Muliru Farmers

Cultivating traditional medicinal plants to protect the last Kenyan rainforest

2010 SEED Winner

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The findings, interpretations and conclusions expressed in this publication are those of the authors based on interviews and site visits to the enterprise and do not necessarily reflect the views of SEED or Adelphi Research.

CONTENT

SEED Case Studies Series

Demonstrating Sustainable Development on the Ground Through Locally-driven Eco-entrepreneurship

Social and environmental entrepreneurship, also known as green and inclusive entrepreneurship or eco-entrepreneurship, could play a critical role in achieving a global Green Economy. By embracing the added values of social improvement and wise resource management eco-enterprises that have won a SEED Award are living proof that entrepreneurial partnerships between various stakeholders can create innovative and novel solutions for delivering sustainable development at the grassroots and be economically sustainable.

Over the last ten years, SEED has awarded nearly 180 SEED Awards to eco-enterprises in 37 countries. While the value of eco-entrepreneurship in delivering sustainable development is increasingly recognised and harnessed in the development sphere, there is still very little data available on the triple bottom line impact of these entreprises and their contribution to sustainable development.

The SEED Case Studies are designed to help fill that gap by generating insights for policy and decision-makers on the role of green and inclusive enterprises in achieving sustainable development, and on enabling factors that can help them overcome barriers and reach scale and replicate.

AT A GLANCE

Muliru Farmers establishes sustainably-farmed supplies of medicinal plants and raises awareness about forest management which reduces the pressure on Kenya's last remaining rainforest.

By supporting local farmers in cultivating traditional medicinal plants and processing them into herbal remedies for the local market, Muliru Farmers generates additional income for them.

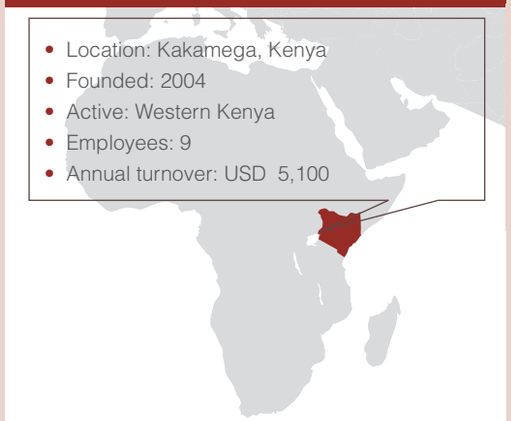
PRODUCTS & SERVICES

Natural remedies from sustainably-farmed indigenous plants

Environmental awareness training on protecting the local rainforest

KEY FACTS

- Location: Kakamega, Kenya
- Founded: 2004
- Active: Western Kenya
- Employees: 9
- Annual turnover: USD 5,100



TRIPLE BOTTOM LINE

Social impacts

- Generates additional income for 360 households impacting approximately 2,500 people
- Works with 3 local schools and offers conservation training

» *Transfers knowledge and experience to other organisations both nationally and internationally*

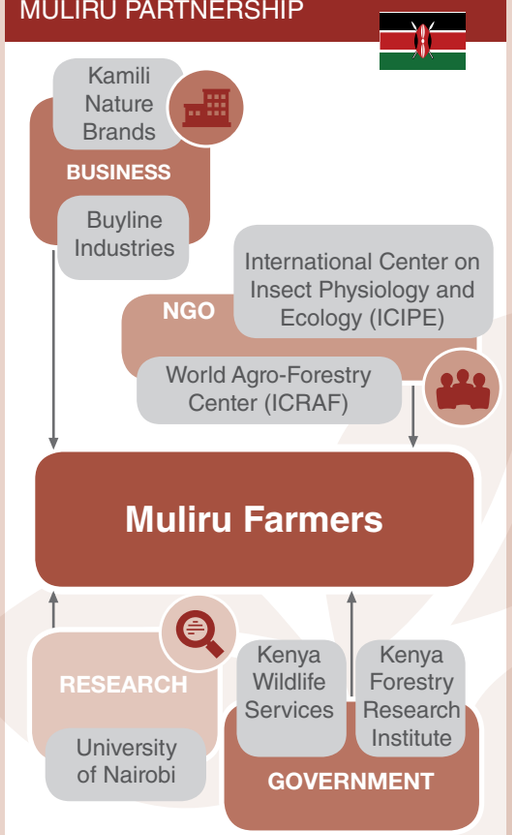
Environmental impacts

- Protects rainforest from logging and unsustainable harvesting by providing alternative income opportunities and sources of firewood
- Increases awareness of biodiversity benefits of the rainforest and the importance of conservation

