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WORKING PAPER SERIES NO.19

RURAL ENTERPRISE PARTNERSHIPS

THE CASE OF ESSENTIAL AMATHOLE

DR PUMEZO LUPUWANA

Essential Oils Production Hub in the Amathole District, Eastern Cape: A Case Study on Partnerships with Poor Rural Communities in Agricultural Enterprise Development for Poverty Reduction and Sustainable Rural Livelihoods.

Abstract

This is a case study of Essential Amathole, a community-based agricultural enterprise established to contribute towards poverty reduction among rural communities. Essential Amathole conducted cultivation trials of several essential oils plant species at targeted sites owned by rural communities in the Amathole District, starting in 2007. These trials were conducted at sites with varying agricultural and climatic conditions through a partnership model involving Essential Amathole, targeted rural communities, academic institutions, government departments and development agencies. The study effectively demonstrated the feasibility of mitigating the impact of unemployment and the prevailing depressed socio-economic conditions in poor rural communities through strategic partnerships in agricultural enterprise development, using essential oils plant crops. The above-average quality of the essential oils' extracts obtained from the trial cultivation harvests affirmed the viability of establishing an essential oils enterprise hub. Over a five-year period from startup, the workforce employed by the enterprise grew by 315%, from 20 in year one, to 83 in year five. This included the engagement of five cooperatives with a combined membership of 30 people as suppliers of agricultural inputs, thus making a robust business case for the establishment of a sustainable Essential Oils Production Enterprise Hub in the Amathole District. This working paper provides a brief overview of the South African and global essential oils industry, presents findings from the trials and feasibility studies and outlines the successes and challenges encountered by Essential Amathole since 2007.

Published by ECSECC

Postnet Vincent, P/Bag X9063, Suite 302,
Vincent 5247

www.ecsecc.org

First published August 2015

ISBN: 978-177593-035-8

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FOREWORD

The ECSECC Working Paper Series was launched as a platform for publishing work in progress in areas broadly aligned with the strategic objectives of the Eastern Cape Socio-Economic Consultative Council. Contributions are invited from ECSECC stakeholder communities as well as independent researchers/writers who share an interest in ECSECC's overarching objectives.

Working paper 19 on Rural Enterprise Partnerships: The Case of Essential Amathole was submitted by Dr Pumezo Lupuwana and reviewed and edited by ECSECC and our editors. We are excited to share the story of Essential Amathole as written by one of its founding members and hope that this short case study can contribute to rural development practice in the province and beyond. Having followed Essential Amathole since in inception, we particularly hope that the lessons from this project will be utilised in design of similar projects in future.

Mr Andrew Murray
CEO, ECSECC

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Pumezo studied for a BSc in Chemistry and Biochemistry at the University of Fort Hare. He studied a BSc Hons in Microbiology and an MSc in Plant Virology at the University of Cape Town. He went on to do business studies completing a Diploma in Sales & Marketing Management at Damelin College, a Diploma in Management at the Henley Management College, London, UK and an MBA at Brunel University, London, UK. He read for his Doctorate in Ethnobotany at the University of Fort Hare.

His academic training and research has covered areas such as Recombinant DNA and Genetic Engineering techniques, Microbial Genetics, Plant Virology and Serology techniques. He did research in Lipid Biochemistry focusing on Tissue Culture Techniques, Dyslipidemias, and the impact of Omega-3 Fatty Acids in Lipid Metabolism. He has acquired extensive experience in beer manufacturing Quality Control, Marketing Strategies, International Business Management, Account Management and Corporate Strategy in the Pharmaceutical Industry targeting cardiovascular diseases and upper respiratory tract infections. He has worked for multinational corporations such as South African Breweries, Warner-Lambert (now part of Pfizer Laboratories), Group Africa Experiential Marketing and the IT software giant, Oracle Corporation. He did an Executive Management Programme at the Wharton Business School, Pennsylvania and Howard University, Washington, USA

Pumezo has been active as a business consultant specifically in the SMME sector assisting to set up cooperatives and start-up companies. In his doctoral thesis in Ethnobotany at the University of Fort Hare he investigated the feasibility of integrating Natural Sciences and Indigenous Knowledge Systems for Rural Economic Development as part of the overall effort to stimulate the rural economy in the Eastern Cape. Pumezo is a Regional Director in the Department of Roads & Public Works in the Eastern Cape.

1. INTRODUCTION

Despite the end of apartheid in 1994, South Africa continues to have the highest income inequality in the world, as measured by the Gini Coefficient - a level that has remained relatively unchanged between 1990 and 2014. This is one of the most enduring challenges the country faces and has a detrimental impact on South Africa's economic development and business environment (Euromonitor International, 2012). Hence, the interlinked issues of rural poverty, under-development, land reform and unlocking the Eastern Cape's agricultural potential have long been topics of significant scrutiny and debate at both provincial and national level.

The origins and characteristics of rural poverty, underdevelopment and the land question in the Eastern Cape are widely documented in a substantial volume of publications by academics and research groups (such as Beinart, 1992; MERG, 1993; Hart, 1994; Nattrass, 1994; Kaplinsky, 1994; Sender, 1994; Manona, 1998; 1999; Kepe & Scoones, 1999; Bonti-Ankomah & Fox, 2000; Cocks & Dold, 2000; Kepe, 2002; ECSECC 2002; Global Insights, 2002; Light et al, 2005; Sparg et al, 2005; Eastern Cape Government, 2006; Ntsebeza, 2005; Ntsebeza & Hendricks, 2010; Ntsebeza et al, 2013). The historical marginalisation of the indigenous rural African population

in the Eastern Cape from the mainstream of the economy also became a topical subject of intense academic debate and research from the late decades of the 20th century to the contemporary period (e.g. Le Cordier, 1981; Peires, 1982; McLennan, 1986; Mostert, 1992; ECSECC, 2002; Ntsebeza, 2005; 2011; PROVIDE, 2005; Eastern Cape Provincial Government, 2006; Lupuwana, 2008; HSRC, 2012; Ntsebeza et al., 2013). The subject of the political economy of the Eastern Cape is beyond the scope of this study.

Much of the cited literature on the causes and historical origins of poverty and underdevelopment in contemporary Eastern Cape invariably alludes to the historical evolution of the region's political economy, from the commencement of the colonial era to the modern period. Uneven and combined development of property and social relations are its clearest attributes. Research also places a specific emphasis on the inequitable land tenure system of the region as the most enduring legacy of its colonial and apartheid past. This has remained almost unaltered well into the 21st Century (Peires, 1981; Mostert, 1992; Ntsebeza & Hall, 2007; Lupuwana, 2008; Hendricks et al., 2013; Ntsebeza et al., 2013), notwithstanding the advent of a democratic political dispensation in South Africa more than 20 years ago.

In light of this, there is a general consensus among government planners, policy makers and independent researchers around the potential role of agriculture in the growth, development, diversification and transformation of the Eastern Cape economy (Nattrass, 1994; 1996; Ntsebeza, 2001; Machete, 2004; Thomson & DFID, 2004; Eastern Cape Provincial Government, 2006; Christiaensen & Demery, 2007; Ntsebeza & Hall, 2007; Lupuwana, 2008; ECSECC, 2001; 2012).

Although a considerable amount of academic research on the subjects of the land question, poverty, social inequality and underdevelopment in contemporary Eastern Cape has been reported, not much can be found in the literature on the development and implementation of strategies to address these socio-economic conditions. Thus, this working paper is an attempt to close this gap as well as contributing towards the resolution of the socio-economic challenges confronting the poor rural communities of the Eastern Cape. This working paper takes Essential Amathole as a case study of enterprise development as a mechanism for poverty reduction in the Eastern Cape context. Essential Amathole was established in 2006 as an essential oil-producing business located in Nkonkobe Local Municipality in the Amathole District Municipality of the Eastern Cape to create employment and entrepreneurship opportunities in economies-of-scale in selected poor rural communities in the Eastern Cape. The administrative offices, propagation unit, nurseries, a mobile distillation unit and stores are situated in Hogsback, approximately 30km off the R63 and from the town of Alice. The trial cultivation sites were located in the Tyhume Valley, Hogsback and the Kat River Valley and trials stated in 2007.

This paper covers the four main phases of operation between 2007 and 2013/14, and is structured in five parts:

The introduction briefly outlines the rationale behind the undertaking of the feasibility study, a synopsis of the published literature on the fundamental causes and historical origins of poverty and underdevelopment in contemporary Eastern Cape and the structure of the case study report.

Section 2 provides a brief overview of the essential oils industry, worldwide and in South Africa.

Section 3 describes the process of establishing Essential Amathole, its structure and business model as well as the operations of the entity and project.

Section 4 presents the achievements, challenges and lessons learned by the enterprise and the project stakeholders in the period between 2007 and 2014, as well as their significance and implications.

The conclusion outlines the challenges encountered in the various phases of the feasibility study, the recommendations to resolve such challenges and the future strategic perspectives on rural development in the Eastern Cape.

A post script is appended to bring the reader up to date with developments since the time of writing up the case study.

2. ESSENTIAL OILS INDUSTRY IN SOUTH AFRICA

While a late entrant into global markets, South Africa's research outputs on the biological activities of essential oils have escalated significantly over the past 20 years. To this end, during the period 1995 to 1999, South Africa contributed 56% of the 40 research papers submitted by African countries, while in the period 2000 to 2004 South Africa's contribution constituted 55% of the total number of 76 papers (Light et al, 2005).

