

This will increase employment prospects for men and women, reduce environmental degradation through cleaner processing technologies and improve national and household incomes.

In line with Tanzania Development Vision 2025, the Election Manifesto and the Agricultural Sector Development Program, the Sisal Industry has continued to promote smallholder farming both on existing sisal estates as well as in the Lake Victoria Regions. The scheme guarantees the majority of Tanzanians to improve their incomes through sisal farming.

We thank the Tanzanian Government for its firm commitment over the years to support the development of the sisal subsector. Also a word of thanks to our development partners namely CFC, UNIDO and FAO for their continued support on the development of the Sisal Industry.

Finally we express our appreciation to our joint collaborators, Kenya Sisal Board, for successfully implementing the Project on Product and Market Development for Sisal and Henequen Products which culminated into the construction of the Sisal Biogas Plant, the Meristematic Tissue Culture Laboratory and the Hammer Mill which produces chopped fibre for the paper industry.

O. O. Wilson
Director General
Tanzania Sisal Board

From Editors Desk

Dear Readers,

Tanzania Sisal Board is taking on a new look. With the First Issue of 2009, we will be providing the newsletter on a quarterly basis.

This issue provides the kind of broad coverage that we have tried to promote during our tenure as editors. We will also be providing articles from a wide range of sisal scholars as well as from those working from outside of the discipline of sisal agronomy. We will be running special issues focusing on structural ideas and new concepts. All of these will be committed to a careful analysis and interpretation of data. We will strive to maintain our goal of providing a forum for work that foregrounds agricultural research and development.

We are, therefore, encouraging all our readers to submit articles for publishing in our newsletter. We will select the best articles which provide the best assessment of trends and developments in the sisal industry and the agricultural sector in general.

Looking forward to your support!

Deo D. Ruhinda
Editor

Discover Natural Fibres — Sisal

2009 UNITED NATIONS INTERNATIONAL YEAR OF NATURAL FIBRES
Tanzania Sisal Board Wins Nane Nane Trophy

Tanzania Sisal Board, in collaboration with stakeholders, won a 2nd place trophy for modernizing the Sisal Industry and sisal agronomy in general in line with the ambitions of the Green Revolution. The trophy acknowledges efforts which TSB and partners took towards improving and diversifying the uses of the sisal plant together with the establishment of the environmentally friendly biogas plant.

This comes as a huge boost towards the International Year of Natural Fibres 2009 whereby the sisal industry is expected to showcase a variety of new products for domestic and industrial use.

The Board has begun preparations for Nane Nane competitions which will be held later this year. The objective is to win the 1st place trophy as far as the agricultural sector is concerned.

Introducing the Small Mobile Decorticator

Following the introduction of sisal smallholders, it became natural to miniaturize the traditional large scale decorticator into a small and less expensive machine.

For example, smallholders in the Mwanza, Shinyanga and Mara Regions near Lake Victoria have been growing hedge sisal to demarcate fields and to prevent animals from destroying crops. However, prior to the introduction of the small machine, their sisal has never had a commercial end use. It therefore became attractive to develop a commercial use for the hedge sisal by introducing a production system known as the small mobile decorticator.

Since its official introduction in the Mara Region in 1996 and elsewhere, the equipment has produced over 5000 tons of sisal fibre in Tanzania.

Market News

The ongoing global recession has inevitably influenced the prices of sisal fibre and products which had continued to show a rosy trend until the third quarter of 2008. Currently, the price of sisal fibre stands at around US$ 850—900 per one ton of sisal grade UG.

Nevertheless, the decrease in the prices of sisal fibre and products is expected to be short-lived with prices expected to pick up by the third quarter of 2009.

It is worth to note that the recent effort to diversify the end uses of sisal and the total utilization of the sisal plant will undoubtedly stabilize sisal prices in the long run.

