

Muthi Futhi

Income creation and women's empowerment in rural KwaZulu-Natal through the cultivation of traditional medicinal plants

2013 SEED Winner - South Africa

SEED CASE STUDIES: INSIGHTS INTO ENTREPRENEURIAL SOLUTIONS FOR SUSTAINABLE DEVELOPMENT



Founding Partners







AT A GLANCE

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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.

Muthi Futhi is protecting local biodiversity by cultivating and processing endangered indigenous medicinal plants. The rural community of Dakeni is empowered by owning 50 % of the enterprise and by gaining new employment opportunities.

PRODUCTS & SERVICES



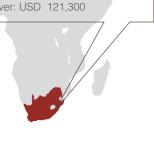
Medicinal plant ingredients for herbal remedies



Organic fruits and vegetables for the community

KEY FACTS

- Location: Cowies Hill, South Africa
- Founded: 2010
- Active: Dakeni, KwaZulu-Natal
- Workers: 33
- Annual turnover: USD 121,300



TRIPLE BOTTOM LINE



Social impacts

- Offers 25 long-term, full-time job opportunities for women
- Teaches sustainable plant cultivation skills to community members
- Improves food security and nutrition by offering organic vegetables to the community at low prices

*

Environmental impacts

- Cultivates 2 endangered varieties of plants and preserves 10 further species at risk
- Uses eco-friendly growing practices including organic farming, and conducts sustainable land management on its 27 hectares
- Advocates organic farming through community activities



Economic impacts

- Empowers a rural community of 300 people through 50% ownership of the enterprise by the community itself
- Increases purchasing power offering paid employment for at least 10% of the community
- Breaks the cycle of poverty for rural harvesters by sourcing compost and sustainably produced plants from them



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1. Partnering for local solutions

1.1 Local Challenges

Rural unemployment in KwaZula-Natal

KwaZulu-Natal is a lush, subtropical province on South Africa's eastern coast, home to the port city of Durban and much of the Zulu population¹. The province is the second most populous in the country with a density of about 112 people per square kilometre^{II}. It faces considerable health and economic challenges, especially in rural areas where predominantly agriculturally-based communities sprawl^{III}.

In the past decade, unemployment levels in KwaZulu-Natal province have grown by an annual average of 26.7% IV. This decline in employment was particularly challenging for the youth for whom unemployment grew by an annual average of 37.2%. It is very difficult to gain an adequate income from agriculture in the province and this fact combined with the lack of local unemployment causes many young men to move to industrial areas to look for work, leaving women alone to look after their households^v. Survival in rural KwaZulu-Natal mainly comes from a variety of sources such as migrant remittances and government social schemes but this cash income is very limited, and the resulting poverty negatively affects food security, education, and housing standards VI.

Health and traditional medicine

Health challenges are considerable in KwaZulu-Natal Province and are manifested by the second-lowest life expectancy in the country of 50.6 years, and the highest child mortality rate under the age of five (93 deaths per 1000 live births)^{VII}. HIV-AIDS and AIDS related illnesses such as tuberculosis (TB) are major challenges in the region. In 2010, the province reported

1,131 cases of TB per 100,000 persons, and the highest proportion (38%) of deaths in the country from TB. A review of the implementation of the South African TB programme found that system failures, together with inadequate knowledge and understanding of clinicians, were undermining the programme, pointing to weaknesses in the health system as a whole VIII.



Rooted in tradition, up to 90% South Africans may consult traditional healers or make use of herbal remedies to cure disease and increase well-being. The majority of herbal products are purchased on the informal market, which means that no quality control takes place and no measures are taken to ensure that wild herbs are not threatened in the process. "Typically, plants are harvested from the wild, with popular species becoming locally extinct and being traded at very high prices" This has led to high pressure on medically valuable wild plant populations such as Wild Ginger, which is critically endangered in South Africax.



Up to 90% of South Africans consult healers or make use of herbal remedies KwaZulu-Natal has the second-lowest life-expectancy in South Africa: 50.6 years 75% or rural KZN households mainly rely on government social schemes

In the past decade there has been a 26.7% decline in provincial employment

1.2 Creating innovative local solutions

The Edakeni Muthi Futhi Trust is a community-based enterprise that cultivates traditional medicinal plants and sells ingredients for herbal remedies. The main purpose of the enterprise is to create livelihood opportunities for community members in a sustainable business, and to generate profits that support community development.