Economic impacts

- Promotes organic medicinal plant farming as new and sustainable market opportunity for local communities
- Creates sustainable local economic development as beneficiaries are using their additional income to start new micro-businesses

MULIRU PARTNERSHIP



1. Partnering for local solutions

1.1 Local Challenges

Kenya's last rainforest under pressure

While Kenya is often known for its savannahs and its dry interior, the country actually has a variety of different climate zones including a tropical rainforest. The Kakamega Forest is located in Western Kenya, near the Ugandan border. It is the last Kenyan remnant of a massive ancient rainforest that used to stretch from the Congo basin all the way to the Eastern coast,[I] and due to its unique island location in East Africa, it is home to a wide range of endemic species that only occur in this forest. Overall, about 380 plant species including 170 herbs have been recorded there, 400 species of butterflies and 72 species of dragon flies, of which 16 are only found in this particular forest. An international attraction for ornithologists, the forest harbors over 350 species of birds including spectacularly beautiful ones like the Great Blue Turaco, 36 species of snakes and 7 different primates.[II] Despite its protected status, Kakamega forest is severely damaged and degraded due to the pressure on its resources[II]. Rural populations have settled around the forest to use its valuable resources and 90% depend on it for timber, fuelwood, herbal medicines, building materials and food; trees were felled and grassy areas were opened-up for crop production and cattle grazing. Human encroachment now threatens this richly biodiverse ecosystem and various species are endangered as the forest area has reduced by almost 50% in the past 40 years; only 230 sq km still remains[IV].

Poverty in rural Kakamega

The Kakamega region is one of the most dense rural populations in the world, with some estimates are more than 500 people per square km.[V] Kakamega County is also the poorest in Kenya with 49.2% or 809,500 of its people living below the poverty line in 2014.[VI] Poverty and lack of understanding about forest resource conservation and its benefits drives the local communities to exploit resources such as timber, medicinal products, and firewood from the Kakamega Forest in an uncontrollable and wasteful manner.[VII] This activity generates massive environmental pressure on a relatively small and sensitive ecosystem.

Great Blue Turaco: Christopher Mills www.norfolkbirding.com ©

1.2 Creating innovative local solutions

The Community-Based Medicinal Plant Enterprise for Biodiversity Conservation, also known as Muliru Farmers, is an enterprise initiated by the Muliru Farmers Conservation Group in 2000 and formalised in 2004/2005. It was initially a pilot project to supplement the income and secure the livelihoods of people living adjacent to the Kakamega Forest in the village of Virhembe and its surroundings. Its core business is the commercial cultivation of Ocimum Kilimandscharicum or African Blue Basil, the processing of the plant materials into essential oil and subsequent manufacturing of herbal remedies.

Ocimum kilimandscharicum is a wild indigenous medicinal plant, traditionally used for inhalation treatment of colds, flu and cough. The plant is also used for repelling mosquitoes and protecting stored grains. Scientific research has demonstrated a wide range of medically relevant characteristics of its essential oils such as wound healing, insecticidal, antioxidant, antibacterial, and antimicrobial effects and even antimelanomal effects on skin cancer[VIII].

Bringing together traditional knowledge and advanced pharmaceutical expertise and technology, the Applied Bioprospecting Programme and a range of partners of Muliru Farmers Conservation Group developed the Naturub® brand of herbal remedies based on purified extracts of Ocimum kilimandscharicum. Naturub® balm and ointment is registered as a medicine in Kenya and used for alleviating flu, cold, chest congestion, aches and pains, insect bites and muscular pain[IX].