South Africa's agricultural sector has been in decline over the past two decades. However, essential oil-producing plant crops represent a category of high-value cash crops with the potential to make a significant contribution to the growth of this sector. This can be achieved through a competitive crop production programme of essential oils plant species, coupled with the manufacturing of essential oil-based value-added products to supply niche markets, both locally and internationally. However, to succeed and become internationally competitive, an Eastern Cape programme of essential oils crop production would necessarily have to be on economies-of-scale. Hence, achieving these economies-of-scale were the ultimate overarching long-term strategic goals of the Essential Amathole initiative, as reported in this case study.

Essential oils have evolved to become one of the most vital ingredients in many of the world's largest industrial manufacturing sectors industries, including aromatherapy, cosmetics and perfumery, deodorants, food and beverage flavouring, domestic and industrial cleaning products and health-care pharmaceuticals (Department of Agriculture, Forestry & Fisheries, South Africa, 2010).

The healing properties of essential oils have long been known and have found application in traditional medicines for use against skin infections, cancer and a host of other degenerative illnesses. With the development of modern, state-of-the-art biotechnology equipment the antibiotic and medicinal properties of some of the essential oils were successfully tested and verified in clinical trials and several scientific and medical research laboratories (Kuriyama et al, 2005; Prabuseenivasan et al, 2006; Komiya et al, 2006; Magwa et al, 2006; Mhinana et al, 2007).

Aromatherapy, on its own, has developed to become one of the most lucrative sub-sectors in the global health-care industry, while essential oil-based medicinal and other natural health care brands and products have experienced consistent growth in terms of volume outputs in the over-the-counter (OTC) category of self-medication and personal care brands and products (Srivastava et al, 1996; Cragg & Newman, 2001; George & Van Staden, 2000; George et al, 2001; Buenz et al, 2004; Mulholland & Drewes, 2004; Fennell et al, 2004a; 2004b; Light et al, 2005).

Currently, Brazil, China, the USA, Egypt, India, Mexico, Guatemala, Morocco and Indonesia are the main producers of essential oils. With the exception of the USA, these are all developing countries with low-cost, peasant-type rural economies. It is estimated that 65% of global essential oils production originates from developing countries, with the major consumers being the USA (40%), Western Europe (30%) and Japan (7%), respectively. Most of the major producing countries have large populations with huge internal appetites for essential oils (Department of Agriculture, Forestry & Fisheries, 2012).

In South Africa, an estimated 1 970 hectares were utilised for essential oils crop production by 2010, with Mpumalanga, KwaZulu-Natal and the Eastern Cape the most active, utilising 943ha, 422ha and 300ha respectively (Department of Agriculture, Forestry & Fisheries, South Africa, 2010). Geranium, Lavandin and Rosemary were the most commonly produced crops across all three provinces, as illustrated in Table 3 below.

Province	Species	Total ha
Eastern Cape	Geranium, Rosemary, Lavender	200
Free State	Tagete, Artemisia, Lavendin	70
Gauteng	Lavendin, Rosemary, Artemisia	
KwaZulu-Natal	Lavendin, Rosemary, Eucalyptus, Geranium, Tea tree, Lemon tea tree, Spearmint, Lemongrass, Artemisia, Melissa, Thyme	422
Limpopo & Machado	Lippia, Geranium, Rosemary, Lavendin, Tea tree,	91
Mpumalanga	Vetiver, Citronella, Lippia, Eucalyptus, Artemisia. Rosemary, Geranium, Lemongrass	943
Northern Cape	Marjoram, Rosemary, Lavender	45
North West	Geranium, Rosemary, Lavendin	40
Western Cape	Eriocephalus, Lavender, Lavendin, Buchu, Rosemary	77
Total		1970

Table 3: Projected Hectares under Essential Oils Crop Production by 2011 as Provided by Provinces (Source: South African Essential Oil Producer Association (SAEOPA), 2012).

Table 4 alongside shows the various types of essential oils and their estimated values of primary production in 2010. The estimated monetary values served as a reference point for the selection of the type of essential oil crops for production, based on the level of demand and the market price, to ensure that the type of crops produced would be in high demand (Department of Agriculture, Forestry & Fisheries, South Africa, 2010).

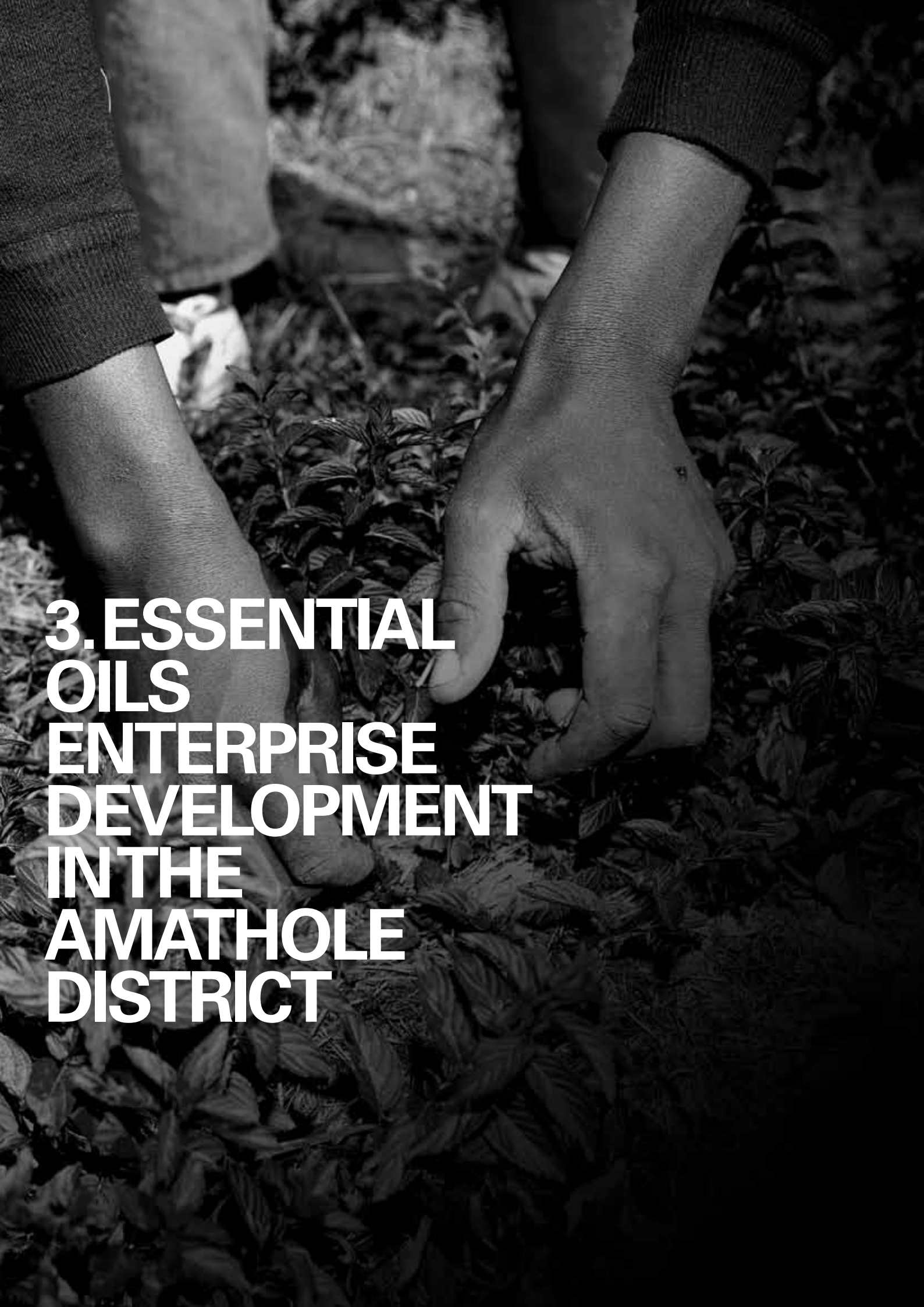
ESSENTIAL OIL TYPE	ESTIMATED VALUE OF PRIMARY PRODUCTION IN 2009 (ZAR)
Major Oil (Citrus and Eucalyptus)	7, 444, 526
Minor Oils (e.g. Chamomiles, Jasmine, Lavenders, Tea Trees, Mints)	2, 237, 169
Minor Oils-FRIDGE Study - Specified	
Geranium (Pelargonium graveolens roseum)	541, 666
Buchu (Betulina crenulata)	500, 000
Chamomile - Roman (Anthemis nobilis)	24, 305
Rosemary (Rosmarinus officinalis)	15, 000
Lemongrass (Cymbopogon citratus)	7, 777
Lemon balm (Melissa officinalis)	-
Lippia (Lippia javanica)	-
Rose damascene (Rosa * Damascene)	-

Table 4: Estimated Production Statistics for Certain Selected Essential Oils in 2009 (Source: Institute of Natural Resources, 2009).

South African production of essential oils and related plant extracts is valued at between R60m and R100m and although there are some 100 local producers, only a dozen commercial producers and a couple of development projects consistently supply the market (Department of Agriculture, Forestry & Fisheries, 2011). The growth of the South African essential oils industry has been largely haphazard and fragmented due to the fact that many commercial farmers are seeking alternative high-value cash crops to mitigate risk and increase profitability. Rural communities, government and non-governmental organisations (NGOs), on the other hand, are seeking high-value cash crops that can be produced on a cooperative basis thereby creating jobs in the economically depressed rural areas.