The Muthi Futhi value chain begins with small farmers who sell compost to Muthi Futhi as an input for the cultivation of medicinal plants. On its 27 hectares of land, the enterprise mainly grows four plant varieties: popular aphrodisiacs Bulbine natalensis (Rooiwortel) and Eriosema kraussianum (a Sand Peas variety); Siphonochilus aethiopicus (Wild Ginger) which is widely used to treat asthma, flu and colds for example; and Xysmalobium undulatum (Uzara Root), which is, among other applications, used to cure diarrhoea.

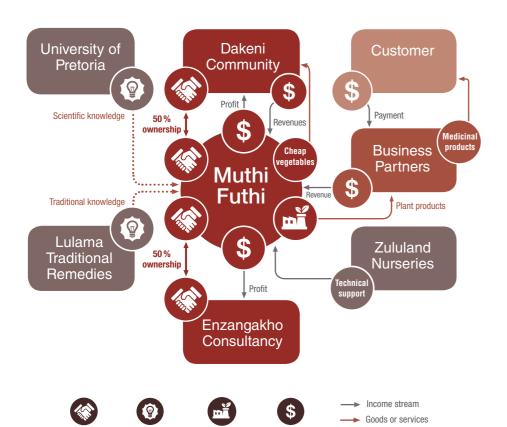


In addition, the enterprise has also planted Kigelia trees, of which the fruits and bark have been scientifically proven to possess antibacterial effects and are a popular ingredient of traditional medicine throughout Africa. These trees however still need time to grow before a significant harvest can be reaped; Muthi Futhi therefore currently sources Kigelia fruit from local harvesters instead.



After washing and drying of the plants and fruits, the products are chopped, ground or milled before the enterprise can sell them to buyers on the formal market. The enterprise offers a small range of finished products directly to consumers, which include herbal remedies for strengthening the immune system and relieve asthma patients. Most of Muthi Futhi's plant materials however go to commercial manufacturers and distributors. which either proceed with secondary processing of the plants in specialised factories or trade the dried plants directly with other producers of herbal remedies. The final products reaching the consumer are high-quality, health-promoting and environmentally-friendly natural food additives or phyto-pharmaceuticals.

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Plant products





Ownershir

Enzangakho Consultancy is one of the two founding partners. They share equal stakes in the Edakeni Muthi Futhi Trust, and each receives 50 % of the profits. The consultancy focuses on producing traditional medicines and it has experience in local economic development through traditional medicine production. It brings the help of its sister companies including Lulama Traditional Remedies, a marketing partner, and Skylight, a consultancy that facilitates market access.

Community

Profit / Revenue

The local community of **Dakeni** consists of about 300 members and is the second founding partner. With 50% shares in the Edakeni Muthi Futhi Trust, they are entitled to half of any profits generated by the enterprise and half of the members of the Board of Trustees are representatives of the community. The Trust is dedicated to social, environmental and economic development of the community, and therefore employs a member from almost every family in the village and sources compost as well as sustainably harvested plants and fruit locally.

· · · Supporting activities

1.3 The power of partnerships

The partnership

The Edakeni Muthi Futhi Trust evolved out of a partnership between the Enzangakho Consultancy, a business focussed on producing traditional medicines, and the village community of Dakeni. The partnership brings together complementary skills and resources of these two key parties, and also includes further business partners as well as an academic institution that brings in additional expertise. Business partners are central to the market access of Muthi Futhi, since they purchase the products from them and take care of further processing, end-customer marketing, and distribution.

Partnership management and future opportunities

While a central contract was signed between the consultancy and the community at the conception of the enterprise, other relationships are less formalised and cooperation is often not based on written agreements. The partnerships are effective nonetheless and bring together a range of perfectly fitting competences. However, there are open opportunities for additional parties to support the enterprise in the future.

Muthi Futhi would benefit from partnering with an organisation that can provide or broker funding for product development and open up more market linkages to increase the number of formal buyers to scale up the enterprise's raw material sales.



One weakness in the partnership structure is that a lot of specialized knowledge remains with individual partners. To mitigate this problem, the enterprise could benefit from a partner with a knowledge-sharing, facilitating role.