The partnership has convinced members of the local community living adjacent to Kakamega forest to cultivate O. kilimandscharicum, a plant that was formerly only harvested from the wild and seemed a very unusual crop to plant for the farmers. As a high-value commercial crop, the medicinal plant is now an appealing livelihood option for the otherwise economically marginalised local farmers. Once mature, the plant can be harvested tree times a year, it requires low amounts of care and flourishes without any artificial inputs, unlike many other cultivated crops. The enterprise has a tracing system in place to ensure that its raw materials do indeed come from sustainable farming sources and are not harvested in the wild, as financial incentives are still high for local harvesters to gather plants from the forest.

Muliru Farmers sources local farmers' harvest and processes it on a commercial basis for the manufacture of Naturub® products. Extraction of the essential oil was previously done on a small scale basis, mainly at the household level, until the enterprise built a centralised processing facility. Farmers harvest the O. kilimandscharicum leaves and then transport them to this facility where the plant material is weighed and dried. Dried leaves are processed using hydrodistillation equipment to extract the essential oil. The oil is then shipped to a manufacturing plant of Buyline industries where the final Naturub® balms and ointments are produced and packaged, before being sent back to Muliru Farmers' local storage facility.

A small team of 9 employees now works directly for Muliru, filling the roles of supporting cultivation, quality assurance and control, safety, hygiene and enterprise management. Marketing and distribution of the products takes place mainly via pharmacies in Kenya.

From the start, Muliru Farmers was build on a Technology Licensing Agreement relating to biodiversity and stipulating a benefit-sharing system that has been negotiated with the partner institutions. Once profit is generated, 60% of the net profit from sale of Naturub® is retained by the enterprise to finance scale-up as well as to fund further livelihoods projects for the benefit of the farmer communities; 10% is used as a fund for conservation activities around Kakamenga forest, another 10% are reserved as a local community development fund, and 20% is to be used as a fund for research and conservation.

Naturub®, one of Muliru Farmers' prodcut, sold in supermarkets.

Fast facts

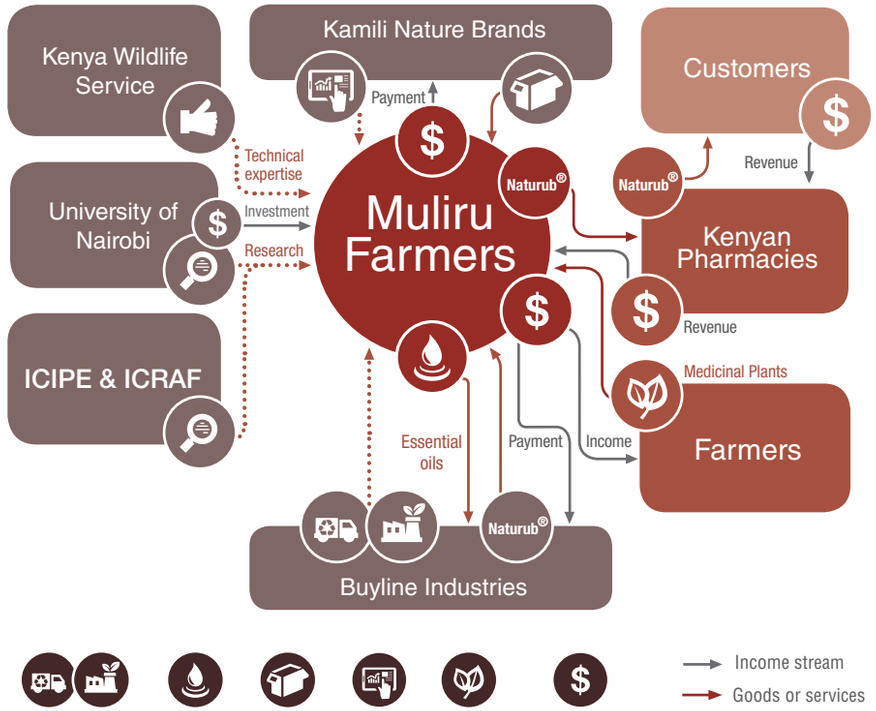
Kakamega Forest has been reduced by 50% in the last 40 years

The Kagamega County is the poorest county in Kenya with 49.2% of the population living below the poverty line

90% of the forest-adjacent community relies on Kagamega Forest for fuelwood and livelihoods

The Kakamega region is one of the most dense rural populations in the world.