A key indicator of the current size of the South African industry is the number of operational distillation facilities. According to the South African Essential Oil Producers Association (SAEOPA) there are approximately 33 commercial stills in operation, most of which range from 250kg to 500kg units and would therefore be regarded as sub-economic in the international essential oils industry (South African Essential Oil Producers Association, 2011). Although difficult to accurately forecast growth of the industry due to its disparate and uncoordinated nature, it is estimated to be growing at approximately 10% year-on-year (Department of Agriculture, Forestry & Fisheries, 2011).

The conceptualisation of an essential oils production hub in the Amathole District is based on partnerships with poor rural communities and other relevant stakeholders, with a view to addressing the region's bleak socio-economic outlook, high unemployment rate, rampant poverty and deepening social inequality (Statistics SA, Census 2011; ECSECC, 2012).



3. ESSENTIAL OILS ENTERPRISE DEVELOPMENT IN THE AMATHOLE DISTRICT

DESCRIPTION OF THE ENTERPRISE

Essential Amathole (Pty) Ltd was established as an essential oil-producing business located in the Amathole District in the Eastern Cape. Essential Amathole defined its core business as the propagation, cultivation and distillation of high-quality organic and fair trade registered essential oils for the international markets. The operations consisted of a structured training programme on crop cultivation and husbandry for the workforce engaged from the communities and a rigorous total quality control management regimen - to ensure a consistently high quality standard and minimum contamination of the harvest by alien plant species and weeds, under the supervision of an appropriately qualified and experienced Farm Manager. The operations were labour-intensive; hence, the labour of the workforce engaged was optimally utilised and gainfully employed throughout the various phases: land preparation; cultivation; crop husbandry; and harvesting.

LOCATION AND FACILITIES

Essential Amathole is based in the Nkonkobe Local Municipality in the Amathole District Municipality of the Eastern Cape. The administrative offices, propagation unit, nurseries, a mobile distillation unit and stores (Essential Amathole Operations Centre) are situated in Hogsback, which is located on the R345, approximately 30km off the R63 and from the town of Alice.

The trial cultivation sites were located in the Tyhume Valley, viz Auckland, Mazotshweni and Phandulwazi; Hogsback, viz Bold Point; Kat River Valley in Cathcartvale; and in the area between the Tyhume Valley and Kat River Valley (Lushington). The diagram in Figure 1 below illustrates the location of the current and planned cultivation sites in relation to one another. The diagram also shows the approximate locations of key institutions such as the Dohne Agricultural Development Institute, the University of Fort Hare and Phandulwazi Agricultural School.

Essential Amathole is primarily an agriculture-based business; hence, facilities are minimal. Agricultural land portions were leased from communities, individuals and autonomous public institutions. Agricultural infrastructure such as fencing, irrigation and storage facilities were installed at the various sites. The main planned facility was the installation of wood-fired distillation equipment for the extraction of the essential oils at Phandulwazi for the trial phase, as well as future installations at Fort Cox, Seymour and Glen Eland.

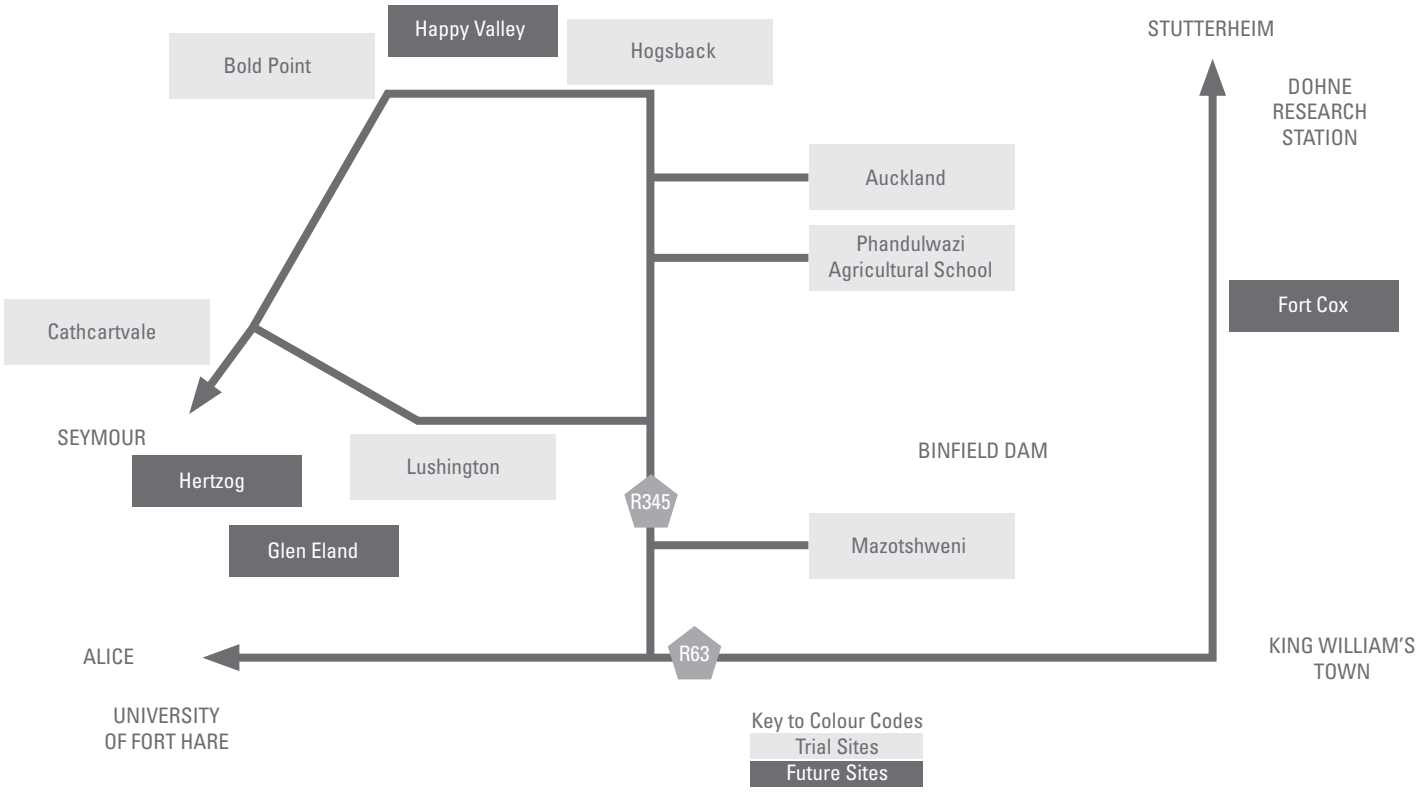


Figure 1: Location of Essential Amathole Operations Centre and Trial & Future Cultivation Sites (Source: Essential Amathole, 2008).

BUSINESS AND PARTNERSHIP MODEL

Essential Amathole's overarching strategic goal was to enable poor rural communities in the Amathole District to enhance their economic and livelihood opportunities on the basis of capitalising on their existing assets (e.g. land, labour, skills and entrepreneurial spirit) through direct and indirect participation in a sustainable and profitable agricultural enterprise, and in so doing, improve the general socio-economic conditions of the area.

Essential Amathole's enterprise model design was based on an innovative community-public-private-institutional partnership (CPPIP). The Amathole Community Trust (ACT) was established with the assistance of Essential Amathole as a formal and independent entity through which community interests would be represented within the start-up enterprise, as illustrated in Figure 2 alongside. In terms of this partnership, private individuals and farmers who invested in the project were to ensure that commercial principles informed decision-making in the project, and that it would be routinely managed on tried and tested business principles.