National Businesses

Muthi Futhi provides a high-quality, sustainably harvested supply of plant ingredients to a number of business partners: Esse Organics is a company that has been purchasing plant materials from Muthi Futhi since 2012. Colhov Trading buys raw materials and develops them into packaged products to sell in its retail stores. It has also provided Muthi Futhi with networks and expertise since 2009. Two other business partners have helped the enterprise in the past: Zululand Nurseries and Afriplex (Pty) Ltd. The nurseries assisted with mass propagation of seedlings and technical support, and provided access to their laboratory. Afriplex is another purchaser that applies high-tech processing methods for client-specific products.



Research

The University of Pretoria's Plant Sciences Department is a research partner that provides technical expertise to Muthi Futhi. The department purchases materials from the enterprise for its research and in return, Muthi Futhi receives royalties and credibility if the research is successful. The enterprise has also partnered with the Agricultural Research Council (ARC) in the past and has received technical support, expertise, and a cash prize for its work.



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2. Building an inclusive eco-enterprise

The Edakeni Muthi Futhi Trust was created in 2010 as a joint-owned partnership between the local Dakeni community, and its private sector partner, the Enzangakho Consultancy. The enterprise is governed by a Board of Trustees with 50% community representation. It started growing and selling plants in 2011. It then gained funding and recognition through a number of prestigious grants and awards: support from the SAB Foundation for social enterprises in 2012, a SEED South Africa Award in 2013, and an ongoing grant from the Green Fund of the Development Bank of South Africa that will last until 2016 and allow Muthi Futhi to scale up its farming operations and production volumes. Moving forward, the enterprise is working to enter the processing stage of the value chain with its spin-off venture ZuPlex (see 2.3).

2.1 Financial development

In its first years, the enterprise grew using initial funds from Enzangakho Consultancy. As it is a Trust, it cannot apply for loans and has to turn over all profit to its beneficiaries - in this case, the two founding partners including the Dakeni community. In 2012, however, it received its first grant from the SAB Foundation of USD 42,000 and this funding continued until 2014. After the SEED South Africa Award in 2013 which contributed USD 5.000, the enterprise received a much larger grant from the South African Green Fund, totalling USD 300,900. The latter is scheduled to support the development of the enterprise until 2016. In 2014, grants and sales revenue of USD 121,300 resulted in a profit of USD 11,100 USD, which was used to recover some of the cumulative losses incurred over the period of 2010 - 2013, but a loss of USD 21,700 is still outstanding. The outlook is positive, as it has been expanding its customer base and product line while scaling-up its cultivation activities. The management team estimates that Muthi Futhi will become financially self-sustaining once it has scaled its sales revenues from the current USD 45,700 per year up to the breakeven point

of USD 68,600 annually. It is working hard to meet its target of generating profit by 2017, and expects the enterprise to be self-financing once the current grant funding comes to an end.



2.2 Employment situation

In 2015, the enterprise reports 33 farm and processing site team workers, including two managers/directors. One of the directors is female and 25 out of 26 permanent workers are women. In terms of wages and salaries, a typical farming and processing team member earns about USD 1,800 per year for 10-15 days of work per month, depending on the seasons Technical training is offered for staff including propagation and cultivation of medicinal plants and best environmental practices.

Fast Employment Facts Workers Avg. Salary per Year Female Workforce 33 \$1,810 76% Regular workers Temporary workers 7

2.3 Business development

There has been strong performance towards scaling up its farming and processing operations due to the funding that the enterprise received from the Development Bank of South Africa (DBSA) through its Green Fund. Sales have been steadily increasing over the past years, with a strong contribution from the Kigelia fruit that is currently sourced from local harvesters. Once Muthi Futhi's own Kigelia trees have matured enough to be harvested, there will be an increased, secure and sustainable supply while demand is expected to stay high. As most of the herbal remedy market in South Africa is informal, the enterprise will work on further market development and focus specifically on creating market linkages with additional commercial buyers to scale up sales even more.

The enterprise is looking to diversify its product portfolio to improve financial performance.

For example, it plans to use part of its land to also produce other indigenous plants that are suitable and popular for landscaping. In the core business around medicinal plants, a key strategic goal on the way to financial sustainability is to enter a more advanced processing stage of the value chain and/or bring finished products to the market. Given the vast biodiversity of South Africa, there is great and untapped potential for professionally processed products from plants containing bio-active compounds. Muthi Futhi has formed a new partnership with the companies Esse Organics and Intelezi African Herbs to start the venture ZuPlex. If the necessary major investments can be secured to get this venture off the ground, ZuPlex will extract the active components of selective indigenous medicinal plants and market high-value extracts in national and international markets. The extracts will be designed for use in cosmetics, nutritional, and phyto-pharmaceutical end products.