Business model



1.3 The power of partnerships

The partnership

The Muliru Farmers evolved out of the Muliru Farmers Conservation Group, a community association which was founded in 1997 with the goal of generating income for local communities while protecting the Kakamega Rainforest. While the association was already growing O. kilimandscharicum for sale, they formed the enterprise as a means to scale-up the project, further develop the marketable products, and tap into a larger part of the Kenyan market. In order to reach its current scale, the community-based enterprise formed partnerships with advanced research institutions, development institutions and the private sector. The Muliru Farmers apply a partnership approach focussed on broad government and NGO support, complemented by selected business partnerships. They formalise all of the partnerships through memoranda of understanding and benefit-sharing agreements, where applicable.

Partnership management: cooperation at eye level

Working with such complementary partners brings together a wide range of skills and expertise and this was critical to bring the Muliru Farmers enterprise to life and grow it to its current level. Yet partnerships are dynamic, and good communication is paramount to create synergies and avoid misunderstandings between partners with a diverse background. Six years ago, Muliru Farmers came to realise this when a partner had submitted a fundraising proposal for the enterprise, and the farmers' group was not made clearly aware of the performance expectations attached to the funding. To address this challenge, the farmers are now directly consulted when proposals are written, in a way that makes sure that communication is sufficiently clear and low education levels of participants are taken into account. Overall, Muliru Farmers have built a strong and resilient partnership structure that has proved stable over time.

International NGO

The International Centre for Insect Physiology and Ecology (ICIPE) is an international non-profit organisation based in Kenya which focuses on creating knowledge, building capacity, developing policy and reducing poverty. ICIPE mainly supports the enterprise with research in the areas of natural product chemistry, product development, and production quality control. It also provided business start-up support, and helps the Muliru Farmers with product certification.

Research Institutes

The **University of Nairobi** acts not only as a research body for product development, but also as an investor. They have an agreement with Muliru Farmers under which they will receive 10% of the enterprise's profit for environmental research once the enterprise becomes financially sustainable. The **World Agro-Forestry Centre (ICRAF)** is another research organisation that promotes the application of best agricultural practices, and specifically promotes best practices in agro-forestry.

State Corporations

Kenya Wildlife Service, a state-owned corporation, helps the enterprise with expertise on forest conservation and management, and supplies trees to the enterprise. The **Kenya Forestry Research Institute (KEFRI)** is another a state corporation or institution? that provides the enterprise with information and technology. For both organisations, partnering with Muliru serves towards reaching their goal of relieving pressure on the forest and conservation. The affiliation with the enterprise has brought them recognition for their efforts.

Business

Muliru Farmers have partnered with two businesses: **Kamili Nature Brands** and **Buyline Industries**. Kamili Nature Brands helped the enterprise design their packaging, and is the contracted supplier for their packaging materials Buyline Industries has helped with manufacturing logistics and sources plant raw materials for natural cosmetics and products from Muliru.

The Partners ...

...

2. Building an inclusive eco-enterprise

In 2004, after four years of developing and piloting the growing, processing and selling of medicine made from O. kilimandscharicum, the Muliru Farmers Conservation Group formalised its project and named it the Community-Based Medicinal Plant Enterprise for Biodiversity Conservation (Muliru Farmers). In 2005, the enterprise built a centralised processing facility and began to produce the purified essential oil used in the preparation of their new products: Naturub® balms and ointments. Over the following years, the enterprise increased their processing capabilities, which in turn demanded a larger supply of the plant. As a result, O. kilimandscharicum cropland increased from 2.5 hectares in 2005 to 25 hectares in 2014. Now, in 2015, the enterprise is benefitting 360 farmers' families and is still growing and advancing along its path towards financial self-sustainability.

2.1 Financial development

In 2000, the Muliru Farmers received USD 45,000 from the GEF Small Grants Programme which was used for developing and piloting the programme. After almost 10 years since the formalisation of the enterprise, in which operations scaled up slowly but steadily, the enterprise is now approaching financial self-sustainability. Like many start-ups, Muliru Farmers has experienced difficulties in obtaining loans in the past due to a lack of collateral. However, they have now been able to secure a loan from the Uwezo Fund of USD 3,400 at a very low interest rate and with attractive repayment terms. Using these funds for futher expansion will help them towards profitability and further improve their track record for additional funding. To improve financial performance and successfully navigate further growth, the enterprise is to invest in building stronger capacity for financial management in the team.