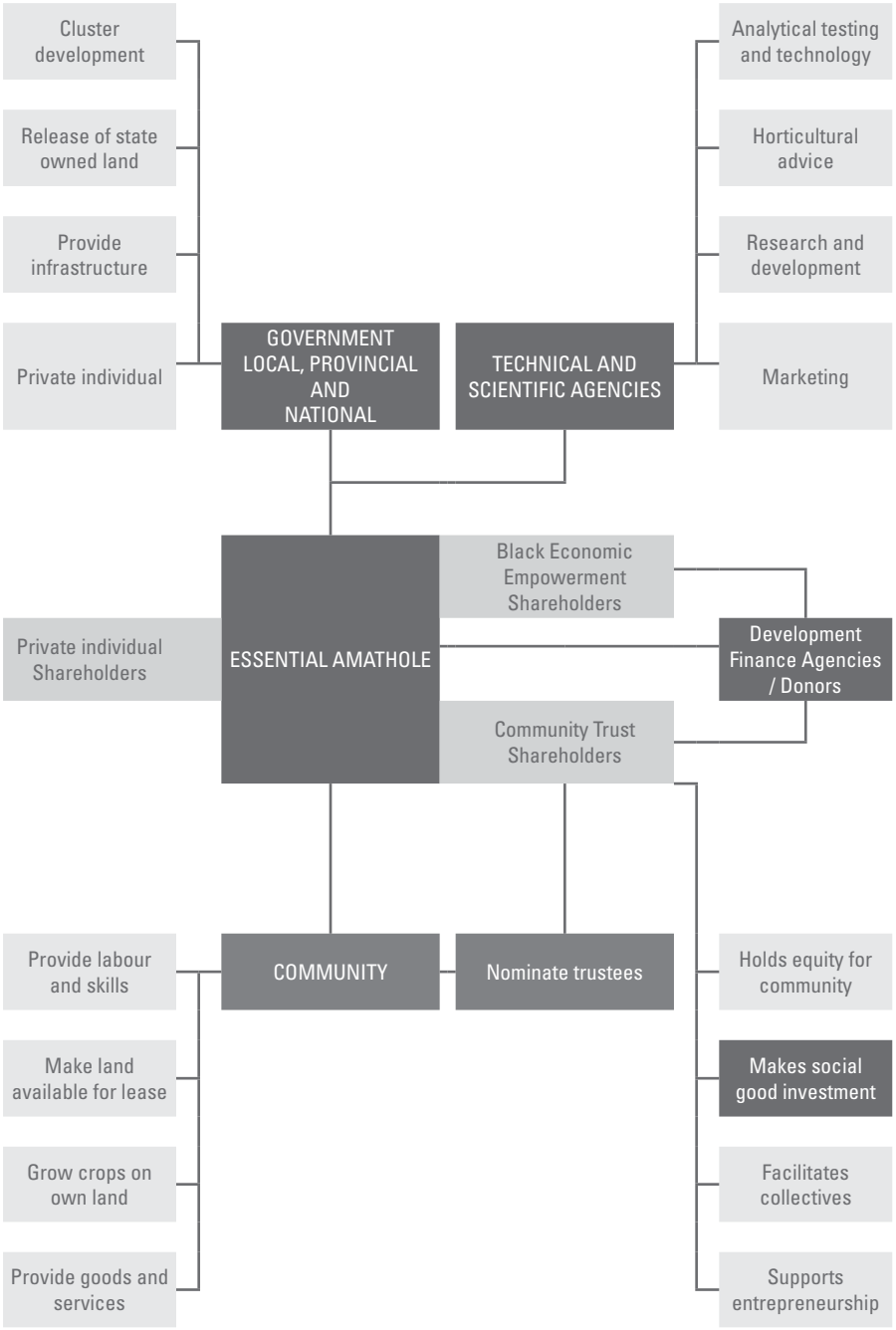


Figure 2: Essential Amathole Business Model (Source: Essential Amathole (Pty) Ltd, 2010).

Rural communities would bring their land, knowledge and labour as key assets into the business, thereby deriving benefits in terms of employment, out-grower arrangements, land leases and profit-sharing. ACT, as a shareholder of Essential Amathole, would be obliged to distribute its share of dividends for social benefit investment for the participating communities. It therefore became feasible, with a combination of private investment, inclusive of a black economic empowerment (BEE) component, donor support and loans from development finance institutions, to establish a commercially viable enterprise. Such a unique partnership arrangement could, in a number of ways, address the flaws and capacity constraints of previous rural development initiatives.

The grant funding for the community equity in the project would be channelled via the Amathole Community Trust, thus securing the community's interest in the project. Figure 3 below is a descriptive illustration of the Essential Amathole Business Model, defining the roles and responsibilities of the various constituent elements.

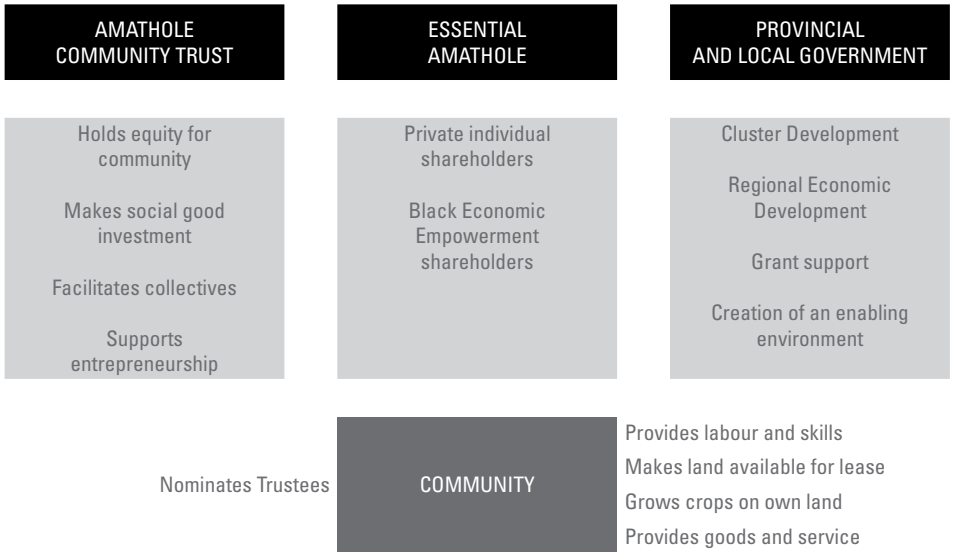


Figure 3: Essential Amathole Business Model showing the Roles of the Stakeholders (Source: EA, 2010).

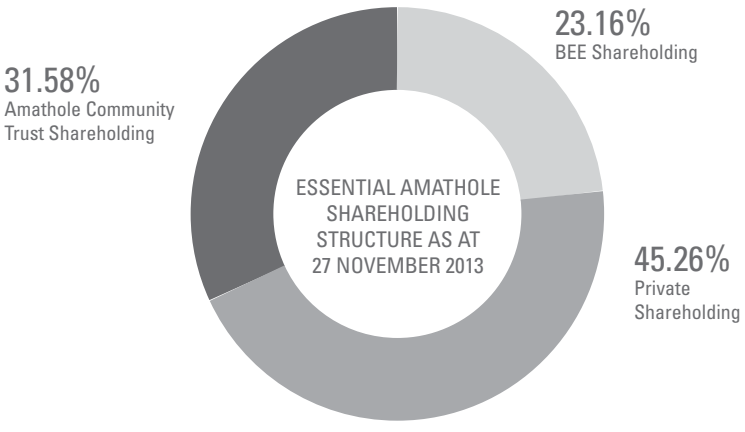


Figure 4: Pie Chart Illustration of Essential Amathole Shareholding Structure (Source: E A, 2013).

SHAREHOLDING STRUCTURE

The Essential Amathole initiative was conceptualised and established by private farmers and individuals with expertise in essential oils cultivation with a history of community activism among poor rural communities in the Eastern Cape. As such, the Essential Amathole enterprise concept was informed by an ethos of economic empowerment, with its partnership and ownership model an organisational expression of the underpinning philosophy of partnership equity. Flowing from this, the shareholding structure of Essential Amathole was designed as illustrated in Table 5 below, while Figure 4 alongside is a pie chart illustrating the shareholding structure.

ESSENTIAL AMATHOLE SHAREHOLDING STRUCTURE		
SHAREHOLDER	NUMBER OF SHARES	PERCENTAGE
BEE Shareholding	220	23.16
Private Shareholding	430	45.26
Amathole Community Trust Shareholding	300	31.58
Total Number of Shares	950	100

Table 5: Essential Amathole Shareholding Structure (Source: Essential Amathole, 2013).

BEE stakeholders own 23.16% of the enterprise while the ACT, representing the rural communities, owns 31.58%. The Board of Trustees of ACT has been operating since the beginning of 2007, developing policies and procedures for effective community participation and to ensure effective community beneficiation that would ensure active participation in the enterprise value chain, as an entry point into the mainstream of the economy. This business partnership model seeks to address the flaws and capacity limitations of previous rural development initiatives in the province, which often resulted in developers paying rentals and wages which were well below market value, with communities having no stake in or influence over the enterprise.

In the Essential Amathole initiative, community participation was designed to take place in three main forms:

DIRECT PARTICIPATION - COMMUNITY MEMBERS EMPLOYED IN OPERATIONS:

Communities in the areas where Essential Amathole had sites under cultivation or was planning to establish sites were requested to nominate members to be considered for employment. Essential Amathole ensured that the necessary skills development training was undertaken.

INDIRECT PARTICIPATION - COMMUNITY MEMBERS INVOLVED IN THE VALUE CHAIN:

Essential Amathole promoted and supported the involvement of local community cooperatives at the various sites. This includes the lease of land portions for which Essential Amathole pays rental and the promotion of out-growing, where Essential Amathole would provide technical support for the cultivation of crops and then purchase the crops for distillation. Essential Amathole further encouraged the establishment of small cooperatives to provide the goods and services necessary for the essential oils production process.

PARTICIPATION OF COMMUNITIES AS BENEFICIARIES:

Community members who were neither employed by Essential Amathole nor involved in the value chain could benefit through the Amathole Community Trust. Profits earned by the Trust would be reinvested into social good infrastructure or initiatives, as illustrated in Figures 2 & 3. The Trust would also play a role in supporting collective initiatives and small enterprise development unrelated to the core activities of Essential Amathole.

OPERATIONS, MATERIALS AND METHODS

While it was envisaged that this initiative would diversify into the manufacturing of essential oils-based products, the immediate strategic objective was the commencement of the crop production expansion phase of the essential oil plant species selected. This was achieved using economies-of-scale under a rigorous, total quality control management regimen to ensure a consistently high-quality standard and minimum contamination of the harvest by alien plant species and weeds.

Six original sites with varying agricultural conditions and climatic patterns were identified in rural communities in the Amathole District to conduct cultivation trials of selected essential oil-producing plant species. This section describes the cultivation trials phase as well as the subsequent post-cultivation expansion phase conducted by Essential Amathole in partnership with the target rural communities.

The operations discussed in this case study were structured into four main phases, as discussed below:

PHASE 1:
FEASIBILITY STUDY TRIALS:

The main activities in this phase were the cultivation of trials on the six pilot sites, the consolidation of the organisational structure and business processes and the development of a detailed business plan. The phase also included the establishment of an office in Hogsback as a nerve centre for the enterprise administration and operations. Consultations and negotiations with the target rural communities willing to participate in the project were initiated. The purchasing of materials, equipment and infrastructure requirements as well as the recruitment of the workforce, individuals with the relevant business and farming expertise, were also conducted in this phase. The soil preparation of the agricultural land portions allocated for the cultivation trials was conducted followed by the actual cultivation trials, which took place over a one-year period. A critical factor in determining location of the trial sites was the willingness of communities to make land available and participate in the trial process. Nine different crops were tested at six different sites.
The trials included:

- Analysis of soil conditions and quality to inform suitability for the different crops;
- Analysis of water quality;
- Monitoring of the growth and yield of the different crops at the different sites;
- Monitoring of inputs per site and crop;
- Monitoring of the yield, quality and constituent elements of distilled oils, factoring in planting and harvesting time; and,
- Monitoring of social relations at the different sites in order to make an assessment on the sustainability of the intervention.