For example, Sisal fibre has recently been used extensively by the paper industry as a reinforcement agent, in the construction industry as a buffing cloth, in the automotive industry as door upholstery and of course the sisal residue is being used as a raw material for bio-energy.

The major market for Tanzania Sisal Fibre is in the Middle East, Europe, South Africa, East and Central Africa Regions.

Although there is a huge potential market for sisal fibre and products, there is a need for a thorough Market Study to analyze consumer demographics.
Sisal Farming for Bio-Energy

The use of the sisal plant has traditionally been for the production of sisal fibre alone. This means that only 2% of the sisal plant has hitherto been extracted as fibre and the rest has been ditched as waste. Thanks to Science and Technology, the sisal residue is now realized as an important source of biogas for electricity and bio-fuel.

Sisal Biogas for Electricity Generation

Biogas from sisal residue is a naturally occurring gas formed as a by-product of the breakdown of organic waste materials in an anaerobic [low oxygen] environment. It is composed primarily of methane [60% - 65% by volume], carbon dioxide [30% - 45%]. Smaller amounts of hydrogen sulphide [50 - 2000 parts per million], saturated water vapor, oxygen and various traces of hydrocarbons. Its lower methane content and therefore lower heating value, compared to natural gas, makes it more generally limited to engine generator sets to produce electricity.

Sisal Biogas for Bio-Methane Production

On the other hand, biogas from the sisal residue can be upgraded or sweetened to become bio-methane or renewable natural gas via a process to remove the bulk of the carbon dioxide, water vapor, hydrogen sulphide and other impurities hence increasing the methane content to above 95%.

The primary purpose of upgrading the biogas to bio-methane is to use the bio-methane as an energy source. This can be piped for domestic use or used as quality vehicle fuel gas.

With Tanzania being an agricultural based country, the bio-methane can be conveniently used as fuel for tractors, lorries and even in ordinary vehicles. This means that the conversion of biogas into methane presents a clear economic as well as environmental benefit in the reduction of greenhouse gases.

Sisal Waste for Bio-Ethanol

Bio-ethanol can be extracted from the sisal residue through fermentation and distillation processes. Fuel alcohol has favorable combustion characteristics and high octane rate performance. It can be blended with petroleum products and be used to run motor vehicles and tractor engines.

Hamisi Mapinda
Chief of Planning & Research
Tanzania Sisal Board

Indicative Prices

As a regulatory authority, Tanzania Sisal Board will be providing indicative prices of premium grade sisal fibre on quarterly basis. The indicative prices reflect FAO’s recommendations regarding prices of sisal fibre and harvest twine.

The FAO indicative prices are based on a detailed analysis of market conditions and prospects for sisal and henequen products. Traditionally, indicative prices were set based on c.i.f. prices however this was changed to f.o.b. prices which provide a clear picture of the market.


B) The indicative price range for sisal baler twine is set at US$  per bale f.o.b. Tanga Port.

Research News

The Institute of Agricultural Research [ARI] Mlingano is a Tanga based centre for research earmarked for sisal development. The institute was established by the then Tanganyika Sisal Farmers Association [TSGA] to conduct research on sisal production as well as research on the alternative uses of sisal.

The centre is also responsible for improving sisal agronomic practices, establishment of demonstration plots, soil fertility diagnostic surveys and the production of Meristematic Tissue Culture plants. The institute championed the production of sisal hybrid 11648 which enabled the country to supersede the World’s record of sisal fibre production at 230,000 tonnes per annum in the 1960s. The variety dominates sisal production to date. Other sisal seed varieties produced by ARI Mlingano include H1300 and Miola 1 commonly used in Kenya.
Performance Review for Year 2008

Sisal Fibre Production

During the year 2008, the sisal industry produced 33,028 tons of sisal fibre compared to 33,327 tons produced in 2007. The target for 2008 was 36,000 tons. This target was not attained because the majority of sisal producers had to scale down production due to the global credit crunch particularly from the third quarter of 2008.