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3. Reaching impact

The main purpose of the Edakeni Muthi Futhi Trust is to create a sustainable business that benefits the community. Impacts from the enterprise are focussed primarily on the social level through household income generation, skills training, and food security. It has significantly reshaped the village's economy and also contributes to the preservation of threatened wild medicinal plant species. The business model has considerable potential for replication.

3.1 Beneficiaries

At the start of the value chain, rural harvesters benefit from income opportunities as they collect raw material for a wage. While in addition some community farmers receive a small income for providing compost which is used to grow the medicinal plants, the primary beneficiaries of the enterprise are the Dakeni farming team members. The farm workers receive steady employment and training. Jobs created at Muthi Futhi do not just benefit the employees themselves but are distributed in a way that spreads benefits across the whole community.



3.2 Social impact

As the Dakeni community is a founding partner and owns 50% of the enterprise, all its activities are strongly geared towards social development in the village of about 300 people. New opportunities have been created for a number of harvesters and compost suppliers to supplement their household income. With regard to direct

employment, Muthi Futhi has so far developed 26 permanent part-time positions and employs 7 temporary workers. Those positions go mostly to women, and account for at least 10% of all adult inhabitants of the Dakeni community. Most of the women are the main caretakers of their households since their husbands work in distant cities. The enterprise mainly employs these women to stabilise food security and standards of living in their households, and vacant positions are preferably filled by community members who do not yet have a family member involved with Muthi Futhi, especially if the family is in financial distress. With the development of the new venture ZuPlex, up to 300 additional stable jobs might be created in the coming years for other people in the village and surrounding villages.

Skills training programmes have helped to improve the capability and performance of the Muthi Futhi farming team. Many of these skills are transferable and contribute to better harvests in subsistence cultivation. Employees have also commented on how working for the enterprise gives them an increased sense of dignity and self-worth, and as a result, they feel better positioned to make decisions for themselves and take on responsibility.

Once the enterprise becomes profitable, 50% of the profits will be distributed to the Dakeni community organisation and invested in further social and economic development initiatives. The enterprise is on track to meet its target of generating profit by 2017.

Muthi Futhi has also made a modest contribution to food security in the village as it cultivates maize, cabbages, and other vegetables on its farm, which are then sold to community members at an affordable price that only covers production costs. The enterprise is working to scale up its cultivation to increase the impact of this side programme.

"Now that I work with Muthi Futhi, I can support my family, and my mother and brother. I have even built a house." Dakeni woman

3.3 Economic impact

The set-up of the enterprise can serve as an exemplar of empowered rural economic development. It was founded as a Trust dedicated to the social-economic development of the community, and as an equal-stakes partnership between the village community and a professional business. In a region where social grants are the main income source for rural households. Muthi Futhi has created a value chain around medicinal herbs, from compost and wild fruit harvesting to farming and basic processing. The enterprise has brought the local micro-economy to life while achieving positive social and environmental impacts. As a significant proportion of community members benefits directly from jobs and income, and then reinvests this money into local consumption, purchasing power and economic activity have increased in the whole village. The planned expansion into processing and marketing of higher value-added products, and supplying much larger amounts of plant ingredients for this new business line could take the economic strength of the Dakeni village and its surroundings to an entirely new level.

3.4 3.4 Environmental impact

The business model of Muthi Futhi is built around the cultivation of threatened medicinal plant species. So far, the enterprise grows two varieties of critically-threatened plants, as well as 10 other species that are not critically endangered but are under pressure in the wild from unsustainable harvesting practices.

The enterprise uses sustainable agricultural practices such as preserving indigenous trees, and using organic inputs such as compost. By providing environmental awareness training and training in organic farming practices and responsible resource use, the enterprise ensures good practice across its entire team. The training also helps to spread environmental awareness throughout the whole community as its employees transfer attitudes and skills to their households, for instance about how to make compost and apply organic farming practices at home.

The enterprise is making progress towards its target of meeting all national and provincial environmental regulatory requirements. Key permits have been obtained such as a bioprospecting permit and a permit to operate in Ezemvelo Wildlife reserve, as well as a general environmental authorisation for its operations.