A combination of private investment, donor support and loans from state development finance institutions was solicited. A Board of Directors was established reflecting the requisite skills and expertise for the enterprise.

The cultivation trials were conducted using the following essential oil producing plant species. The crops listed below were primarily selected on the basis of their high demand and competitive pricing structure, mainly in international markets.

- Rose geranium;
- Peppermint;
- Lemon balm;
- Rosemary;
- Damask rose

Over and above the essential oil plant species listed above, the enterprise harvested wild essential oil producing plants growing in the natural environment and extracted substantial essential oil yields of high quality.

The six land sites selected for the cultivation trials were Auckland, Boldpoint, Cathcartvale, Fort Cox, Mazotshweni and Phandulwazi, all located in the Nkonkobe Area of the Amathole District Municipality (See schematic illustration Figure 1).

PHASE 2:
PILOT SCALE-UP:

Subsequent to Phase 1, the crop cultivation operations were expanded on selected sites that were found to be suitable during the trial cultivation phase using essential plant species that were also selected from the cultivation trial phase. The Scale-up Phase took place over a period of one year with a focus on the production operations assessment and consolidation of the enterprise activities, in preparation for a scale up to full commercial crop production. The agricultural land for the Scale-up Phase was increased from 27.4 hectares to 57.2 hectares. A still for the extraction of essential oils was located at Phandulwazi, which was located centrally in relation to the other five sites.

PHASE 3:
FULL COMMERCIAL PRODUCTION:

The Full Commercial Production Phase was planned to commence at the end of the Scale-Up Phase with the target land under cultivation being scaled-up incrementally until 260 hectares were reached at which point it was projected that the essential oil production operation would be financially sustainable and declaring a profit. However, due to a lack of adequate financial support, Phase 3 could not be implemented.

PHASE 4:
VALUE ADDITION:

The Valued Addition Phase was planned to commence parallel to the Full Commercial Production Phase with a specific focus on the beneficiation once the enterprise had achieved the financial sustainability status, which would be Year 7 from the cultivation trials in Year 1. Nevertheless, Essential Amathole manufactured a range of value-added products in small quantities using the essential oils extracted from the harvests obtained in Phase 2 that generated much interest locally and at an international expo that took place in the Netherlands in December 2014.

4. ACHIEVEMENTS, CHALLENGES AND LESSONS

OVERVIEW

It was envisaged that Essential Amathole would be a self-sustaining, profitable enterprise by 2015, having scaled up to full-scale commercial production of organic essential oils. The scale-up process was designed in two main phases, the first of which commenced in 2009 and marked the start of limited commercial production. The second phase, which commenced in 2010, was the full-scale rollout phase with the aim of bringing 260 hectares under cultivation by 2015, by which time infrastructure development would be completed and distillation units would be operational in order to handle the bio-mass produced at all sites.

The focus of the first phase, which would last between one and two years, was on the phasing-in of 27.4 hectares, and would lay the foundation for full-scale commercial expansion. The development of necessary infrastructure for the successful operation of the project, including plant nursery, composting units, irrigation and distillation capacity upgrading and installation, would be completed as per the scale-up plan, and skills-development training for workers and equipment operators was prioritised.

The final phase of the project (2015) would focus on the consolidation and beneficiation processes. By this stage, production would have been fine-tuned to optimise outputs and reduce overall production costs per unit, with the ultimate objective to have all outstanding loans paid off and the enterprise as a sustainable independent international supplier of high-quality organic oils.

Financial planning was projected over a 10-year period, from 2009/10 to 2018/19. The land-use plan (2009/15) was developed with systematic technical input from essential oils production experts. The multi-year planning is reflected in Table 5 below:

Crop (ha planted)	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Lemon balm	0	0	10	10	10	10
Peppermint	6	6	20	20	20	20
Roman chamomile	0	0	10	30	30	30
Rosa damascene	0.9	1.2	12.5	34	36	40
Rose geranium	20.5	49.5	60.5	80	100	100
Rosemary	0	0	20	20	20	20
Tea tree	0	0	0	40	40	40
Total	27.4	56.7	133.0	234.0	256.0	260.0

Table 5: Tentative Multi-Year Essential Oils Crop Production Plan. (Source: Essential Amathole, 2009)

STAKEHOLDER PARTNERSHIPS

Essential Amathole developed partnerships and/or working relationships with several organisations, which provided technical support and expert advice to the business enterprise as outlined below:

ASPIRE, the economic development agency of the Amathole District Municipality (ADM), which provided planning and business development support;

Earthoil SA, which provided technical assistance in relation to crop information, advice on distillation and agricultural practice and assistance with preparations for the commercial phase of operations, establishing markets for oils and facilitating relationships with market players in the development of the local industry;

University of Fort Hare (UFH), which conducted scientific and analytic tests on oils produced, assisted with the sourcing of plant materials and provided access to the academic and research capacity of the institution;

Dohne Agricultural Research Development Institute (the research arm of the Eastern Cape Department of Agriculture and Rural Development), which provided free technical advice and testing services in respect of technical issues such as water quality, fertility, soils and manure quality, as well as scientific advice on agricultural inputs for organic production;

Southern African Essential Oil Producers Association (SAEOPA) provided Essential Amathole with support in respect of the provision of technical, agricultural and market information;

Department of Economic Development, Environment & Tourism (DEDEAT) provided the grant funding for the operations in the start-up phase of the initiative.

ESTABLISHMENT OF AMATHOLE COMMUNITY TRUST (ACT)

The Amathole Community Trust (ACT) was formally registered with the Master of the High Court in 2008 with the primary responsibility of representing the interests of participating communities on the Board of Directors of Essential Amathole. To this end, the Board of Trustees was composed of independent individuals who were recruited in consultation with community leaders and structures of the participating communities. The main criteria for the nomination of individuals to be approached to serve on the Board of Trustees were as follows:

- They should neither have vested financial interests in the enterprise nor any self-serving community interests;
- Some of the trustees should be drawn from participating communities;
- They should have a combination of the necessary experience and skills to serve on the Board of Trustees of an entity such as ACT;
- They should ideally be individuals who are passionate about the socio-economic transformation and improvement of poor rural community livelihoods;
- They should serve on a voluntary basis and expect no remuneration of any kind for serving on the Board of Trustees; and
- They should not be amenable to any external influences that can render them susceptible to manipulation by self-serving interests, which can coerce them to abuse their positions as Trustees of ACT.

Although the Trust was successfully established, it immediately encountered challenges as a result of a lack of funds and a resource base to satisfactorily discharge its functions.

ENTERPRISE DEVELOPMENT AND EMPLOYMENT

Five of the six sites identified for the cultivation trials, Auckland, Bold Point, Cathcartvale, Lushington and Mazotshweni, are communally owned, while the sixth site, Phandulwazi, is owned by the School Governing Body of Phandulwazi Agricultural School. All the sites leased to Essential Amathole had been previously lying fallow for a minimum of two decades; hence, intensive soil preparation on the land portions had to be undertaken and the irrigation infrastructure installed before the commencement of the cultivation trials.

During the planning of the trial cultivation phase, it was determined that the number of general agricultural workers would need to be increased for the expansion phase, when Essential Amathole would be upscaling operations as per the developed land-use plan. The international norm for the number of workers required for organic cultivation is one worker per hectare; hence, during the feasibility study a total number of 11 community members were employed as agricultural workers, including eight staff members in supervisory positions who required specialised expertise, as shown in Table 6 below.

ESSENTIAL AMATHOLE STAFF COMPLEMENT

Post	Number	Type of Appointment	Responsibilities
Chief Financial Officer	1	Financial Director	Financial accountability
Chief Executive Officer	1	Managing Director	Operations oversight
Project/Farm Manager	1	Full-time Salaried	General operations
Financial Administrator	1	Part-time Hourly Rate	Bookkeeping and accounts
Office Administrator	1	Full-time Salaried	General office administration
Foreman	1	Full-time Salaried	Worker supervision on site
Nursery Manager	1	Hourly Rate Contract	Propagation/nursery management
Stills Manager	1	Hourly Rate Contract	Distillation/stills maintenance
General Agricultural Workers	11	Hourly Rate Contract	Planting, crop care, weeds removal and harvesting

Table 6: Essential Amathole Staff Complement in the Trial Cultivation Phase. (Source: EA, 2007)

Phase 1: Cultivation trials commenced in 2007 and ran until the end of the 2008/9 financial year. The main activities during this phase were conducting trials on the different pilot sites, the consolidation of organisational structures and procedures and detailed business planning. Plant capacity was limited but appropriate to the hectares under cultivation and the expected oil yields.

The nursery and propagation unit based at the operations centre in Hogsback had the capacity to propagate adequate plant material. Essential Amathole also negotiated an agreement with the University of Fort Hare (UFH) to establish a partnership with the workers' cooperative responsible for the commercialisation of the university-owned nursery, as it had extensive capacity that could supply the necessary plant materials and some technical assistance in line with the scale-up plan.