2.2 Employment situation

In 2015, the enterprise reports 9 direct employees including one management position. Two of the positions are full time and 7 part-time, and women account for more than 50% of the team. In terms of wages and salaries, the highest annual full-time salary was reported to be about USD 1,300 and the lowest at USD 650, while part-time workers earn USD 1.3 per 4-hour day; this is in the context of a national average per capita income of USD 1,280 for 2014[X]. The enterprise provides safety training, protective wear and first aid equipment for its workers. Basic training also includes hygiene as well as drying and distillation practices for the medicinal plants. The enterprise focuses on providing livelihoods for the family members of the farmers group and would like to hire more workers once financially able to do so. At this point, the group also relies on volunteers for some activities. In addition to its direct employees, a much larger number of farmers generates income from selling their medicinal plants to the Muliru Farmers group.

Fast Employment Facts

Workers	Avg. Salary per Year	Female Workforce
9	$ 450	56%

Full-time employees	Casual employees
2	7

2.3 Business development

Since Muliru Farmers opened their processing facility, it has processed over 1,100 tonnes of on-farm, community-cultivated O.kilimandscharicum leaves and produced over 1,550kg essential oil. More than 470,000 bottles, tubes and jars of Naturub® products have been sold in both urban and rural areas of Kenya. The products have received wide acceptance in the market and are competitive with major international brands. Currently, over 360 rural households cultivate the plant on smallholder farms and the acreage under O. kilimandscharicum cultivation has increased from 2.5 hectares in 2005 to 25 hectares in 2014.

The enterprise works on the basis of a sub-contracting operational management model which enables it to operate with a small team while including a large number of suppliers in its value chain. To further increase the number of farmers, Muliru Farmers needs to generate higher volumes of demand for the product and scale up production capacity. Hence, the enterprise developed a business plan with a clear strategy to embark on the road to significant scale-up in the long term, but is still in the process of acquiring the necessary funds and building up management skills within the group in order to be able to implement more ambitious targets.

In the short term, sales targets have been met successfully, partly due to a marketing and outreach campaign with the Kenyan supermarket chain called Uchumi, and partly due to marketing training, advertisements, the recruitment of salespeople, and visibility e.g. from winning a SEED Award which helped raise awareness in Kenya. Marketing and outreach still need to be increased to raise more product awareness and shift consumer demand towards green products such as Naturub®.

3. Reaching impact

The enterprise facilitates knowledge transfer to the local community and enables vulnerable rural households to supplement subsistence farming with additional income, while preserving the biodiversity and health of the Kakamega Forest and strengthening the local micro-economy.

3.1 Beneficiaries

Muliru Farmers mainly works to benefit smallholder farmers in the Kakamega Forest region. Medicinal herb farmers are the first link in the value chain and the main beneficiaries. These farmers sell their harvest to the enterprise where the herbs are processed, packaged and marketed by its employees who benefit from stable employment. Lastly, consumers throughout Kenya benefit by having access to a natural medicine that has been shown to help with a large variety of ailments, and sourced through sustainable farming. Additionally, the enterprise, at each point in the value chain, facilitates the work of its partner research institutions who can gather on-the-ground data and knowledge about ecology, community development and traditional medicine.

3.2 Social impact

Social impact is created primarily through the procurement of the medicinal plants from the community. 360 households are supplying plant materials to Muliru Farmers, and with an average rural household size of 5.5 this means that approximately 2,000 community members receive direct benefits from the income generating activities[XI]. The sales price that farmers can achieve for their harvest increased by 300% in comparison to maize cultivation, and the enterprise aims to generate a further 50% increase in farmers' incomes.

Founded as a community-based enterprise, Muliru Farmers are governed by an elected board. It has already been successful in empowering community members, especially women, in decision making by providing them with access to finance and markets, and information and training. As set out in its licensing agreement, the major share of any profit achieved will be directly invested in development initiatives for the community and any additional funds are directed toward environmental conservation activities around Kakamega Forest.