Smallholders

The production of sisal fibre by smallholder farmers in the Lake Victoria Regions has also been affected by the global economic crisis. Nevertheless, the performance of lake sisal production throughout 2008 is commendable. The region produced a total of 7,868 tons of fibre which accounts for 24% of the fibre produced nationwide during the year.

Sisal Products Production

9,802 tons of sisal products were produced in the year 2008 compared to 12,072 tons produced in year 2007. The decrease in the volume of production is attributed to the current credit crunch which, however, is not expected to outlast the third quarter of 2009.

Quality Assurance

Tanzania Sisal Board, through its Quality Assurance Department, continued to supervise the quality of sisal fibre and products throughout the country. The Board visited, inspected and advised farmers on agronomic matters, liming and fertilizing, decortication, brushing and baling facilities. The Board also advocated the use of cover crops on immature sisal to maximize the use of land as well as to suppress weed growth.

Sales of Sisal Fibre

In 2008, the export of sisal fibre stood at 8,992 tons worth US$ 9.75 million compared to 8,191 tons worth US$ 7.78 million sold in 2007. There was an increase of 801 tons which were sold abroad in 2008.

Local sales of sisal fibre amounted to 11,749 tons worth Tshs. 11.14 billion compared to 10,991 tons worth Tshs. 10.13 billion produced in 2007. There was an increase of 758 tons.

Sales of Sisal Products

In 2008, the sisal industry exported 2,449 tons of sisal products worth US$4.40 million compared to 3,558 tons worth US$ 3.43 million which were sold in 2007. With regards to local sales, the industry sold 8,018 tons of sisal products worth 13.4 billion shillings compared to 8,704 tons worth 16.8 billion shillings sold in 2007.

Planting of New Sisal

During the year 2008, sisal farmers planted 3,388 hectares of sisal compared to 4,048 hectares planted in the previous year. The decrease in the planting of new sisal is due to instability of the world market particularly from the third quarter of 2008. Analysts expect investors confidence to bounce back once the global recession comes to an end.
functions of the Board

The functions of Tanzania Sisal Board include:

- To promote the development and improvement of the sisal industry.
- To make regulations for the control of pests and disease.
- To finance and or conduct research directly or through agents in any matter related to the sisal industry.
- To issue export and import license upon such terms and conditions.
- To regulate and control the quality, marketing and export of sisal.
- To collect, refine and disseminate information concerning sisal and promote its use.
- To advise the government on all matters pertaining to the sisal industry.
- To carry out such other functions in relation to the sisal industry as the Minister may direct.

Where is the Origin of the Sisal Plant in Tanzania?

Dr. Richard Hindorf, an agronomist with German East Africa Company introduced sisal into Tanzania (by the then Tanganyika) in 1893. His main interest was to find a crop suitable for dry and hot conditions of the coastal plains of Tanga. Hindorf approached M/s Reasoner Bros. plant dealers in Florida, who sent him 1,000 plants through Hamburg in Germany in 1892 from where he collected them. By the time they reached Hamburg only 200 plants survived. He repacked the surviving plants but only 62 plants were still alive by the time the dispatch arrived in Tanga. Lauthenrborn planted the remaining plants at Kikongwe Division of Mwera Estate, and by 1898, the plants had multiplied to 63,000, which was enough to plant about 40 hectares.

In 1900, Bushiri Estate near Pangani became the first estate to be established solely for sisal growing. From then on sisal spread gradually along the central railway line to Kigoma and along Tanga Line and reached Moshi in 1914. The first major shipment of sisal was 7.5 metric tons to Hamburg. The sisal plant is extremely drought resistant. In a hundred years of commercial growing in Tanzania there has not been a single year where sisal could not be harvested. At the same time sisal thrives well in good rains. Therefore the plant is not susceptible to the vagaries of weather like most other rain fed or irrigated crops.

Q & A

Sisal Nursery Photo taken at Mkumbara Sisal Estate in Tanga.