All six sites under cultivation had access to water and, where required, irrigation systems were installed. A portable still was used for all distillation and as per the stills development plan, a new wood-fired still was installed at the Phandulwazi site to distil biomass from that site, as well as from Mazotshweni and Auckland. Adequate general farming equipment was available for the number of hectares under production.

CROP SELECTION AND LAND-USE PLAN

Essential Amathole developed a specific land-use plan which forms the basis of all its planning. A diverse range of cultivated crops has been selected based on the varying climatic and soil conditions of the different locations. The seven essential oil plant species that were finally selected for the expansion phase produced superior quality yields of essential oils that were highly competitive in comparison with the top essential oil-producing countries worldwide. While rose geranium oil constituted the single largest focus, the other oils would also be produced. Table 7 below indicates the total, in terms of hectares to be put under cultivation, for the different oils to be produced in the post-cultivation trial phase.

Crop	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
Lemon balm	0	0	10	10	10	10
Rose geranium	20.5	49.5	60.5	80	100	100
Rosemary	0	0	20	20	20	20
Peppermint	6	6	20	20	20	20
Roman chamomile	0	0	10	30	30	30
Rosa damascene	0.9	1.2	12.5	34	36	40
Tea tree	0	0	0	40	40	40
Total	27.4	56.7	133.0	234.0	256.0	260.0

Table 7: Seven Essential Oil Plant Crops Selected from the Cultivation Trial Study for Future Production. (Source: EA, 2008)

The target number of hectares to be cultivated in the expansion phase was 27.4 hectares in Year 1 of production, with a target of 260 hectares in Year 5. The threshold of the land size necessary to achieve the critical mass for the production of essential oils for international markets was determined to be 125 hectares. Oils produced by Essential Amathole during the trial phase were analysed by a number of different centres including Earthoils, the locally based international distributor of South African-produced essential oils. The analysis results indicated that the oils produced by Essential Amathole were of an internationally acceptable standard. Results for the two main cultivated crops (rose geranium and peppermint), summarised in Tables 8 and 9 below, indicate the typical range of the levels of the different constituent compounds of the distilled oils using gas chromatography.

Rose geranium: Typical Range								
0.12-0.15	1-5	2-7	22-26	15-20	8-20	3-10	4-8	-
Oil yield	linalool	Iso-menthone	Citronellol	Geraniol	Citronellyi	Geranyl formate	Guaiadiene (6,9)	Citronellol Geraniol
%	%	%	%	%	%	%	%	%
Essential Amathole Results from different trail sites								
0.09	1.83	1.52	29.74	12.02	23.26	9.81	7.18	2.47
0.05	2.07	2.47	28.11	12.62	22.51	11.66	6.26	2.23
0.14	1.95	2.77	27.67	12.74	20.87	10.63	6.34	2.17
	4.91	3.56	22.79	12.55	14.47	6.30	6.48	1.82
	4.06	3.09	20.96	14.27	14.73	6.83	7.15	1.47
	5.25	4.23	20.03	15.85	14.16	7.76	6.81	1.26

Table 8: Comparative Analysis Results of EA Rose geranium Extracts with Percentage Composition of Constituent Compounds vs an International Standard Range for Rose geranium. (Source: EA, 2008)

Peppermint: Typical Range							
0.2-0.3	5 - 10	3-15	?	?	?	45-55	5-15
Oil yield	1,8-cineole	menthone	menthone-iso	menthofuran	menthol-neo	menthol	menthyl acetate
%	%	%	%	%	%	%	%
Essential Amathole Results from different trail sites							
0.21	5.25	0.26	13.57	13.57	13.57	48.27	23.50
0.19	4.83	1.91	19.30	19.30	19.30	46.76	18.67
0.22	6.18	0.31	17.20	17.20	17.20	47.16	19.53

Table 9: Comparative Analysis Results of EA Peppermint Extracts with Percentage Composition of Constituent Compounds vs an International Standard Range for Peppermint. (Source: EA, 2008)

The chemical analysis confirmed that oil yields of 0.2% are reasonable. However, there is a high probability of increasing the yield to 0.3%. Furthermore, at 46-48%, the amount of menthol obtained was above the average yield and thus exceeds the values obtained from the same cultivars of essential oil plants cultivated in India, which struggle to achieve yields above 30%. Lavender and German chamomile were tested during the pilot phase and both were omitted from the scale-up plan as neither plant species grew well at any of the trial sites. Table 10 below illustrates the results of the cultivation trials obtained at the selected sites.

SUMMARY OF TRIAL SITES/CROPS AND MAIN DECISIONS BASED ON OUTCOMES						
	Crops		Irrigation		Hectares	
Site	Trial	Plan	Trial	Plan	Trial	Plan
Auckland	Lavender Rose damascena Rose geranium	Rose damascena	Drip	None: Dry-land farming	0.2	10
Boldpoint	German chamomile Roman chamomile Rose damascena	Rose damascena	Drip	None: Dry-land farming	0.4	20
Cathcartvale	Lemon balm Roman chamomile Rose geranium Lavender	Rose geranium	Drip	Drip	0.2	25
Lushington	Lemon balm Roman chamomile Rose damascena	Rose damascena	Drip	Drip	0.4	30
Phandulwazi	Lavender Lemon balm Peppermint	Peppermint Rose geranium	Sprinklers	Drip	6	40

Table 10: Trials Results at the Selected Sites and Future Hectares Planned in Scale-up Phase. (Source: EA, 2008)

SUITABILITY OF CLIMATE AND SOILS FOR PLANNED CROPS

Various analytical tests were conducted on soils, water, oil yields of the tested crops and the quality of the different oils from the various sites.

SUITABILITY OF CLIMATE AND SOILS		
Crop	**Requirements**	**Considerations**
Damask rose (Rosa damascena)	Requires heat, water and high fertility soil. Can be grown on a wide range of soils, with a soil pH of 6-6.5. Requires adequate water throughout the vegetative and flowering periods. Flowers cannot be wet during harvest time. Gross feeders and enjoy high fertility conditions. Fertilisers with good amounts of organic material balanced in minerals and nutrients are needed.	The sites selected for the cultivation of rose damascena have ideal climatic and soil conditions. The success of this high value crop will position Essential Amathole well for full-commercial production. The experience in cultivating this crop successfully will open space for other Eastern Cape producers.
Lemon balm (Melissa officinalls)	Vigorous perennial. Sensitive to frost requiring a warm climate and considerable amounts of water. Suitable for cultivation in high rain fall areas.	Lemon balm has proved to grow very successfully in the Hogsback area. The trials have indicated that while the crop dies back in winter, it recovers well. There is a limited market for this oil and annual oils yields are relatively low. The planned 10 ha is feasible.
Peppermint (Mentha piperita)	Suitable for the slightly heavier soils and cooler climates. Yields are high in areas with hot days and cool nights. Require irrigation, good feeding and limiting of weed competition. Is subject to disease (with particular reference to rust fungus). Specific harvesting window (usually early January but requires pre-harvesting testing).	The trials indicated that the site selected for the cultivations of peppermint is ideal. The crop prolific and has allowed for thinning for further propagation. The soils are water-logged to a certain extent which has proved suitable for peppermint.
Roman chamomile (Chamaemelum nobile)	Perennial species which grows well in dry, sandy soil and gives the best yield of blooms. In moist, loam soils with higher clay % and a soil pH of 6.5 - 8.0. Higher yields are obtained with early planting and high density of plants.	The selected site is located at a high altitude, with warm and wet summers. The crop did well under these conditions in the trials.
Rose geranium (Pelargonium)	Indigenous to the area. Requires slightly heavier soils (as found in this region of the Eastern Cape). Sensitive to disease and should be replanted every 3rd year. Soils should not be too wet.	As this is the anchor crop in the land-use plan (100 of the 260 planned hectares) sites have been carefully selected and spread across the different participating communities. **Cultivation of rose geranium does not require irrigation.**
Rosemary (Rosmarinus offivinalis)	Very hardy, evergreen shrubby herb. Various varieties with different market values for oils. Propagation from cuttings is very easily done.	The Tuscany Blue variety has been selected due to market demand and the success of the crop in the trials. The selected site has the necessary climatic and soil conditions.
Tea tree (Melaleuca alternigoli)	Requires ample supplies of heat and moisture. Plants approach dormancy when the soil temperature is below 17°C. Susceptible to frost damage (particularly the younger trees). Need for irrigation is determined by both the local rainfall and groundwater suppliers - best suited to high rainfall districts (>1000mm pa). Prefer medium-textured soils.	While tea tree was not piloted in the trials, the literature and experience of other tea tree producers indicated that the climatic and soil conditions at the Fort Cox site are idea for the cultivation of tea tree.

Table 11: Results on Suitability of Climatic Conditions and Soils for Selected Crops. (Source: EA, 2008)

Except for German chamomile and lavender, the cultivation trials of all the essential oil-producing plant species tested proved to be a success in terms of the percentage yields as well as the quality of the essential oils extracted, as reported above.

AGRICULTURAL ENTERPRISE DEVELOPMENT AND EMPLOYMENT OPPORTUNITIES

Throughout the cultivation trials, the rural communities selected for the study were kept abreast of developments. Workers recruited from local communities were trained in the selection process of suitable essential oil crop for the type of climatic conditions prevailing in their areas. They were also taken through an intensive training programme of planting the crops and nurturing them over the entire growing season until the crops were ready for harvesting. Communities were consistently encouraged to develop into out-growers as soon as they had received adequate skills development and training. The ratio of the number of agricultural workers employed to the number of plants cultivated per hectare was meticulously determined, in practice with the results obtained. This compared well with the recommended international ratios, as stated by experts.