The enterprise also contributes to the community through other projects such as poultry keeping establishment of 4 community libraries. A future plan is to rehabilitate a community water spring and to provide clean, piped water to two schools.

Internationally, Muliru has also made a wider impact as it shared its model and experiences with communities from elsewhere in Kenya, Uganda, Tanzania, South Africa and Nigeria. In 2012, over 830 people had visited the enterprise to learn about the marketing and cultivation techniques that the organisation uses. This, and media coverage, have led other communities to apply the enterprise model, including the East Usambara Farmers Conservation Group based in Maramba, Tanzania, and the Budongo Community Development Organization based in Masindi, Uganda.

3.3 Economic impact

The economic aspect of the Triple Bottom Line includes the internal economic performance (Section 2) as well as economic advancement for the community.

Muliru Farmers has developed and established a new local value chain based on sustainably-farmed indigenous herbs which were formerly collected in the wild. The ownership and management positions in the enterprise are held by the community members themselves. This helps to mitigate outside dependencies and eliminates middlemen who commonly exploit the smallholder farmers through price setting. It also means that the community will continue to be the central beneficiary of the enterprise.

The number of outgrowers that can supply the enterprise at its current scale is limited, yet there are considerable economic spill-overs for the community itself. Besides using the additional income generated for their basic needs, the majority of the 360 outgrower families have used their additional income to start new businesses in the local community[XII]. While this was not originally set as an economic target by the enterprise, it is perhaps the most significant sign of the local economic empowerment created. As Muliru Farmers is considering expanding its product line and additional products will require more and diversified sourcing of crops from the community, this will lead to increased impacts.

3.4 Environmental impact

The enterprise mainly focuses on the preservation of the Kakamega Forest, particularly since this is the last remaining rainforest in Kenya. By introducing a sustainable way of using local natural resources such as O. kilimandscharicum at a commercial scale, Muliru Farmers offers the local community new ways of generating income to replace exploitative practices that are harming the forest. At the same, the enterprise promotes conservation awareness among community members and supports the establishment of alternative sources of timber and firewood, for instance through agro-forestry farming and the creation of small-scale wood plantations. These woodland lots serve as sustainable supplies of timber for household use and sale. In addition, the enterprise has also helped with the establishment of indigenous tree nurseries for the reforestation of the rainforest itself. The Muliru Farmers Conservation Group has planted 5,000 indigenous tree seedlings in Kakamega Forest since 2005. A total of 45,000 tree seedlings have been planted in 112.5 acres of forest cover elsewhere in a reafforestation programme and 30,000 tree seedlings have been provided to the community for agroforestry.

45% of the Virhembe community have participated in conservation-related activities such as developing tree nurseries and establishing four pollinator gardens, and have taken part in training in sustainable farming and agro-forestry, as well as forest conservation. The enterprise builds further local support for its work through activities such as conservation sessions in two nearby primary schools and one secondary school. Overall, local communities are beginning to understand the value of a healthy rainforest and Muliru Farmers is noticing a reduction in the use of the forest resources such as firewood, fodder and timber, and in illegal logging and charcoal-burning. A survey conducted among its supplier farmers showed that 85% have engaged for forest conservation, e.g. reduced their own collecting of firewood, fodder and timber, convinced others not to misuse forest resources, or reported poaching and illegal logging to authorities[XIII].

While the enterprise has built strong community acceptance and understanding of the needs and benefits of forest conservation in some areas however, large parts of the Kakamega population who do not benefit from income opportunities created by Muliru Farmers still struggle to make a living. Therefore, the ongoing goal remains to create alternative sustainable livelihood opportunities for more members of the communities and to continue with awareness raising efforts.

The enterprise itself has little negative environmental impacts as it uses rainwater for irrigation and solar panels for power generation. Cultivation of the plants is done on existing farmland and no forest is destroyed to free the land. Processing and production generate very little waste; most is organic and composted, and left-over input for the medicinal balms such as oils and crystals are directly re-introducedinto the production process.