3.5 Policy impact

Policy impacts have been made through Muthi Futhi's work with the South African Department of Environmental Affairs (DEA) with which it worked on consultations about the revision of bioprospecting regulations. It has also lobbied for cheaper permits for small businesses. The regulations are undergoing revision and Muthi Futhi is awaiting the final revised policy with great hopes.

SEED CASE STUDY: MUTHI FUTHI SEED CASE STUDY: MUTHI FUTHI

4. Charting green and inclusive growth



IMPACT

Community-based cultivation and job creation

Established directly from a community initiative, Muthi Futhi places the community interests at the centre of its activities. The enterprise has created a new and strong farming-based value chain in a virtually non-existent village economy and permanently employed at least 10% of its inhabitants. Unlike many other suppliers of traditional products, the enterprise's value chain does not threaten wild plant populations, but instead protects and propagates endangered species in a sustainable way.



CHALLENGES

Access to finance and markets

The enterprise still depends on grant finance as it is not eligible for business loans, and will need to prove that it can achieve profitable operations by 2017. The operation itself only has a limited amount of land and there are concerns that this may limit future growth. Muthi Futhi also needs to expand its customer base to grow. Given the strong informal demand that exists in South Africa, it has proven surprisingly difficult to locate and secure a larger number of commercial long-term customers of medicinal products in the formal sector.



SUCCESS FACTORS

Business model and complementary partnerships

Muthi Futhi's business model fills a promising niche as they grow species of medicinal plants that others do not or cannot produce. The business is located in an area with good local conditions for agriculture, with a capable and eager labour force. Muthi Futhi's partnerships in both scientific and traditional fields of medicine help the enterprise to increase its knowledge and develop high-quality and high-demand products for the market. By creating strong linkages with its client companies, the enterprise secured stable buyers. Receiving awards and grants from its partners helped to develop funds, profile and credibility, which has also been critical to its success as an organisation.



FUTURE NEEDS

Market linkages and scale-up investments

On the path towards financial sustainability, Muthi Futhi's current operations could benefit from additional market linkages and stable bulk customers. In a bold and promising move, the enterprise has partnered with experienced larger companies and secured the role to provide plant material supply to their new venture ZuPlex, which is planned to produce high-value plant extracts for national and international commercial customers. For pre-commercial research and development, the ZuPlex partnership is in process of raising USD 430,000. If it is to launch commercial operations at a later stage, it expects to need a major initial investment of USD 4 million.



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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.

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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.

- I SouthArica.info 2012, KwaZulu-Natal province, South Africa. www.southafrica.info/about/geography/kwazulu-natal.htm#. VSzwb0uh998
- II Development Bank of South Africa, 2011: Kwazulu-Natal Profile Summary Report. www.dbsa.org/EN/DBSA-Operations/Proj/Documents/Summary%20of%20KwaZulu-Natal%20 Province.pdf
- III Zakwe, T. P., 2001: 'Towards sustainable rural development in KwaZulu/Natal' University of Zululand Institutional Repository. http://hdl.handle.net/10530/189
- IV Development Bank of South Africa, 2011
- V Zakwe, T. P., 2001
- VI Zakwe, T. P., 2001
- VII Development Bank of South Africa, 2011
- VIII Loveday, M.; Thomson, L., Chopra, M.; and Ndlela Z., 2008: A health systems assessment of the KwaZulu-Natal tuberculosis programme in the context of increasing drug resistance. In: The international journal of tuberculosis and lung disease, 2008 12(9): 1042-7. www.ncbi.nlm.nih.gov/pubmed/18713502
- IX Mander, M., Ntuli, L., Diederichs, N. and Mavundla, K., 2007: Economics of the traditional medicine trade in South Africa: health care delivery. In: South African Health Review 2007, 189-196 www.hst.org.za/publications/ south-african-health-review-2007
- X Raimondo D., 2011: The Red List of South African plants A global first. South African Journal of Science 2011;107(3/4) www.botanicalsociety.org.za/ProjectsAndActivities/Conservation%20Downloads/Red%20List%20of%20SA%20plants.pdf
- XI Grace, O. M., Light, M.E., Lindsey, K.L., Mulholland, D.A., van Staden, J. and Jäger, A.K., (2002): Antibacterial activity and isolation of active compounds from fruit of the traditional African medicinal tree *Kigelia africana*. South African Journal of Botany 68(2): 220-222.

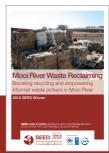
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