The results obtained in this case study illustrated that the production of essential oils crops using economies-of-scale could provide full-time employment to a considerable number of unemployed members of the communities. This can be attributed largely to the fact that the cultivation of essential oil crops is relatively labour intensive while remaining profitable due to the high international demand for high-quality essential oils.

Currently, the local essential oils industry is miniscule compared to major producers around the world. However, while essential oils crop production in the developed countries of the Northern Hemisphere are showing a decline, there has been a concomitant increase in production in the underdeveloped countries in the Southern Hemisphere. This coupled with the fact that the global essential oil market, worth around US $45 billion worldwide, is projected to grow at 10% year-on-year, bodes well for the growth of the South African essential oils industry.

All the major essential oil producers around the world, notably Brazil, China, Egypt, India, Mexico, Guatemala, Morocco and Indonesia (Department of Agriculture, Forestry & Fisheries, 2011), are developing countries with low-cost, low-technology economies that are estimated to contribute 65%, collectively, to world production of essential oils.

However, one of the most common challenges encountered during the cultivation trials was a poor work ethic and ill-discipline among the workforce, resulting in an absenteeism rate averaging 60% for the entire period. Interestingly, the median age of workers engaged by Essential Amathole was <30 years, which implies that the workforce was mainly composed of youthful individuals. Although the underlying causes of the ill-discipline and poor work ethic among the workforce would require further investigation, labour-intensive agricultural activities have been shown to have no appeal for younger generations in South Africa, who overwhelmingly prefer employment in the urban industrial environment.

LAND ACCESSIBILITY AND USAGE

The land tenure system in the Eastern Cape is varied, with most of the land in the former homelands of Ciskei and Transkei classified as communal land which is under the custodianship of the relevant traditional leadership and is held in trust by the government. Conversely, most of the land in the areas that were under the old Republic of South Africa before 1994 is classified as land with free holding rights or privately owned, with ownership of most of the agricultural land dominated by white farming communities.

The rural communities with which Essential Amathole formed strategic partnerships reside on communal land where most households are allocated agricultural land portions of approximately 2.5 hectares. Essential Amathole established that most households have not used the land productively for between 30 and 40 years. This is due to a number of complex factors, including:

- The small size of the land portions, which cannot sustain subsistence farming, let alone commercial farming;
- Lack of any type of resources to purchase agricultural inputs;
- Lack of the necessary labour to work the land;
- No fencing or irrigation infrastructure to keep livestock out;
- Petty land disputes within families revolving around land-use rights for farming activities; and
- Traditional leadership in some of the areas often proving to be uncooperative and presenting obstacles to economic intervention from outsiders.

In the rural communities successfully engaged by Essential Amathole, ward councillors and traditional leaders worked together in harmony for the benefit of the community.

CHALLENGES IN ACQUISITION OF FUNDING FOR AGRICULTURAL INPUTS

Securing seed capital for commercial agricultural initiatives in rural communities is a formidable challenge in the Eastern Cape. In most instances where funds are committed by government development funding institutions, actual transfer of these funds is often delayed, resulting in the planting season being missed with serious consequences for the successful implementation and achievement of set targets. This can be attributed to, among other factors:

- Bureaucratic government decision-making processes;
- The risky nature of commercial agriculture as an industrial sector;
- Lack of understanding by the senior management of departments and state funding institutions of how business works;
- An uncaring attitude towards rural development and poor rural communities who are the potential beneficiaries of such initiatives;
- Lack of focus by government in recognising agriculture as a critical economic sector in driving socio-economic transformation and improving rural livelihoods;
- Inadequate funding for the development and growth of commercial farming; and
- The province's intractable and obsolete land tenure system.

Sound financial positioning will be pivotal to the establishment of a sustainable essential oil-producing hub in the Eastern Cape. Thus, if such a hub is to become a profitable and firmly established player in international markets, subject to crop production at the level of economies-of-scale, it would require a commitment of consistent funding from government in the first five years of operation.

Government spending on agriculture has never exceeded 3.5% of the total government budget in the 21 years since the establishment of a democratic government. Whether this is likely to change in the future is unclear.

ESSENTIAL OILS MARKETS ADVANTAGE

According to a paper published by the Department of Agriculture, Forestry & Fisheries in 2011, the marketing structure of essential oils is not markedly different from most products. The conventional structure begins with the producer who sells to the flavour and fragrance industries. Fragrance houses, which may or may not embark on value addition to the end product, would then sell it to the end users. Occasionally the system is supplemented by traders, agents and brokers who use their knowledge to market niches, buy directly from producers and sell directly to the flavour houses or end users.

Entering the essential oil industry can be challenging as end users who have developed a product using a specific oil are often reluctant to change either the oil or the supplier of that oil for fear of compromising quality or affecting the aroma or taste of the final product. Despite these difficulties, there is an opportunity for small players such as Essential Amathole to enter the market. While South Africa cannot lay claim to a competitive advantage in the essential oils industry, a number of factors favour South Africa as an emerging force in global markets (Institute of Natural Resources, 2011). These include:

- Being located in the Southern Hemisphere - many of the world's growing regions are in the Northern Hemisphere and the impact of the seasonal patterns make Southern Hemisphere suppliers attractive;
- Having traditionally strong trade links with Europe as a major importer of flavour and fragrance materials;
- South Africa is already established as a world-class agricultural producer in a wide range of products;
- South Africa has a diversity of climatic conditions with a range of biomes, allowing for a good selection of essential oil crops that are in high demand in international markets;
- Good-quality soils;
- Access to unique natural plant species that are indigenous to South Africa, which could provide a firm cornerstone for the creation of new markets in which South Africa could dominate. Hence, such domination would need to be based on good applied science, established trade links and an excellent reputation, all of which may be established in advance; and
- The potential for a properly organised essential oils industry that is specifically geared for future success in world markets.

5. DISCUSSION AND CONCLUSION

The introductory section of this paper outlined the rationale behind the conceptualisation, establishment and development of the Essential Oils Production Hub initiative in the Amathole District, highlighting the role of agriculture in potentially confronting lingering social inequality, poverty and unemployment in the rural areas of the district (PROVIDE Project Team, 2005; Statistics SA, 2011; HSRC, 2012). The potential role of agriculture in confronting these three socio-economic factors including its current status in the Province was discussed, citing relevant literature.

The conceptual framework of the Essential Amathole case study was designed to highlight the bleak socio-economic outlook of the Eastern Cape as a precursor to the strategic intervention that would ultimately contribute towards the greater socio-economic transformation efforts and improvement of the depressed rural livelihoods in the Amathole District.

These long-term strategic goals could only be achieved through a competitive crop production programme of essential oils plant species, selected on the basis of their high demand in local and international markets, and through the manufacturing of essential oil-based value-added products to supply local and international niche markets. However, to achieve such ambitious goals, the essential oils crop production programme - in the Eastern Cape and ultimately in South Africa - would have to be produced on the basis of economies-of-scale in order to be internationally competitive. Hence, achieving effective crop production on the basis of economies-of-scale became the ultimate and overarching long-term strategic goal of the essential oils production initiative reported in this case study.

The study was also undertaken as a pilot project to address, on a long-term basis, the rapid escalation of social inequality, poverty levels and unemployment in the Eastern Cape. To this end, it was found that over a five-year period from startup, the workforce employed in the enterprise grew by 315%, from 20 in Year 1 to 83 in Year 5. This included the engagement of five co-operatives, with a combined membership of 30 people, as suppliers of agricultural inputs. This, coupled with the relatively high quality of the essential oils' extracts obtained from the trial cultivation harvests, clearly demonstrated the potential viability of an Essential Oils Production Hub in the Amathole District.

This could translate into a potentially lucrative commercial venture that would be a worthwhile investment, thanks to wide application of essential oils in various manufacturing industries (Department of Agriculture, Forestry & Fisheries, South Africa, 2010), the relatively high quality of the essential oils produced by Essential Amathole (Tables 8 and in this working paper) and the ease of packaging, storage and distribution. Furthermore, a review of the major African essential oils in context to the global industry could provide insight into opportunities, as the use of natural products such as essential oils provide high-value niche crops and plant-based products that can provide income-generating opportunities for African communities.

According to United Nations Comtrade statistics, the size of the essential oil fragrance and flavour global market was estimated at US$24 billion in 2011, growing at an annual rate of 10%. The major consumers in the multibillion-dollar global essential oils market are the United States (40%), Western Europe (30%) and Japan (7%), with trade in essential oils and related products increasing at about 10% per year. The United States is the largest importer (US$ 2,721 million) and consumer of essential oils, with consumption equalling about 40% of the total production (Govindasamy et al, 2013). Over and above the usage of essential oils in the manufacturing of consumer products, research has shown that essential oil-based medicinal and other natural health-care brands and products have experienced consistent growth since the early 1980s in the health-care category of over-the-counter (OTC) self-medication and personal care brands and products as consumers increasingly opted for herbal and natural brands over allopathic medicines (Srivastava et al, 1996; Cragg & Newman, 2001; George & Van Staden, 2000; George et al, 2001; Buenz et al, 2004; Mulholland & Drewes, 2004; Fennell et al, 2004a; 2004b; Light et al, 2005).

While this further strengthens the case for Essential Amathole entering the essential oils industry, the uncoordinated and disparate nature of the South African essential oils industry, which is highly fragmented, remains a formidable challenge. According to the South African Essential Oil Producers Association (SAEOPA), there are currently 33 commercial stills in operation in South Africa, most of which range from 250kg to 500kg units. Most of these stills would be regarded as sub-economic in size in the international essential oil industry (South African Essential Oil Producers Association, 2011). Although it is difficult to quantify the actual monetary value of the South African essential oils industry due to its disparate and uncoordinated nature, it was estimated to be worth R120m in 2011, and growing at approximately 10% year-on-year (Department of Agriculture, Forestry & Fisheries, 2011).