> ''People no longer go into the forest for logging, charcoal burning and wanton destruction thus the forest is healthier now.'' Local farmer.

3.5 Policy impact

In 2005, the Muliru Farmers submitted their views on legislation for sustainable forest management, the Forest Act[XIV], during public consultation sessions. Some of their recommendations relating to forest management and the optimal structure of a forest association were incorporated into the Act.

The Muliru Farmers also work with a variety of government institutions on a regular basis. Organisations that work on wildlife conservation issues with the enterprise include the Kenya Forest Service, the Kenya Wildlife Service, the University of Nairobi, the Ministry of Agriculture, the Ministry of Environment, Water and Natural Resources (MENWR), and the National Environment Management Authority (NEMA). The Provincial Administration also works with the Muliru Farmers on local security issues, while the Kenya Pharmacy and Poisons Board assists the enterprise with product certification.

4. Charting green and inclusive growth

ACHIEVEMENTS

Combining forest conservation and sustainable livelihoods

By training local farmers to cultivate medicinal herbs sustainably that were previously harvested in the wild, Muliru Farmers provides additional livelihood opportunities to over 2,000 people in farming communities around the threatened Kakamega Rainforest, thus reducing pressure on the forest from illegal logging and harvesting. The enterprise has successfully established a high value-added product line using local raw materials, and has inspired hundreds of visitors and two replication initiatives in Tanzania and Uganda with their model.

CHALLENGES

Slow scale-up limits profitability and impact

The enterprise benefits a growing number of farmers in the forest-adjacent communities of the densely populated Kakamega District, supports alternative timber sources and offers environmental trainings also beyond their supply chain. However, other farmers in the region are still supplementing their income with activities such as illegal logging or charcoal-burning as pressure to sustain their livelihoods remains high. Difficulties in securing business funding such as loans have hindered scale-up into profitable production volumes and as a result the enterprise still remains dependent on grants and cannot spread their activities to as many other communities as they would like. Another challenge in this regard is the low educational level and financial management expertise of the team members which also slows down growth and professionalisation of the enterprise.

SUCCESS FACTORS

Expertise and support from partners

Muliru Farmers has brought together a set of complementary partners from academia, government authorities, and business to master the challenging task of developing a marketable medicinal product based on traditional healing plants. After almost fifteen years since the inception of the idea, the partnerships have grown into deep and longstanding relationships. The business model is based on sustainably cultivated O. kilimandscharicum, one of the treasures of indigenous biodiversity, which presented untapped opportunities for sustainable commercialisation. As financing the business growth has proved difficult, support provided along the way from support schemes such as the Global Environment Facility Small Grants Programme and the SEED Awards were key in developing the enterprise's business capacity and raising their profile nationally and internationally.

FUTURE NEEDS

Funding and capacity building

Despite its simple but solid business model, the enterprise is still struggling to become financially sustainable. To scale up its impact as well as reach profitability, it will need to increase production volume as well as sales. Additional capacity building for the management team will be necessary to achieve this, along with sufficient funding for the necessary investments. Fortunately, an attractive loan on favourable terms is most probably under way for Muliru Farmers to address the most urgent financing needs.

Rainforest River: Peter Prokosch ©

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About SEED

SEED strengthens the capacity of small grassroots enterprises in developing countries to enhance their social, environmental, and economic benefits, builds bridges between entrepreneurs and policy makers and stimulates exchange and partnership building.

SEED was founded by the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP) and IUCN (International Union for Conservation of Nature) at the 2002 World Summit on Sustainable Development in Johannesburg and is hosted by Adelphi Research gGmbH, based in Berlin, Germany.

Adelphi Research (AR) is a leading think-and-do tank for policy analysis and strategy consulting. The institution offers creative solutions and services regarding global environment and development challenges for policy, business, and civil society communities.

About the lead authors

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Helen Marquard – Helen Marquard has been Executive Director of SEED since 2007. Prior to that she was a senior official in the UK government, responsible for various aspects of environment and sustainable development policy at the EU and international level. Helen holds a PhD from Manchester University.

Notes

This case study is mainly based on interviews and site visits to the enterprise in late 2014 / early 2015, as well as internal documents such as the enterprise's business plan. Additional resources are listed below.

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