The international essential oils industry is one of the most profitable sectors in agriculture. However, the South African essential oils industry is still at an early stage of development, which makes it non-competitive against the major role players in the industry. Due to its labour-intensive nature, the industry has great potential to effectively contribute towards the mitigation of social inequality, poverty and unemployment in the Amathole District and other rural districts of the Eastern Cape. However, a firm commitment from the government is a prerequisite for the growth and development of the essential oils production initiative reported in this study.

6. POSTSCRIPT

ESSENTIAL OIL PRODUCTION ENTERPRISE IN SURVIVAL MAINTENANCE MODE

The Postscript report covers the period: 1 March 2014 to 28 February 2015, which is Phase 3 of Essential Amathole's operations.

The Essential Amathole finalised the establishment of a central farming operation hub in three sites, viz. Phandulwazi, Fort Cox and Hogsback using an enterprise model that would enable production scaling up. The model was designed to accommodate community-based out-growers and commercial farmers to achieve a social enterprise based on economies-of-scale. Once long-term funding and strategic investment was secured, the social enterprise would subsequently migrate into commercial production in partnership with community-based cooperatives, community out-growers, commercial farmers and government entities in alignment with an updated business plan.

A temporary part-time project administration and finance function were put in place to institute and maintain hibernation status as a result of the delay in the funding of the operations reported in the case study report.

The delay in the funding tranches exacerbated the cash flow crisis that was experienced by the project from March 2013 to-date. The Essential Amathole project management alerted the Employment Creation Fund (ECF) about the predicament with an appeal for immediate additional funding to offset the massive, unanticipated, cost increases. The massive cost increases were beyond the control of the project management and its strategic partners. The costs included a 53% escalation in the mandatory minimum wage increase that had to be implemented on the 1st March 2013 as well as subsequent wage increases year-on-year, henceforth. Also included in the cost increase were the unpredictable fuel price increases, a 40% escalation in the cost of land preparation as a result of the marginal nature of the land allocated to the Essential Amathole project by its partners. The inability of Fort Cox College to install in-field irrigation infrastructure in the leased land and the delayed refurbishment of the nursery, which was part of the lease agreement granted to Essential Amathole added further cost.

Essential Amathole Project Management was compelled to reduce set targets for land preparation cultivation, propagation, distillation sales, staff employment and training. The activities listed below were implemented to maintain the Essential Amathole crop production operations on a bare minimum existence mode until such time that the financial resources were made available:

- The 25 ha of essential oil crops planted were minimally maintained by a temporary skeleton team with no inputs;
- Plants from the nurseries were propagated and the nurseries at Fort Cox and Fort Hare were closed;
- Project management continued lobbying the funding institutions for long-term support;
- Spending on overheads was cut back;
- Project management retrenched all staff with serious implications for the job creation targets;
- Management followed up on funding applications, informed partners of the developments while also requesting the Department of Economic Development, Environmental Affairs & Tourism (DEDEAT) to provide immediate short-term funding to maintain the existing operations;
- Essential oils extracted from crops were marketed and sold to pay debtors;
- Management engaged substantially with the Council for Scientific & Industrial Research (CSIR) to conduct due diligence that was intended to examine the fledgling enterprise for long-term sustainability and develop a funding model that would be acceptable to the Department of Rural Development & Land Reform (DRDLR), one of the strategic partners that had committed the largest portion of the funds to the enterprise;
- The Industrial Development Corporation (IDC) conducted a visit in December 2014 with the aim of acquiring data and information on the enterprise to test for the sustainability of the operations in the long-term. This was in response to Essential Amathole's application for grant funding from its spatial intervention programme to fund the migration of the crop production from being a social enterprise to become a fully-fledged commercial operation;
- The activities of the trustees of the Amathole Community Trust (ACT) proceeded, strongly supported by the Essential Amathole management. Such activities entailed communicating the purpose and progress of the enterprise operations to the constituencies of Essential Amathole in the villages that are in the sphere of the enterprise operations. The cooperatives and SMME's establishment continued, which involved the encouragement of the supply of goods and services to the enterprise. Organised groups were invited to participate in sessions that were held in the target rural communities to acquire an understanding of the beneficiation opportunities that would add value to the essential oils cultivated including other enterprise opportunities associated with essential oils and their value-added products with potential markets in the tourism and hospitality industries;
- The ACT's 18A status from the South African Revenue Service (SARS) presented a basis for the application of funds for the crop production operations. The ACT business plan and proposed budget for a 2-year period was submitted to the Old Mutual Foundation for funding consideration. The Trust also submitted a funding proposal to the Motsepe Foundation.

ESSENTIAL OIL PRODUCTION ENTERPRISE LONG-TERM IMPACT AND SUSTAINABILITY

The Essential Oils Enterprise was successfully established. With adequate funding, the enterprise was ready for the expansion phase in March 2013 and could migrate from a social enterprise status to become a fully-fledged commercial operation in partnership with community-based cooperatives, community out-growers, commercial farmers and government rural economic development entities as outlined above. The implementation of the business model designed for the strategic partnerships discussed in the Case Study report demonstrated how to set up an essential oils economic cluster through dedicated support from the central essential oils farming hub. The model can be replicated at both the district and provincial levels as a means to establish an essential oils industry capable of competing at the international level subject to the provision of essential resources by various government and private agencies.

Essential oils production could provide experiential training to interested learners and students from Phandulwazi Agricultural High School, Fort Cox College of Agriculture & Forestry and the University of Fort Hare's Faculty of Agriculture. Experiential training in the cultivation of essential oil crops and extraction of oils would develop skills among young people, thus creating a unique competitive advantage through human capital development and essential oils value chain optimisation.

The expansion of the crop production operations enterprise and its migration from a social enterprise status to a fully-fledged commercial operation is done on the basis of strategic partnerships. These partnerships include communities, government agencies and departments, private sector entities and institutions of higher learning as well as other relevant stakeholders, such as the Association of Essential Oils Enterprises at the national level. A shared vision to create and develop a vibrant essential oils industry is feasible and sustainable.

The enterprise expansion would have a significant impact on the local economy in the Amathole District and beyond through a multiplier effect. Such an expansion would attract stakeholder engagement and investment as the sector gradually becomes independent and self-sustaining. The critical requirement for success would be for the farming operation to expand over a 60-month period with 300ha under cultivation, more especially in the Tyhume and Keiskamma River Valleys. The implementation of the Hub and Spoke Economic Development Cluster Model would demonstrate the requirements of commercial agriculture, the significance of economies-of-scale and the value of clustering through the strategic use of scarce technology, skills and limited resources to build the essential oils value chain thereby creating direct sustainable employment in the rural communities based on agriculture.

It would be possible to link essential oils crop production and value addition to the tourism and hospitality industries once the essential oils cluster development achieves a critical mass and a steady state. The achievement of such a status would present mass employment and entrepreneurship opportunities in the poor rural communities who are the primary beneficiaries of the agricultural enterprise development.

LESSONS LEARNT AND RECOMMENDATIONS

Available land allocated and leased for the project was found to be prohibitively expensive to develop and rehabilitate so as to attain competitive commercial farming land standards for the cultivation and production of high quality crops, which was a prerequisite for obtaining profitable harvest yields. The cost of developing a hectare of land in the first year of establishment was R20, 000 more than the original project budget estimate based on experience and meticulous recording of costs incurred. Based on the projected target of 80 ha under cultivation, the additional funding required was determined to be R1,600,000. This cost constraint still remains valid and therefore, requires rural development stakeholders to approach development funding in a careful manner such that it can be taken into consideration in future projects of this nature.

The new minimum wage in agriculture increased by an extraordinary 52% from March 2013, which was not factored into the original budget. The enterprise complied with the new wage requirement without retrenching staff, but the wage hike severely compromised the cash flow management going into the future. Over and above the minimum wage increase in 2013, there was a mandatory 6.5% inflation increase on 1 March 2014, which was also not included in the original budget projections.

The inability of Fort Cox to install irrigation infrastructure and refurbish the nursery due to budgetary constraints had serious ramifications for the enterprise as the requisite budget was estimated at R2, 730, 000. It is recommended that government development funding institutions could consider making an intervention where infrastructure is concerned since the private sector is justifiably reluctant to finance infrastructure costs for obvious reasons.

Organic certification was found to be quite costly as it costs approximately R30, 000 per annum for the smallest productive farm. The organic farming inputs were also found to be prohibitively expensive and difficult to find. Organic farming requires complex management systems and has high labour costs. All the costs involved in organic farming placed a tremendous amount of pressure that made it extremely difficult to achieve financial sustainability, while on the other hand, the reputed 30% price premium on sales of certified oils is not guaranteed. Organic farming would therefore, be more appropriate in a commercial farming operation that is already well established and highly profitable as well as crop production on economies-of-scale with direct access to the giant trans-national manufacturers of essential oils-based value-added products such as Beiersdorf, L'Oreal and Unilever.

Under the circumstances, it is recommended that for any new project, organic farming should be a long-term goal, with the initial operations adopting the biological farming system with the ultimate objective of converting into organic farming practices where such is economically viable and practical. Furthermore, a government funded South African organic certification authority that will be internationally recognised should be established as a matter of priority to inspect and certify organic farming operations. Given the fact that organic farming is so labour-intensive, government should provide additional funding to projects that are keen to adopt organic farming methods.

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